ARKEMA INNOVATIVE MATERIALS FOR A SUSTAINABLE WORLD

UNIVERSAL REGISTRATION DOCUMENT 2021

including the annual financial report

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The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

ARKEMA

INNOVATIVE **MATERIALS** FOR A SUSTAINABLE WORLD

AUTORITÉ DES MARCHÉS FINANCIERS AMF

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MESSAGE
FROM THIERRY LE HÉNAFF CHAIRMAN AND CHIEF EXECUTIVE OFFICER

Ladies and Gentlemen,

In 2021, Arkema was able to adapt to a disrupted and volatile operating context to achieve an excellent financial performance and continue its transformation toward specialties

After a year marked by the Covid-19 pandemic and a large-scale global economic crisis in 2020, most of the Group's end markets enjoyed a sharp rebound in demand in 2021. I would particularly like to thank all our employees, who through their commitment, their responsiveness and their many initiatives, enabled Arkema to achieve an excellent financial performance in an especially demanding operating context, marked by strong pressure on supply chains and very significant inflation in raw materials, energy and transportation costs. Arkema also benefited from its expertise centered around materials science, its balanced geographic footprint and its innovation dynamic to meet the acceleration in demand for high performance solutions for a more sustainable world.

Group sales in 2021 amounted to €9.5 billion, up 25.9% compared with 2020 at constant scope and currency, and EBITDA reached a historic high at €1,727 million, as did the EBITDA margin at 18.1%. Specialty Materials, which accounted for 85.5% of Group sales in 2021 and whose EBITDA increased by 47.6%, grew across all three segments. They benefited in particular from their positioning on solutions that have a high technological content and are more environmentally friendly, notably in electric mobility, consumer goods, electronics, decorative paints and 3D printing, and from favorable conditions in upstream acrylics. Intermediates also had a very good year, driven by more favorable market conditions in the context of the post-Covid rebound in acrylics in China and by the good performance of fluorogases.

Cash generation remained high, with recurring cash flow of €756 million in 2021, thanks in particular to well controlled working capital in the context of a strong business recovery and very significant inflation. Net debt thus fell substantially to €1.1 billion at the end of 2021, enabling the Group to keep, as announced, net debt at around 1.7 times EBITDA including the acquisition of Ashland's adhesives business.

On the strength of these results, reflecting its confidence in the Group's future and in line with the policy of gradually increasing the dividend, the Board of Directors has decided that, at the annual general meeting of 19 May 2022, it will recommend a dividend payment of €3.0 per share in respect of 2021, an increase of 20% compared with the previous year.

The Group continued to strengthen its Specialty Materials platform, in line with the 2024 ambition

In 2021, the Group took two more major steps forward in refocusing on Specialty Materials, finalizing the divestment of PMMA to Trinseo and announcing the acquisition of Ashland's performance adhesives business, which was finalized on 28 February 2022. Arkema also carried out four small bolt-on acquisitions: Poliplas, Edge Adhesives and Permoseal in Adhesive Solutions, as well as Agiplast in Advanced Materials.

Moreover, to support its sustainable growth, Arkema announced several capacity expansion projects, in particular in PVDF in China and France to support notably strong demand for lithium-ion batteries, in Sartomer® photocure resins in China to serve the renewable energies and electronics markets, and in the bio-circular and traditional Pebax® ranges in France.

Innovation in fields with high technological content and growth opportunities arising from sustainable megatrends continued to gather strength, and the Group now aims to generate €1.5 billion in additional sales from its five innovation platforms by 2030 compared with 2019 – *versus* €1 billion as previously announced – more than half of which will be in batteries.

Driven by a determination to play a key role in developing solutions that address the planet's major challenges and to anchor its positioning in Specialty Materials, in November 2021 Arkema unveiled its new visual identity, "Innovative materials for a sustainable world".

A strong and recognized commitment in terms of Corporate Social Responsibility (CSR)

The Group continued to actively implement its CSR roadmap in 2021, making progress on many indicators.

In terms of the climate, for example, Arkema reduced its greenhouse gas emissions by 14% compared with 2020, bringing the cumulative reduction in emissions since 2015 to 34%.

Moreover, we are delighted to have been certified Top Employer 2022 in France, China, the United States and Brazil, in recognition of our commitment to promoting the individual and collective development of the Group's men and women and to strengthening diversity and inclusion. We also continued to increase the percentage of women in senior management positions. This figure reached 24% in 2021 and we have set a target of 26% for 2024.

Furthermore, the safety of people and equipment remains at the heart of our priorities, and we were able to consolidate last year's very good performance with an injury rate per million hours worked of 1.0, placing the Group among the leading companies in its sector.

Arkema's progression in CSR indexes is outstanding recognition of its commitment and continuous progress in this area. We improved our ranking in the DJSI World index, rising to 3rd place in the "Chemicals" category compared with 6th place in 2020, and also joined in 2021 the new CAC 40® ESG index, which lists the 40 companies that have demonstrated environmental, social and governance best practices.

In 2022, the Group should benefit from many growth opportunities arising from sustainable megatrends

Without prejudging as to the evolution of the Russian military offensive in Ukraine, which is leading to increased inflation of raw materials and energy, as well as supply chain disruptions, the Group is aiming for another very solid performance in 2022, with Specialty Materials EBITDA at constant scope comparable to the record high of 2021. The level of global demand is expected to vary by region and by market, and the Group will continue to leverage its balanced geographic positioning, the intimacy it has developed with its customers and the acceleration of innovation opportunities in high performance materials.

Mid-year, we will start up the Group's two major investments, namely the new bio-based polyamide 11 plant in Singapore, and the hydrofluoric acid plant in the United States in partnership with Nutrien, based on a new, much more environmentally friendly process. The Group will also strengthen its positioning, with the integration of Ashland's performance adhesives business and the continuation of its bolt-on acquisition policy in Specialty Materials.

I know I can count on the ongoing commitment and talent of the Group's 20,200 employees worldwide to achieve our ambition of becoming a pure Specialty Materials player by 2024 and, together with the members of the Board of Directors, I am confident in our ability to create long-term value for all our stakeholders.

Thierry Le Hénaff

ARKEMA **AT A GLANCE**

Arkema is a major player in Specialty Materials whose business is structured around three coherent and complementary segments – Adhesive Solutions, Advanced Materials and Coating Solutions – as well as a competitive and well-positioned Intermediates segment. The Group has a leading industrial and commercial presence, and benefits from a balanced geographical sales split between Europe, North America and Asia.

2021 key figures

€9.5bn
Sales

20,200
Employees

A presence in
55
countries

141
Production sites

€243M
R&D expenditure

€758M
Recurring and exceptional capital expenditure

200
Patents filed relating to sustainable development

Thanks to its innovative and sustainable solutions, developed within its three business segments dedicated to Specialty Materials, Arkema contributes to addressing the major challenges arising from global megatrends such as urbanization and social change, climate change, resource scarcity and technological transformation. With leading positions in its main product lines, the Group supports its customers in their quest for sustainable performance and in their long-term development.

As a responsible manufacturer with a global footprint, Arkema is committed to achieving continuous improvement and operational excellence, driven by the collective energy of its 20,200 employees.

Since its stock market listing in May 2006, Arkema has deeply transformed its profile, strengthening its competitiveness and refocusing its business portfolio on specialty activities. The Group has thus developed unique expertise in materials science, centered around bonding and assembly solutions, substitution by lighter or bio-based materials, as well as coatings and protection.

In 2020, Arkema launched a new phase in its transformation around these competencies, with the ambition of becoming a pure Specialty Materials player by 2024.

To complete this next stage in its development, the Group plans to leverage four main drivers:

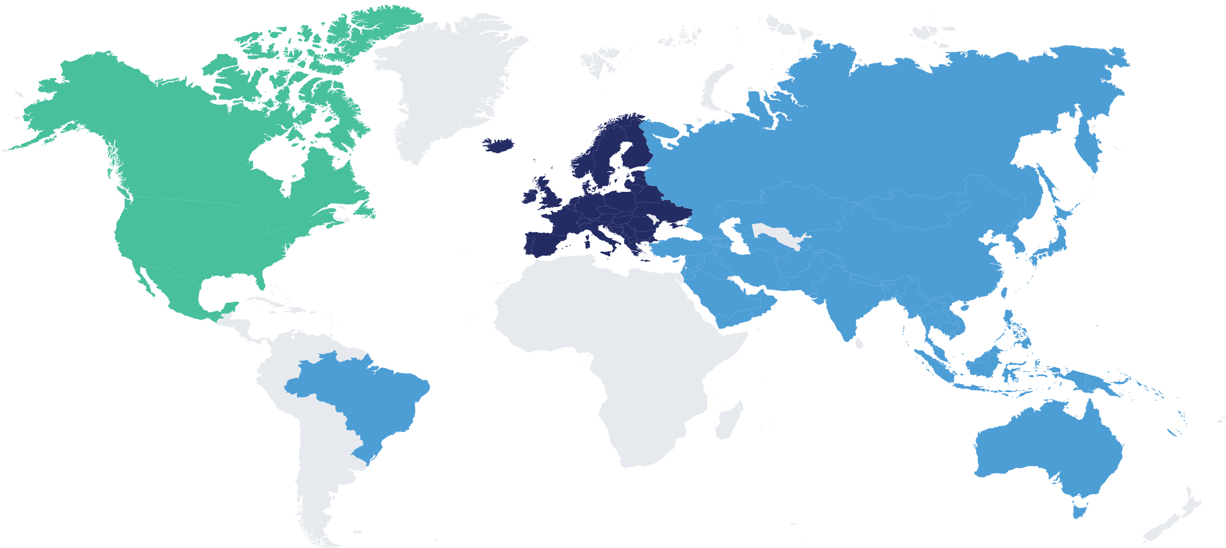
→ **Accelerate organic growth and sustainable innovation**

→ **Strengthen Specialty Materials with bolt-on acquisitions**

→ **Rank among the best-in-class chemical companies in terms of Corporate Social Responsibility**

→ **Continue operational and commercial excellence initiatives**

A global Company



NORTH AMERICA	31% OF SALES	
3,660 employees	39 prod. sites	4 R&D centers

EUROPE	36% OF SALES	
11,020 employees	60 prod. sites	7 R&D centers

ASIA AND REST OF THE WORLD	33% OF SALES	
5,520 employees	42 prod. sites	4 R&D centers

4 Segments

Adhesive Solutions

€2.3bn

As one of the world leaders in adhesives, Bostik offers high value-added solutions for construction and building renovation, as well as for many industrial applications.

Advanced Materials

€3.1bn

This wide range of highly technical products and solutions addresses the increasingly demanding requirements of our customers and supports them in their search for innovative and sustainable solutions.

Coating Solutions

€2.7bn

With a competitive upstream in acrylics, this range of high performance solutions, dedicated in particular to the industrial coatings and decorative paints markets, meets customers' growing need for increasingly environmentally friendly solutions.

Intermediates

€1.4bn

These intermediate chemicals activities, with more volatile results, include Fluorogases, Asia Acrylics, as well as PMMA until May 2021, in which the Group has strong positions and high-quality assets. On 3 May 2021, the Group finalized the divestment of its PMMA business to Trinseo.

SPECIALTY MATERIALS → 85.5% of 2021 sales

2021 data.

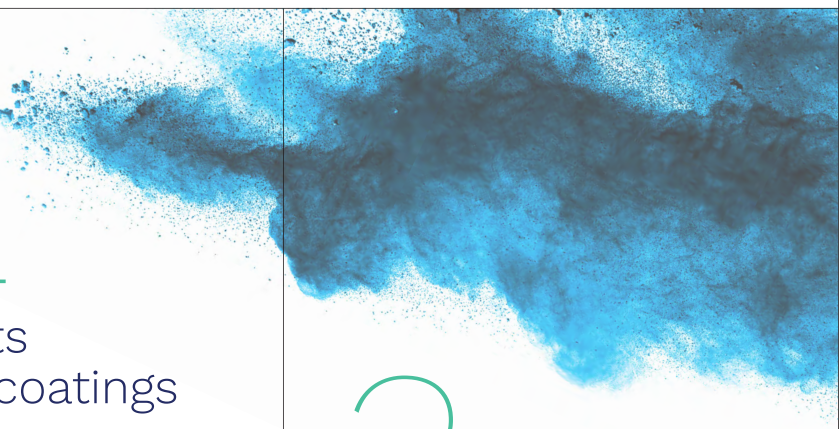
DIVERSIFIED **END-MARKETS**

Arkema offers innovative and sustainable solutions to meet the needs of its customers in diversified end-markets with attractive growth prospects.

1 General industry (28%)

- Chemical industry (additives and initiators)
- Industrial assembly and packaging (Bostik)
- Industrial equipment (Kynar® PVDF)
- Industrial refrigeration (Forane®)
- Mineral and metal extraction and processing (performance additives)
- 3D printing (Sartomer, high performance polymers)

Based on 2021 sales.

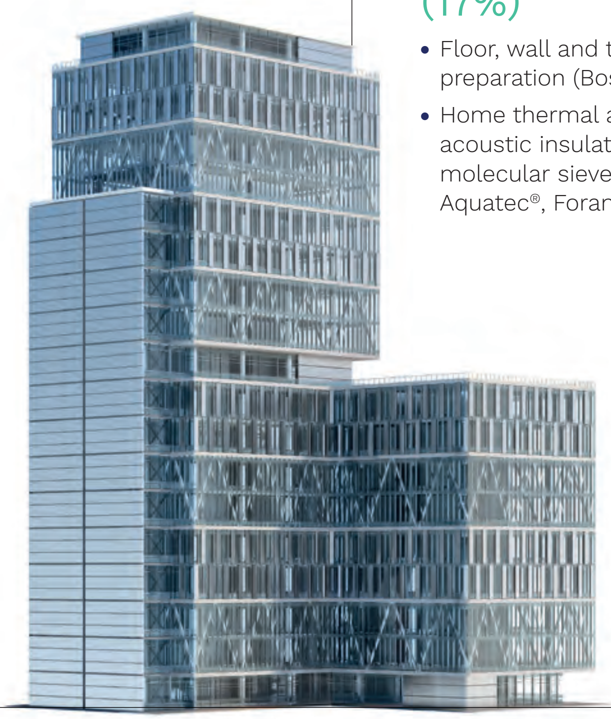


2 Paints and coatings (20%)

- Architectural and industrial coatings (resins and additives, Kynar® PVDF, specialty polyamide powders, Coatex)
- Inks, varnishes and graphic arts (Sartomer)

3 Building and construction (17%)

- Floor, wall and tile preparation (Bostik)
- Home thermal and acoustic insulation (Bostik, molecular sieves, Kynar Aquatec®, Forane®)



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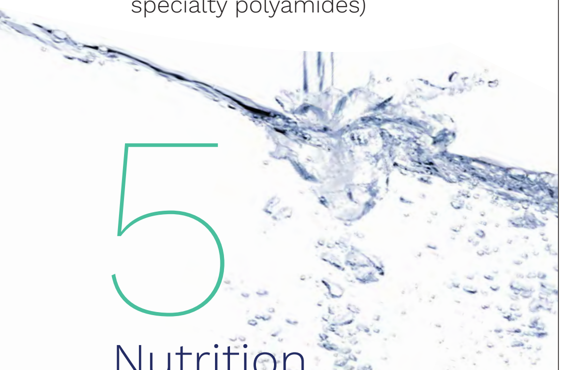
Consumer goods

(15%)

- Hygiene and disinfection (Bostik, acrylics, hydrogen peroxide)
- DIY (Bostik)
- Sporting goods (Pebax® and Rilsan® specialty polyamides)
- Air conditioning (Forane®)
- Medical equipment (high performance polymers, molecular sieves)
- Paper industry (Coatex, hydrogen peroxide)
- Food industry (Sartomer, Bostik)
- Mass-market consumer goods (Rilsan® and Pebax® specialty polyamides)



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Nutrition and water

(8%)

- Animal nutrition (methyl mercaptan)
- Crop nutrition (specialty surfactants)
- Water treatment (acrylics, Coatex, hydrogen peroxide) and filtration (Kynar® PVDF)
- Water transportation (specialty polyamide powders)

6

Electronics and energy

(7%)

- Batteries (Kynar® PVDF, Foranext® electrolytes)
- Smartphones, tablets and TVs (Sartomer, Rilsan® specialty polyamides)
- Electrical cables and wires (high performance polymers, Bostik)
- Wind turbines (Elium®)
- Oil and gas industry (sulfur derivatives, Carelflex® service, molecular sieves, specialty surfactants, high performance polymers)

7

Automotive and transportation

(5%)

- Cooling circuits and fuel lines (Rilsan® specialty polyamides)
- Car interiors (Bostik)
- Air conditioning (Forane®)
- Truck air brake systems (specialty polyamides)
- Aeronautics (high performance polymers, Bostik)

STRONG **ASSETS**

Arkema can leverage solid assets to roll out its strategy and successfully complete its numerous projects and acquisitions, enabling the Group to strengthen its position among the world leaders in Specialty Materials.

Recognized brands contributing to the Group's customer loyalty

BOSTIK RILSAN®

KYNAR® KEPSTAN®

PEBAX® N3XTDIMENSION®

Leadership positions
in ~ 90%
of total sales

ARK

Strong partnerships

formed over the long term with leading players in areas such as 3D printing, batteries, composites, water treatment or wind power.

Experienced, committed teams

who contributed to shaping Arkema into a leading industrial group, thanks to their ability:

- **to carry out complex industrial projects** such as the construction of a new world-scale plant in Singapore to produce amino 11 monomer and Rilsan® polyamide 11;
- **to ensure smooth integration** of bolt-on acquisitions, particularly in Adhesive Solutions; and
- **to adapt** to the different macro-economic environments that Arkema has faced for more than fifteen years, and to strongly improve its financial performance.

A group committed to a more sustainable world

with a Corporate Social Responsibility policy aimed at creating value for all stakeholders based on:

- an **offering of sustainable solutions** driven by cutting-edge innovation that contribute to its customers' performance;
- a commitment to act as a **responsible manufacturer**, through its actions for people's health and safety as well as for the climate and the environment; and
- an **open dialogue** with its internal and external stakeholders, in order to build a sustainable value chain and contribute to the development of the regions where the Group operates.

Strong R&D capabilities

enabling the Group to launch new innovative and sustainable solutions on the market, provide its customers with the technical support they need, and further improve the efficiency of its manufacturing processes, thanks to:

- the **expertise of more than 1,600 researchers** at 15 research centers worldwide;
- a large portfolio of **over 10,000 patents**;
- 222 new patent applications filed, 200 of which related to sustainable development; and
- **5 innovation platforms** linked to global megatrends.

A solid financial structure

giving the Group the financial flexibility needed to carry out its ambitious investment and bolt-on acquisition policy while ensuring an attractive dividend policy, thanks to:

- **an excellent cash generation** and a high EBITDA to cash conversion rate; and
- **a tightly-controlled net debt** including hybrid bonds, remaining below 2 times EBITDA.

A competitive and global presence

to support the Group's customers in their geographical expansion thanks to:

- a **strong manufacturing footprint** in Europe, North America and Asia;
- complex, **proprietary manufacturing processes**; and
- proven **expertise in large-scale investment projects** combining cost and timing optimization, and superior technical implementation.

KEY FIGURES

Key financial data

(In millions of euros unless otherwise stated)	2021	2020	2019	2018	2017
Sales	**9,519**	7,884	8,738	8,816	8,326
EBITDA	**1,727**	1,182	1,457	1,474	1,391
EBITDA margin	***18.1%***	*15.0%*	*16.7%*	*16.7%*	*16.7%*
Recurring operating income (REBIT)	**1,184**	619	926	1,026	942
REBIT margin	***12.4%***	*7.9%*	*10.6%*	*11.6%*	*11.3%*
Net income – Group share	**1,309**	332	543	707	576
Adjusted net income	**896**	391	625	725	592
Earnings per share *(euros)*	**17.15**	3.98	6.45	8.84	7.17
Adjusted earnings per share *(euros)*	**11.88**	5.11	8.20	9.51	7.82
Dividend per share *(euros)*	**3.00** (1)	2.50	2.20	2.50	2.30
Payout ratio	**25%**	49%	27%	26%	29%
Shareholders' equity	**6,350**	5,235	5,324	5,028	4,474
Net debt and hybrid bonds	**1,177**	1,910	2,331	1,706	1,756
Net debt and hybrid bonds/EBITDA	**0.7**	1.6	1.6	1.2	1.3
Capital employed	**7,957**	7,364	7,917	6,996	6,554
Return on capital employed	**14.9%** (3)	8.2% (2)	11.7%	14.7%	14.4%
Working capital to sales	**12.7%** (4)	11.8%	13.8%	13.4%	13.1%
Free cash flow	**479**	651	667	499	565
Recurring cash flow	**756**	762	N/A	N/A	N/A
EBITDA to cash conversion rate	**43.8%**	64.5% (5)	52%	38%	41%
Recurring capital expenditure	**506**	460	511	500	420
Exceptional capital expenditure	**252**	140	96	61	10

Definitions of the main financial indicators are given in the glossary and in note 4 "Alternative performance indicators and information by segment" to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

(1) Dividend proposed at the annual general meeting of 19 May 2022.

(2) Return on capital employed adjusted for employed capital classified in 2020 as assets held for sale.

(3) Excluding recurring operating income (REBIT) from PMMA for the first four months of 2021, return on capital employed amounts to 14.4% in 2021.

(4) Excluding PMMA.

(5) The EBITDA to cash conversion rate is now calculated on the basis of recurring cash flow. 2020 data has thus been restated according to this new definition.

Key non-financial data

INNOVATION

	2021	2020	2019	2018	2017
R&D expenditure (in €m)	**243**	241	249	237	235
Number of patent applications filed	**222**	203	222	244	239
Number of patent applications filed relating to sustainable development	**200**	158	149	154	150
Percentage of sales that significantly contribute to the United Nations' Sustainable Development Goals (1)	**51%**	50%	46%	43%	N/A
Percentage of sales from products made from renewable or recycled raw materials (2)	**10%**	10%	9%	N/A	N/A

(1) On the basis of an assessment of 85% of the Group's third-party sales in 2021, 72% in 2020 and 44% in 2019 and 2018.

(2) Sales of products made with at least 25% renewable or recycled raw materials in 2021 and 20% for the previous years.

CLIMATE AND ENVIRONMENT

	2021	2020	2019	2018	2017
Greenhouse gas emissions	**0.66**	0.77	0.87	0.90	0.96
Volatile organic compound emissions	**0.50**	0.58	0.60	0.62	0.66
Chemical oxygen demand	**0.45**	0.45	0.50	0.59	0.70
Net energy purchases	**0.85**	0.90	0.91	0.88	0.89

In absolute terms compared with 2015 for greenhouse gas emissions.
In EFPI terms compared with 2012 for the three other indicators.

SAFETY

	2021	2020	2019	2018	2017
Total recordable injury rate (TRIR) (1)	**1.0**	1.0	1.4	1.3	1.6
Process safety event rate (PSER)	**3.1**	4.0	3.7	4.4	3.9

(1) The TRIR includes injuries to both Group and subcontractor employees.

EMPLOYEES AND RESPONSIBLE PROCUREMENT

	2021	2020	2019	2018	2017
Headcount	**20,209**	20,576	20,507	20,010	19,779
Percentage of women in senior management and executive positions	**24%**	23%	23%	21%	19%
Percentage of non-French nationals in senior management and executive positions	**40%**	41%	40%	39%	37%
Percentage of purchasing spend with relevant suppliers covered by a Together for Sustainability assessment	**71%**	68%	68%	N/A	N/A

GLOBAL MEGATRENDS AND **MAIN CHALLENGES**

GLOBAL MEGATRENDS	MAIN CHALLENGES ARKEMA IS CONTRIBUTING TO ① Boost new energies and clean mobility	② Develop lightweight materials and design	③ Manage natural resources and promote circular economy	④ Enhance living comfort and home efficiency	⑤ Develop electronic solutions
Urbanization and social change The population is increasingly concentrated in urban areas, with cities expected to represent roughly 70% of the world population in 2050, compared with 55% today. Moreover, longer life expectancy and lower birth rates are leading to a higher proportion of senior citizens. → **Consequences** • Strong demand for the construction and renovation of buildings and for infrastructure, and increasing concern about housing comfort and energy efficiency • Increased needs for transportation, energy, water and services • Evolution of lifestyles and consumer behavior, as people seek better quality of life as well as innovative, higher performance products with innovative designs	✔	✔	✔	✔	✔
Climate change Increasing urbanization, the rise in transportation needs as well as greater industrialization, all contribute to gradual global warming of the planet and climate change, which is reflected in particular in an increase and intensification of extreme weather events. → **Consequences** Need to reduce CO_2 emissions, notably by: • limiting fuel consumption in transportation • improving energy performance in buildings • developing new low carbon energy sources	✔	✔	✔	✔	
Resource scarcity Based on current conditions, the consumption of raw materials could double by 2060. Availability and access constraints for non-renewable resources are therefore expected to increase considerably. → **Consequences** Need to speed up the transition to more sustainable lifestyles and economic models, thereby achieving development without increasing environmental impacts (decoupling), in particular through: • a responsible natural resource management • the development of eco-design and the circular economy approach • an optimized consumption of energy, raw materials and water • the development of new energy sources	✔	✔	✔		
Technological transformation New technologies such as artificial intelligence, the internet of the future and the metaverse, materials science and robotics are growing very fast, creating new commercial and industrial possibilities. → **Consequences** • Changing lifestyles and consumer behavior (percentage of the population equipped with connected objects) • Significant increase in available data • Increased production rates	✔	✔			✔

By 2050, the world population is expected to rise by over 25%, driven mainly by emerging countries, and reach nearly 10 billion people worldwide. This increase is reflected in particular by growing urbanization and changing lifestyles, has strong consequences on the climate, leads to increased use of resources and is accompanied by the emergence of new technologies. As a responsible manufacturer, Arkema contributes to addressing major challenges arising from these four global megatrends thanks to its innovative and sustainable solutions and the optimization of its industrial operations.

MAIN CHALLENGES ARKEMA IS CONTRIBUTING TO	EXAMPLES OF ARKEMA'S SOLUTIONS
1 Boost new energies and clean mobility	→ Kynar® PVDF and Foranext® electrolytes for **batteries** → Kynar® PVDF, Apolhya® and Sartomer resins for **solar power** → Rilsan® polyamides for **hydrogen** storage → Elium® recyclable resin for **wind power**
2 Develop lightweight materials and design	→ Advanced materials used as **substitutes for metal** in transportation: Rilsan® polyamides, Kepstan® PEKK and Elium® thermoplastic composites → Bostik adhesives for assembly as a **substitute for mechanical bonding** → Full range of resins for **3D printing**: N3xtDimension® photocure resins, Kepstan® PEKK, Rilsan® polyamides, Kynar® PVDF
3 Manage natural resources and promote circular economy	→ Rilsan® and Pebax® Rnew® **advanced bio-circular** polyamides, made from renewable castor seeds, notably for sports and consumer goods markets → Elium® **recyclable** resin for composites → Rilsan® polyamides for **water transportation** → Kynar® PVDF for **water ultrafiltration** → Hydrogen peroxide and acrylics for water disinfection and **wastewater treatment** → Cecabase RT® additive for asphalt, and specialty surfactants to **optimize mining yields** → Kercoat® and Opticoat® coatings to facilitate the **recycling** of glass bottles
4 Enhance living comfort and home efficiency	→ Bostik's adhesives and sealants for **insulation** and **waterproofing** → Forane® insulating foam for the **thermal insulation** of buildings → **Low-VOC** coating resins for paints → Siliporite® molecular sieves for **double glazing** → Kynar Aquatec® PVDF coatings for **cool roofs**
5 Develop electronic solutions	→ Advanced materials for **digital mobility** devices (high performance polymers for smartphones and tablets, Kynar® PVDF for batteries) → Sartomer® products used in high definition printed circuit boards for **5G technology** → Piezotech® solutions for **augmented reality** headsets and gloves

BECOME A PURE SPECIALTY MATERIALS PLAYER

Arkema has deeply transformed its profile since its creation, convinced that demand for innovative and sustainable materials can only continue to grow in response to new needs, linked in particular to global megatrends such as urbanization and social change, climate change, resource scarcity and technological transformation.

Unique expertise in materials

Since its stock market listing, Arkema has made significant changes to its business portfolio through numerous acquisitions and divestments, and has accelerated its investments in innovation for sustainable development.

The Group has thus developed unique expertise in materials, centered around bonding and assembly solutions, substitution by lighter or bio-based materials, as well as coatings and protection.

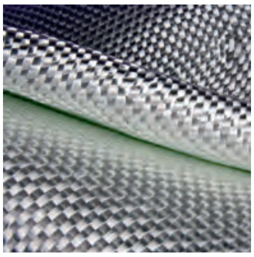
These skills in the field of materials science, combined with the Group's expertise in polymerization and formulation, as well as its application know-how, today enable Arkema to offer its customers a unique range of cutting-edge technological solutions, designed in particular to meet the challenges of new energies and clean mobility, materials lightweighting and design, natural resources management and the circular economy, living comfort and home efficiency, as well as the development of electronic solutions.

Structural materials

Bonding materials

Protective surfaces

Composite materials

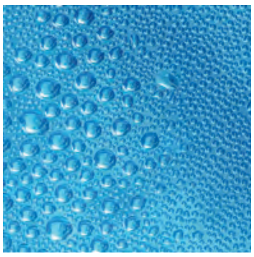


Recyclable materials

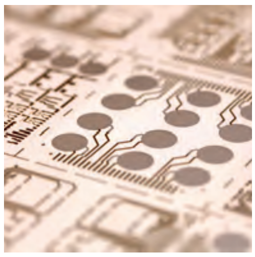
Bio-based resources

Additive technology

Surface science

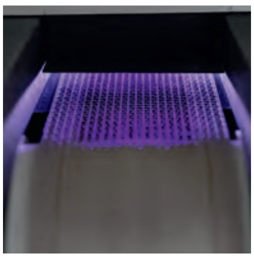


Piezoelectric materials

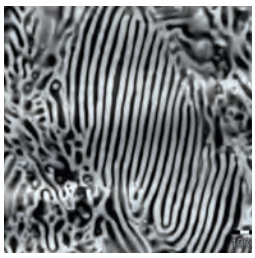


Rheology modifiers

UV curing technology



Nanoscience

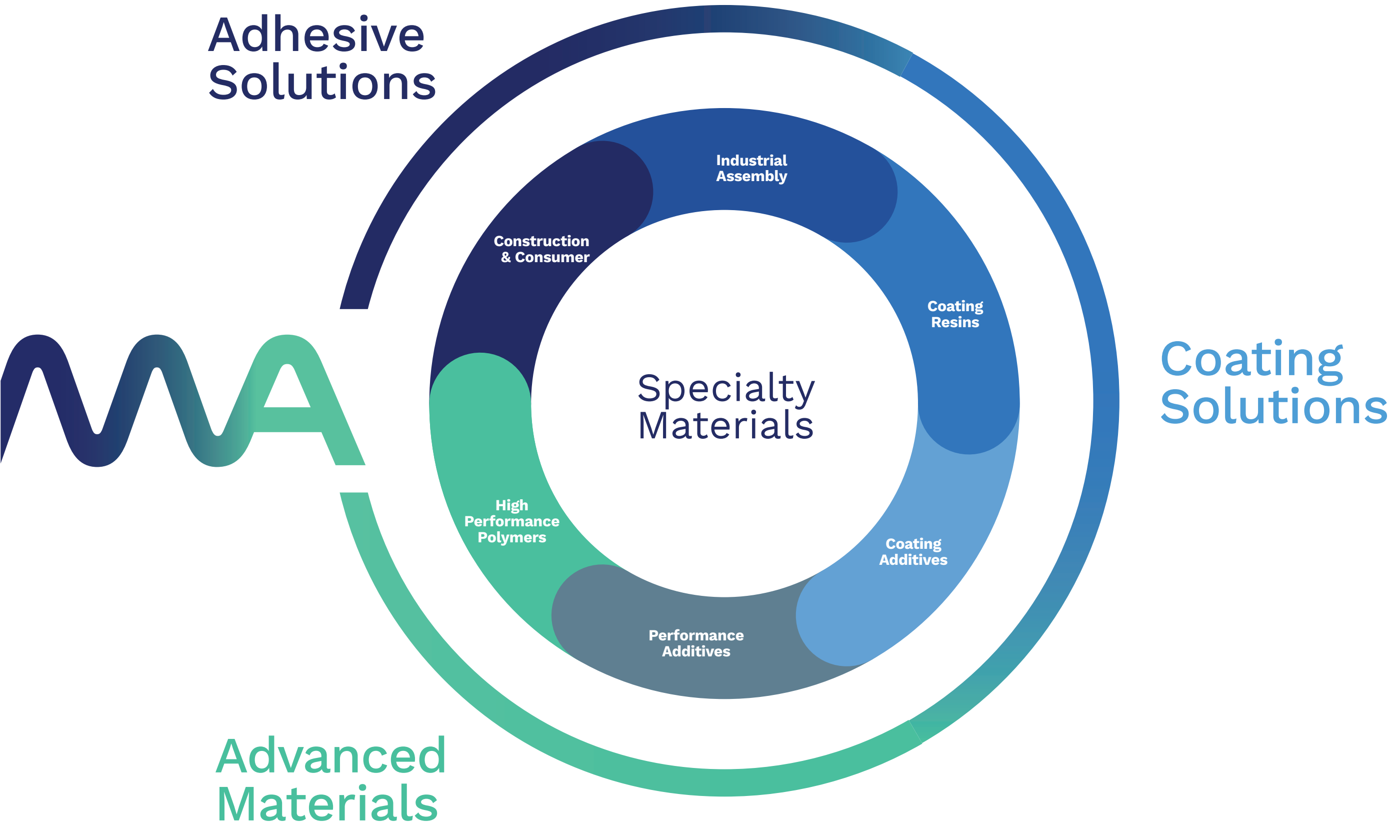


A new transformation phase

On 2 April 2020, during its Capital Markets Day, Arkema announced the launch of a new phase in its transformation based on these areas of materials expertise, now regrouped into three coherent and complementary segments: Adhesive Solutions, Advanced Materials and Coating Solutions.

These activities, which represented 85.5% of Group sales in 2021, constitute the Specialty Materials platform on which Arkema's long-term vision is built.

In the period 2020-2024, the Group will focus its efforts and development on this platform, in line with its ambition to become a pure Specialty Materials player offering the most innovative and sustainable solutions to meet its customers' current and future challenges.



In addition to this platform, there are the more cyclical intermediate chemicals activities, which now consist of Fluorogases and Asia Acrylics following the divestment of the PMMA business to Trinseo in May 2021. The Group will continue to implement differentiated strategies to reduce the share of these intermediates activities.

AMBITIOUS TARGETS **FOR 2024**

By 2024, Arkema's ambition is to become a pure Specialty Materials player, with a resilient and simplified portfolio.

→ SALES OF **€10 TO €11bn**

→ SUPERIOR **RESILIENCE**

→ HIGH PROFITABILITY OF **~17% EBITDA MARGIN**

→ ORGANIC GROWTH **>GDP**

→ STRONG **CASH GENERATION**

SPECIALTY MATERIALS

Organic sales growth
3-3.5% on average per year
More than doubled with M&A

EBITDA margin
Increase from 15.8% in 2019 to **~17%** (1)

Cash generation
>40% (2)

INTERMEDIATES

Implement **differentiated strategies** across businesses

To carry out this new step in its development, the Group will focus on organic and external growth in Specialty Materials and will gradually reduce the share of Intermediates.

Arkema notably intends to draw on its numerous innovation projects and its investments in major projects such as the expansion of its specialty polyamides in Asia, which will in particular contribute to meeting the challenges of materials lightweighting, 3D printing, new energies and energy efficiency in buildings. The Group also intends to play an active role in the consolidation of the adhesives market.

In this context, corporate social responsibility will more than ever be at the core of the Group's strategy. Arkema will also build on its commercial and operational excellence programs to achieve its objectives.

The 2024 targets outlined above are based on the Group's current best estimates, excluding a significant resumption of the Covid-19 health crisis.

(1) Including corporate costs corresponding to around 1% of sales.
(2) Recurring cash flow divided by EBITDA.

A **STRONG** CSR AMBITION

The Group has set and is rolling out its CSR roadmap to support the sustainable and responsible growth of its activities and meet the major challenges arising from global megatrends by providing its customers with solutions that contribute to their sustainable performance. The Group's CSR commitment is reflected in numerous objectives throughout the value chain.

SUSTAINABLE OFFERING

BY **2030**

- Percentage of sales that contribute significantly to Sustainable Development Goals [1]: **65%**

OPEN DIALOGUE

→ EMPLOYEES

BY **2030**

- Percentage of women in senior management and executive positions: **30%**
- Percentage of non-French nationals in senior management and executive positions: **50%**

→ SUSTAINABLE PROCUREMENT

BY **2025**

- Percentage of purchasing spend with relevant suppliers covered by a Together for Sustainability assessment: **80%**

RESPONSIBLE MANUFACTURER

→ SAFETY

BY **2030**

- Total recordable injury rate TRIR: **0.8**
- Process safety event PSER: **2.0**

→ CLIMATE AND ENVIRONMENT

BY **2030**

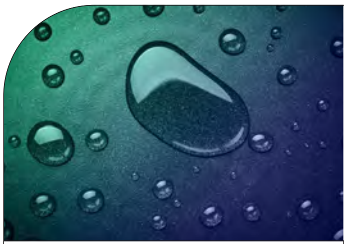
Climate [2]

- Greenhouse gas emissions: **-38%**

Environment [3]

- Volatile organic compound emissions: **-65%**
- Chemical oxygen demand: **-60%**
- Net energy purchases: **-20%**

(1) For further details concerning this target, named ImpACT+, see section 4.2.3 of this document.
(2) Greenhouse gas emissions in absolute terms relative to 2015 include Scope 1 direct emissions and Scope 2 indirect emissions and those of substances that deplete the ozone layer, in line with the Paris Agreement.
(3) In EFPI (Environmental Footprint Performance Indicator) terms compared with 2012.



OUR TARGETS IN ADHESIVE SOLUTIONS

2021 key figures

€2.3bn
Sales

13.9%
EBITDA Margin

2.5-3.0%
Capex intensity (1)

2.3%
R&D intensity (1)

Following the integration of Bostik in 2015, the Group developed the Adhesive Solutions segment notably by making a number of bolt-on acquisitions in the construction sector – in particular in sealants and flooring solutions (Den Braven, XL Brands, LIP, etc.) – as well as in high performance industrial adhesives and engineering adhesives (Prochimir, Fixatti, Edge Adhesives Texas, etc.). Arkema achieved an important milestone with the acquisition (2) of Ashland's Performance Adhesives business, a first-class leader in high performance adhesives in the United States, boasting very strong technological and geographical complementarities with Bostik.

These transactions, combined with operational excellence initiatives and the product mix improvement toward higher value-added sustainable solutions, have contributed to significantly improving the segment's performance, with the EBITDA margin increasing from approximately 10% in 2014 to 13.9% in 2021.

(2) This acquisition was finalized on 28 February 2022.

"Our ambition: take part in the market's consolidation by targeting high performance adhesives and solutions in construction„

Main brands

BOSTIK, FIX & FLASH, Blu-Tack, Den Braven, SADER

(1) As a percentage of sales.

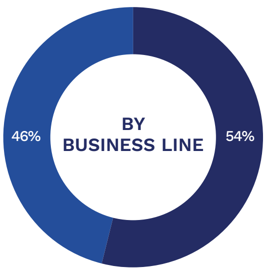
GROWTH DRIVERS

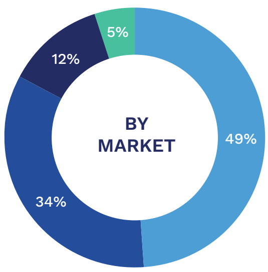
- **Accelerate organic** sales **growth**:
  - geographical expansion, particularly in Asia
  - development of key technologies in high performance adhesives for industrial assembly and in construction (waterproofing and flooring adhesive systems)
- **Launch** phase 2 of the operational excellence program
- **Continue bolt-on acquisitions** in a fragmented market, contributing to approximately two-thirds of future sales growth

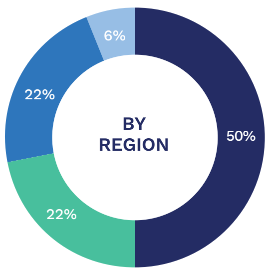
2024 AMBITION

- **Average annual sales growth** over the period 2020-2024:
  high single-digit including acquisitions
  around **3%** in organic terms
- **Percentage** of Group sales
  30-35% in 2024
- **EBITDA margin** Target raised following the acquisition of Ashland's adhesives business
  >17% in 2024
  (*vs* around 16% previously)

Breakdown of 2021 sales







OUR TARGETS IN ADVANCED MATERIALS

2021 key figures

€3.1bn
Sales

21.4%
EBITDA Margin

7-8%
Capex intensity (1)

3.1%
R&D intensity (1)

The Advanced Materials segment includes High Performance Polymers and Performance Additives. Boasting exceptional technical and mechanical properties, High Performance Polymers offer innovative solutions with high growth potential that meet the major challenges arising from global megatrends. As for Performance Additives, they enable the improvement or the modification of the functional properties of materials and of production processes.

To develop this segment, the Group has made major industrial investments, notably in thiochemicals in Malaysia, PVDF in China and molecular sieves in France, and plans to start up the world's biggest integrated bio-factory dedicated to specialty polyamides in Singapore in 2022. These investments have been supplemented by some acquisitions, in particular ArrMaz or more recently Agiplast.

"Our ambition: invest and innovate to meet the exponential need for materials driven by global megatrends„

3 GOOD HEALTH AND WELL-BEING
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION

Main brands

High Performance Polymers

RILSAN® KYNAR®
KEPSTAN® PEBAX®

Additive Performance

LUPEROX®
SILIPORITE®
CARELFLEX® SERVICE

(1) As a percentage of sales.

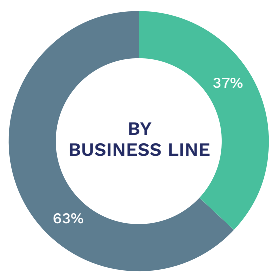
GROWTH DRIVERS

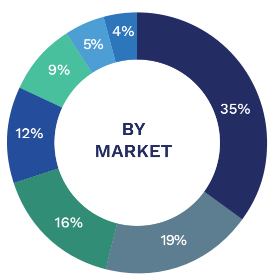
- → **Support growth** with major, highly profitable industrial projects (bio-based polyamides in Asia, PEKK in the United States, PVDF, etc.)
- → **Innovate for sustainable development** (bio-based materials, lightweighting, new energies, etc.)
- → **Be our customers' preferred partner** to meet their technological needs and challenges

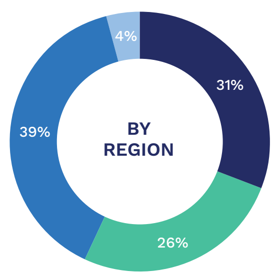
2024 AMBITION

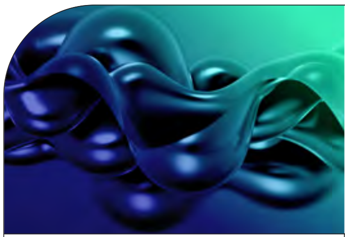
- → **Organic sales growth** over the period 2020-2024: around **4%** on average per year
- → **Percentage** of Group sales **35-40%** en 2024
- → **EBITDA margin** stable at **22%** in 2024

Breakdown of 2021 sales









OUR TARGETS IN COATING SOLUTIONS

2021 key figures

€2.7bn
Sales

19.1%
EBITDA Margin

5-6%
Capex intensity (1)

1.9%
R&D intensity (1)

The Coating Solutions segment includes the entire range of Arkema's solutions for the coatings market, which are notably used in decorative paints and for industrial applications, as well as key technologies for 3D printing and electronics.

With competitive, world-scale acrylics facilities, the Group has developed this segment since its stock market listing by making several acquisitions in coating resins and additives, in particular Coatex, Sartomer and Cray Valley. Integrating these downstream activities, as well as developing innovative technologies and more environmentally friendly, high value-added solutions, have helped improve the segment's resilience and performance.

"Our ambition: expand our sustainable offering and strengthen the added value of our solutions„

3 GOOD HEALTH AND WELL-BEING
8 DECENT WORK AND ECONOMIC GROWTH
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION

Main brands

N3XTDIMENSION®
LAMBSON™
ENCOR®

(1) *As a percentage of sales.*

GROWTH DRIVERS

→ **Increase the production capacity of our downstream activities** in high-growth regions, particularly Asia

→ **Optimize our operational models** through reinforced integration of industrial platforms and downstream activities

→ **Develop our sustainable offering** based on low-VOC formulations and bio-based solutions

→ **Reinforce our technology** portfolio and downstream activities through bolt-on acquisitions

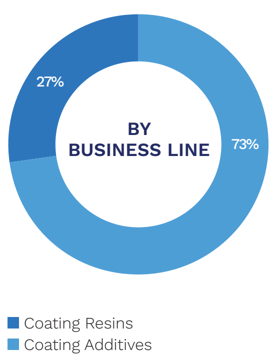
2024 AMBITION

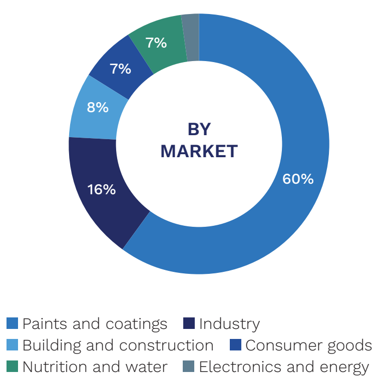
→ **Organic sales growth** over the period 2020-2024: around **3%** on average per year

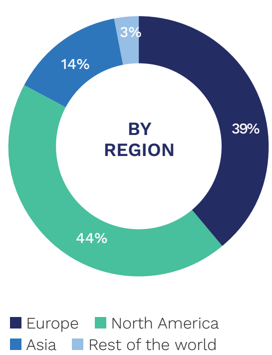
→ **Percentage** of Group sales **25-30%** in 2024

→ **EBITDA margin** around **16%** in 2024

Breakdown of 2021 sales







OUR TARGETS IN INTERMEDIATES

2021 key figures

€1.4bn
Sales

22.9%
EBITDA Margin

Following the finalization of the divestment of the PMMA business to Trinseo in May 2021, the Intermediates segment now includes the volatile Fluorogases and Asia Acrylics activities, where Arkema holds leading positions, supported by cutting-edge technologies, competitive, world-scale facilities and strong partnerships.

In line with its ambition to become a pure Specialty Materials player by 2024, the Group plans to reduce the share of these more cyclical activities in its portfolio and will implement differentiated strategies for each of them, a significant part of which will involve considering divestments or partnerships that deconsolidate the activity.

Our projects and strategic reviews

PMMA

- **Divestment of the PMMA business** to Trinseo on 3 May 2021.
- The offer valued the business at **€1,137 million**, *i.e.*, over **9x** EBITDA.

FLUOROGASES

- **For non-emissive applications,** support the growth of our fluoropolymers while strengthening their upstream competitiveness, and accelerate the development of fluorospecialties, notably in electronics and batteries.
- **For emissive applications,** which represent approximately 75% of the business, explore several deconsolidation options through partnerships or mergers, either globally or on a regional basis, with third parties that could accelerate their development.

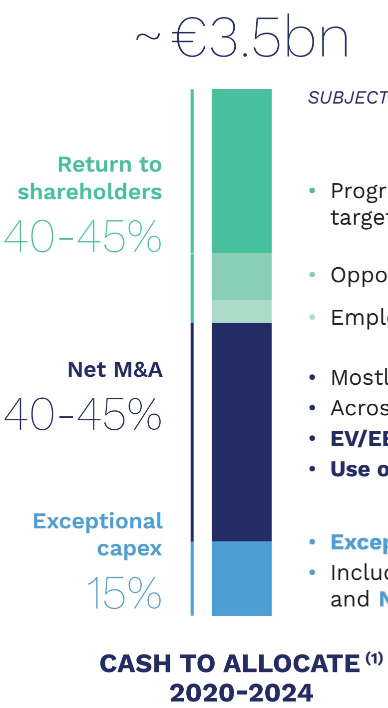
ASIA ACRYLICS

- **Rebalance upstream and downstream capacities** by reducing exposure to the monomers market through industrial partnerships and by strengthening downstream activities through organic growth and bolt-on acquisitions.

“Once these strategies are implemented, non-emissive Fluorogases applications and the Asia Acrylics business will join the Specialty Materials platform„

A BALANCED ALLOCATION OF **AVAILABLE CASH**

The Group's strategy, as described above, constitutes a central element of cash allocation with three priorities: exceptional capital expenditure, targeted bolt-on acquisitions in Specialty Materials, and increased shareholder returns.



SUBJECT TO APPROPRIATE MARKET CONDITIONS

- Progressive **dividend policy**, targeting **40%** payout ratio by 2024
- Opportunistic share buyback programs
- Employee performance share plans

- Mostly small and medium size **bolt-on acquisitions**
- Across our 3 Specialty Materials segments, in particular in **Adhesive Solutions**
- **EV/EBITDA multiple** after growth and synergies of <7x
- **Use of proceeds** from strategic review of intermediates

- **Exceptional capex:** IRR ≥ 15% after taxes
- Includes capacity expansion of **PA11 in Asia** (€450m total investment) and **Nutrien** partnership (US$150m)

(1) Cash from operations less recurring CAPEX plus additional net debt at constant leverage (1.6x EBITDA including €700 million of hybrid bonds).

Maintaining the net debt (including hybrid bonds) to EBITDA ratio around the end-2019 level, the available cash over the period 2020-2024 should amount to approximately €3.5 billion, 15% of which will be dedicated to major organic growth projects, with the balance being distributed evenly between portfolio management operations and shareholder returns.

The targets outlined above are based on the Group's current best estimates, excluding a significant resumption of the Covid-19 health crisis.

STRICT FINANCIAL DISCIPLINE

This ambitious roadmap will remain underpinned by strict financial discipline.

RECURRING CAPITAL EXPENDITURE

~ 5.5%

of sales

TIGHTLY MANAGED WORKING CAPITAL

~ 14%

of sales

NET DEBT TO EBITDA RATIO

(including hybrid bonds)

< 2x

FINANCIAL RATING

Solid Investment grade

RETURN ON CAPITAL EMPLOYED

>10%

ACCELERATE
ORGANIC GROWTH

As part of this new phase of transformation, and in order to achieve its organic growth target of between 3% and 3.5% on average per year over the period 2020-2024, Arkema will leverage its recent production unit start-ups and continue its ambitious investment policy in high-growth countries. These projects, the most significant of which concerns the expansion of its specialty polyamides in Asia, will support growth in demand in several key end-markets, such as consumer goods, new energies and clean mobility.

An ambitious investment policy

To support its customers' geographic expansion, the Group aims for recurring capital expenditure to average **around 5.5% of sales** per year, with around 40% to 45% dedicated to growth projects and 55% to 60% to maintenance, safety and the environment.

In addition to this recurring capital expenditure, the Group will invest **around €525 million in exceptional capital expenditure** in the period 2020-2024.

2021

€758m

in recurring and exceptional capital expenditure

EXCEPTIONAL CAPITAL EXPENDITURE

ASIA

Expansion project in **bio-based specialty polyamides in Asia**, including in particular:

- a 50% increase in monomer and Rilsan® polyamide 11 global production capacity in Singapore, scheduled to start up mid-2022; and
- a polyamide 11 powders plant in Changshu, scheduled to come on stream in the first quarter of 2023.

This project will allow the Group to support the very high demand for lightweight,

bio-based materials in automotive, 3D printing and consumer goods markets.

This investment, which represents a total amount of around €450 million, and the financing of which includes a green bond dedicated to the Singapore plant, should generate an EBITDA of around €100 million at full capacity.

NORTH AMERICA

US$150 million investment as part of the **partnership with Nutrien to produce hydrofluoric acid**, the main raw material for fluoropolymers and fluorogases, which will be carried out by Arkema at Nutrien's site in the United States.

This investment has many advantages in terms of both securing competitive access to hydrofluoric acid and environmental friendliness compared with more traditional processes.

Start-up of the unit is expected mid-2022.

RECURRING CAPITAL EXPENDITURE

5.3%
of Group sales in 2021

CHINA

50% increase in PVDF production capacity in Changshu, scheduled to come on stream at the end of 2022, to meet ever stronger demand in the lithium-ion battery sector and to serve the water filtration, construction coatings and semiconductor markets.

FRANCE

50% increase in PVDF production capacities at the Pierre-Bénite site, expected to come on stream in the first quarter of 2023. This project will enable to support the exponential growth in demand for lithium-ion battery cell materials.

UNITED STATES

15 kt/year capacity of 1233zd, a fluorospecialty solution with no or minimal emissive impact, for the high-efficiency insulation materials market and for emerging applications, particularly batteries. This unit is expected to start up at the Calvert City site in late 2023, for an estimated investment of US$60 million.

FRANCE

25% increase in its global Pebax® elastomer production capacity in Serquigny, expected to come on stream mid-2023, to support strong growth in particular in sports and consumer goods markets.

CHINA

Doubling UV curable resin production capacities at the Nansha plant, to support the fast-growing demand in Asia for cutting-edge solutions in electronics, driven by 5G technology, and in renewable energies. This new expansion is scheduled to come on stream in the second half of 2023.

2022 → ~ 5.5% of Group sales in recurring capital expenditure → ~ €130 m exceptional capital expenditure

INNOVATE FOR **SUSTAINABLE DEVELOPMENT**

Technological innovation is at the heart of Arkema's strategy and a key growth driver. It enables the Group to address major economic and societal challenges through solutions that contribute to the United Nations' Sustainable Development Goals.

Supporting our customers in addressing their challenges

Thanks to its 15 R&D centers across the world, Arkema develops new products, applications and production technologies to meet customers' particularly demanding needs in leading-edge sectors such as automotive, aerospace, consumer electronics and new energies.

Anticipating future trends

Arkema anticipates technological and market changes and is developing today, through a dedicated incubator structure, the breakthrough innovations that will meet society's needs in the years to come.
For example, Arkema has developed Kepstan® PEKK, a material for extreme environments that can withstand temperatures of up to 260°C, and Elium® resin, used notably to make lightweight wind turbine blades and enabling end-of-life recycling.

Contributing to operational excellence

The Group's R&D provides innovations to production facilities to allow them to produce safely and competitively while reducing their environmental footprint.

Toward a portfolio of increasingly sustainable solutions

The Group is actively assessing its portfolio of solutions in light of sustainability criteria. At end-2021, 85% of sales had been assessed, of which

51%

significantly contribute to the United Nations' Sustainable Development Goals.

→ KEY FIGURES 2021

>1,600
researchers

€243m
in R&D expenditure

3.1%
of Advanced Materials sales allocated to the segment's R&D

Natural resources management

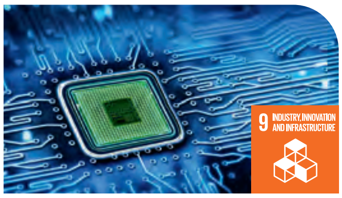
New energies

5 innovation platforms

ideally positioned to meet current and future challenges

Lightweight materials and design

Living comfort and home efficiency



Electronics solutions

In a world characterized by global megatrends such as urbanization and social change, climate change, resource scarcity and technological transformation, Arkema focuses its research efforts on ensuring its solutions adequately address market needs and specific customer expectations worldwide.

Based on this work, which is reviewed regularly, the Group has set up 5 innovation platforms which perfectly meet 5 United Nations' Sustainable Development Goals, including an innovation platform dedicated to natural resources management. This platform spans bio-based and recyclable solutions, the circular economy and water management.

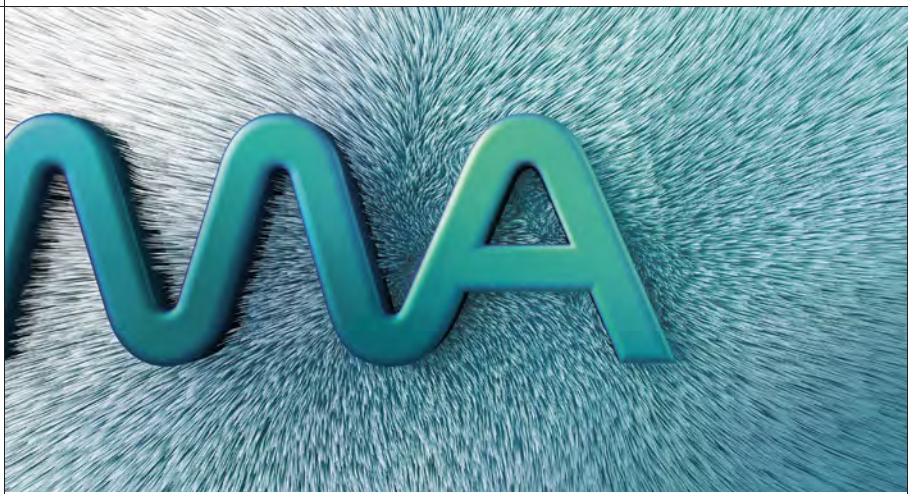
> **“Our sustainable innovation dynamic should enable us to generate up to €1.5 billion additional sales by 2030 (1).”**

(1) Compared with 2019.

15	222	Numerous partnerships	~€1bn
R&D centers across three hubs in Europe, Asia and North America	patent applications filed, 90% relating to sustainable development	with universities and research laboratories, both public and private	sales from products less than 5 years old in Specialty Materials

BOLT-ON ACQUISITIONS TO STRENGTHEN **OUR SPECIALTY MATERIALS**

The Group aims to more than double the organic growth of its Specialty Materials between 2020 and 2024 through bolt-on acquisitions. Priority will be given to Adhesive Solutions with, on average, two to three small transactions per year supplemented by one to three medium-sized acquisitions over the period.



Acquisitions that create long-term value

In line with its ambition to carry out transactions that create value, the Group aims to make acquisitions offering significant synergies, thereby enabling to reduce the enterprise value to EBITDA multiple to around 7-8x, four or five years after the acquisition, taking into account organic growth and the implementation of synergies.

These synergies could correspond to:

- cost synergies made on purchases of raw materials, goods and services or logistics, or achieved by implementing operational excellence programs; and
- new geographic, technological or commercial developments driven by shared know-how and the Group's complementarities with the acquired companies.

Subject to appropriate market conditions, Arkema plans to allocate to its acquisition program, net of divestments, 40% to 45% of its available cash, which is estimated at approximately €3.5 billion over the period 2020-2024, while maintaining a net debt (including hybrid bonds) to EBITDA ratio of 1.6.

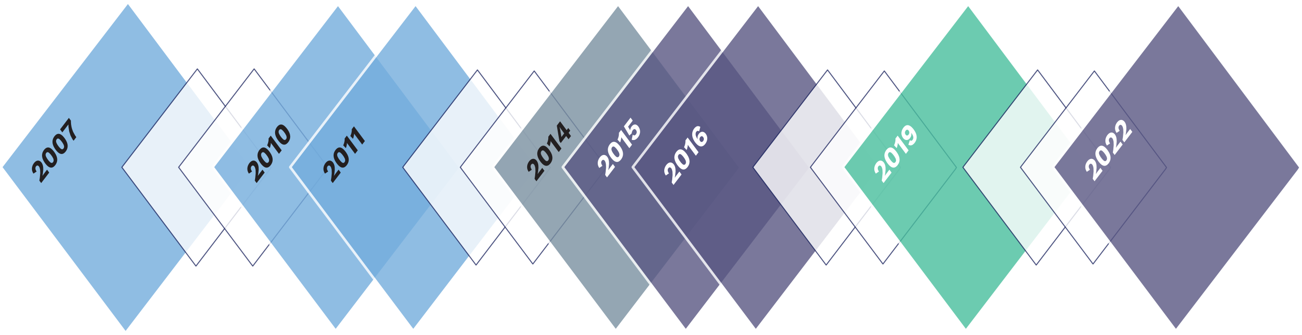
2021 HIGHLIGHTS

A major acquisition in Adhesive Solutions with Ashland's Performance Adhesives business, a first-class leader in high performance adhesives in the United States. With 2021 sales of around US$360 million and EBITDA at a very high level of around US$95 million (including *pro forma* adjustments), Ashland has strong technological and geographical complementarities with Bostik. This acquisition, finalized on 28 February 2022, was made on the basis of an enterprise value of US$1,650 million.

and bolt-on acquisitions in Specialty Materials:

- Poliplas, a leader in hybrid-technology sealants and adhesives in the Brazilian construction market;
- Edge Adhesives Texas, a major player in innovative adhesive solutions used in residential buildings;
- Agiplast, a major player in the regeneration of high performance polymers; and
- Permoseal, one of the leaders in adhesive solutions for woodworking, packaging, construction and DIY in South Africa, which is expected to be finalized in second-quarter 2022.

Transformational acquisitions



COATEX
€150m

ASSETS OF THE DOW CHEMICAL COMPANY
US$450m

CRAY VALLEY / SARTOMER
€850m

***JOINT-VENTURE* SUNKE**
US$300m

BOSTIK
€1.5bn

DEN BRAVEN
€350m

ARRMAZ
US$290m

ASHLAND PERFORMANCE ADHESIVES
US$360m

In sales ■ Adhesive Solutions ■ Advanced Materials ■ Coating Solutions ■ Intermediates

Since 2006, Arkema has made active portfolio management a major transformation lever, in particular:

- the acquisition of Bostik in 2015, followed by many small- to medium-sized acquisitions aimed at developing its Adhesive Solutions segment including, most recently, Ashland's Performance Adhesives business, finalized on 28 February 2022; and
- the strengthening of its presence in the high value-added downstream activities of its Coating Solutions segment.

All these transactions represent around €4.8 billion in sales.

Divestments

In line with its objective of reducing the share of Intermediates in the Group's activities and refocusing on its strategic businesses, Arkema finalized:

- the divestment on 3 May 2021 of the PMMA business, with sales of more than €500 million, to Trinseo. This divestment, representing a major step in the Group's transformation, was made on the basis of an enterprise value of €1,137 million, *i.e.* over 9 times its EBITDA; and
- the divestment finalized in December 2021 of the epoxides business, with sales of around US$40 million, to US group Cargill. The transaction valued this business at US$38.8 million, *i.e.* around 10 times historical EBITDA.

Since 2006, the Group has made disposals worth around €2.8 billion in sales, with the main transactions being the divestment of the vinyl products business finalized in 2012, Functional Polyolefins in 2020 and PMMA in 2021.

CORPORATE SOCIAL RESPONSIBILITY **AT THE HEART OF OUR STRATEGY**

Arkema's social responsibility approach aims to create long-term value for all its stakeholders. This approach is based on five major themes, namely the sustainable solutions offering, circular economy, climate, safety and environment, as well as labor and relations with stakeholders.

Sustainable solutions offering

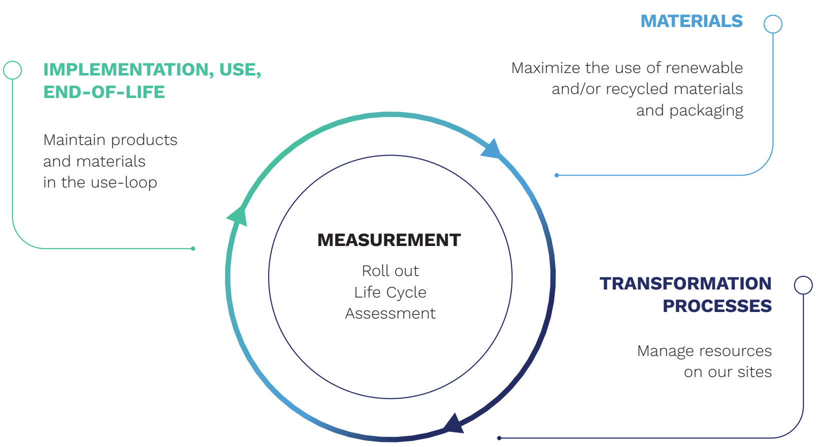
Toward a greater positive impact

To shift its product offering ever more assertively toward sustainable solutions, Arkema continues its approach to systematically assess its portfolio of solutions in light of sustainability criteria, with a target to reach 65% of its sales contributing significantly to UN Sustainable Development Goals by 2030. This assessment takes into account the entire value chain, from raw materials to the product's end of life and includes manufacturing processes.

Circular economy

For a responsible resource management

The Group has made the circular economy and responsible resource management a priority, applying to both the Group's solutions and its industrial operations, and covering the entire value chain based on four main drivers.



Climate

Contribute to limit global warming

Arkema has been mobilized in the fight against global warming for many years and, since 2019, has been committed to a climate plan in line with the Paris Agreement based on a Science-Based Target approach. The 2030 target is to reduce its greenhouse gas emissions by 38% compared with 2015, with a view to contributing to limit global warming to well below 2°C relative to pre-industrial levels by the end of the century. This commitment covers Scopes 1 and 2 and the substances listed in the Montreal Protocol.

Safety and environment

Acting as a responsible manufacturer

As part of its operations, the Group's ambition is to rank among the leading chemical companies in terms of safety performance and it is fully determined to reduce the environmental footprint of its activities.

In terms of safety, the Group has continued to clearly improve its performance in line with the trend of the past few years, driven largely by the strong commitment of all employees, and has set the demanding targets of achieving a TRIR of 0.8 and reducing process safety events with a PSER of 2.0 by 2030.

In addition, the Group is pursuing an active policy of reducing its emissions into air, water and soil, and has set the target of cutting volatile organic compound emissions intensity by 65% and chemical oxygen demand intensity by 60% by 2030.

Labor and stakeholder relations

A committed value chain

The Group's activities are part of a value chain and ecosystem comprising numerous partners and stakeholders, and it has made open dialogue with its interlocutors a cornerstone of its social policy. In particular, Arkema considers each of its 20,200 employees as talents. Developing their skills and maintaining their high level of engagement are of major importance for Arkema. Diversity, equal opportunity and inclusion form an integral part of the talent management policy. The 2030 diversity targets (30% women and 50% non-French nationals in senior management and executive positions), which Arkema raised in 2020, reflect the Group's geographic expansion and its commitment to equal opportunity, and acknowledge the contribution of diversity to the Company's performance.

Moreover, Arkema has integrated social challenges into its procurement process and strives to build long term, balanced and sustainable relationships that are based on trust with its suppliers and subcontractors.

The Group is a member of the Together for Sustainability (TfS) initiative, which aims to encourage social responsibility across the chemical industry supply chain, and has set a strategic target of achieving 80% of purchasing spend with suppliers covered by a TfS assessment.

RECOGNIZED ESG PERFORMANCE IN 2021

The Group's approach and performance in relation to environmental, social and governance (ESG) aspects are regularly assessed by external stakeholders including customers and SRI rating agencies. These agencies place Arkema among the leaders in the chemical sector, and recognize its very high levels of commitment and performance in these aspects.

S&P Global	Member of Dow Jones Sustainability Indices	MSCI	CDP	V.E	ecovadis	Sustainalytics	ISS ESG
82	3rd *in DJSI World "Chemicals" category*	A	B	67	Top 1%	Rated	1st decile *global (sept. 2021)*

2021 HIGHLIGHTS

- Inclusion of Arkema in the new CAC 40® ESG index on the Paris stock exchange, listing the 40 companies that have demonstrated ESG best practices.
- Sustainable Leadership Award for Societal Contributions from the American Chemistry Council (ACC) for advanced bio-circular polyamide 11. This prestigious award rewards products, processes or initiatives that illustrate a commitment to innovation for a sustainable future.
- Commitment by Arkema to preserving biodiversity with act4nature international.
- First ARKEMA CARES 2021 global engagement survey, with 82% of employees stating their full engagement.
- Top Employer 2022 certification in 4 countries (France, China, United States and Brazil), which account for two-thirds of Arkema's employees and recruitments worldwide.

COMMERCIAL AND OPERATIONAL EXCELLENCE INITIATIVES

To achieve its long-term ambition, the Group implements strong actions in the cross-functional areas of commercial and operational excellence. The digital transformation program is central to these initiatives, notably through numerous projects that allow the Group to make the most of the possibilities offered by new technologies.

Commercial excellence

Customers at the heart of Arkema's strategy and innovation policy

In order to improve customer focus and intimacy, meet their needs as effectively as possible and promote the diversity of the Group's solutions, Arkema's commercial excellence program notably focuses on:

- a collaborative Customer Relationship Management tool:
  - rolled out across all of the Group's businesses in 2020 and used to share customer data, manage development opportunities and implement synergies for multi-business customers,
  - promoting new business development by recording and following up on any signs of interest shown by prospects or potential customers (leads) attracted by Arkema's visibility on websites and social media, with the aim of converting these leads into opportunities and then establishing a business relationship;
- a reporting system, which provides sales and finance teams with more relevant business analysis and management, and better knowledge of our exposure to each market;
- in relation with all the talent management initiatives, the continuation of the Sales Academy, a program of dedicated, ongoing training courses that develops sales teams' expertise in sales processes and customer relations, with notably in 2021 a global training campaign focused on pricing;
- a strengthening of the Group-wide One-Arkema approach among customers and in multi-BU markets, drawing on a network of global key account managers and internal working groups to optimize the Group's commercial offering in its major markets; and
- a growing customer focus recognized in our annual global satisfaction surveys, which drive us to strive for continuous progress and to strengthen our customer intimacy. In March 2021, this survey found that 82% of customers were satisfied or extremely satisfied – a high score within the industry.

Increasingly efficient digital tools

Strengthened interactions with our customers

- Improvements to the Group's new websites, with the production of large volumes of product and market content;
- Development of new web features, such as product comparison tools that give customers and prospects a better understanding of Arkema's solutions; and
- First Coating Days seminar held in June 2021 over 3 days, presenting the Group's coatings offering and strategy to customers through interviews and a dozen webinars.

An improved services offering

- Launch of a new customer portal allowing real-time order tracking, to be supplemented with new services and other features depending on customers' needs; and
- Extension of the digitalized Carelflex® service to North America, following its success with the first customers in Europe.

Operational excellence

Developing a culture of operational efficiency to ensure the competitiveness and sustainability of the Group's sites

Our approach

Arkema has launched a continuous progress initiative across all its businesses and subsidiaries, which is notably based on:

- constantly assessing areas of improvement and potential for progress in each of the Group's businesses, as well as sharing best practices;
- defining precise and ambitious targets for each production site on safety, the environment, reliability, productivity and raw materials consumption, while carefully managing improvement plans; and
- implementing the SMART initiative, an engaging, collaborative approach on the ground, that involves all employees in the process of identifying and continuously improving the performance of production units.

Digital excellence

- Ongoing implementation of digital tools, enabling to capture and simplify operational data of the Group's factories to monitor production, and also in research centers (electronic lab notebooks);
- Rollout of the Trendminer® solution, designed to analyze our production data and optimize manufacturing processes; and
- Development of IOT technologies, allowing real-time monitoring of logistics equipment (freight cars, containers, spherical tanks, etc.).

A collaborative workplace

- Extension of the "Work Together, Work Clever" program Group-wide, helping all employees to become more proficient in using office automation tools and also to benefit from collaborative meeting technologies; and
- Accelerated rollout of e-learning modules, now making it possible to follow all training courses remotely, and introduction of new modules on operating procedures developed in collaboration with field operators.

Our 5 commitments

1. **Being among reference players in the chemical industry in terms of safety and environmental footprint**

   Arkema continues to improve its performance in line with its 2030 targets.

2. **Positioning its main production sites in the top-quartile in terms of competitiveness and reliability**

   - Constant improvement of the manufacturing base and strengthening of competitiveness and reliability by making investments, by reducing variable costs through the optimization of raw materials consumption and energy efficiency thanks to continuous process improvement, and by implementing high performance digital tools; and
   - Optimization of fixed operating costs and industrial investments through a global procurement strategy for goods and services.

3. **Improving the quality of customer service through an optimized and digitalized supply chain**

   The Group continues to optimize its supply chain, implementing in particular a new transportation management system (TMS), a customer portal and shipment track-and-trace tools.

4. **Developing the technological innovation policy**

   When designing new production units, Arkema implements the latest technological processes it has developed, as well as high performance digital tools, in order to optimize both the time schedule of its projects as well as their operating costs and capital expenditure.

5. **Promoting and reinforcing employee engagement**

   In order to sustain its approach, Arkema develops an operational excellence culture among all employees and values their day-to-day actions that contribute to the Company's continuous progress.

The fixed and variable cost savings achieved through these various actions will enable Arkema to offset at least half of annual fixed cost inflation.

OUR **BUSINESS MODEL**

Design and develop, as a responsible manufacturer, innovative solutions adapted to our customers' main challenges to address global megatrends, and support them in their quest for sustainable performance.

OUR STRENGTHS (1)

Commercial strengths

- **Leadership positions** in our main product lines
- A worldwide presence in **55 countries**
- A balanced portfolio of businesses
- Strong partnerships with leading customers

Operational strengths

- A global footprint with **141 sites**
- **€6.5 billion** in tangible and intangible assets

R&D strengths

- **5 innovation platforms** to address global megatrends
- **More than 1,600 researchers in 3 regional** R&D **hubs** worldwide
- Robust intellectual property with more than **10,000 patents**

Human capital

- **20,200 employees** embracing the company's values and committed to its long-term plan

Financial strengths

- Indebtedness well under control, with **net debt** (including hybrid bonds) of less than 2x EBITDA

OUR VALUE CREATION MODEL

Our values

solidarity
performance
simplicity
empowerment
inclusion

Our organization

14.5% INTERMEDIATES

€9.5bn OF SALES IN 2021

85.5% SPECIALTY MATERIALS →

- **Adhesive Solutions** 24%
- **Advanced Materials** 32.5%
- **Coating Solutions** 29%

Cross-functional CSR, operational and commercial excellence initiatives supported by digital transformation

(1) See pages 8 and 9.
(2) Share of sales which contribute significantly to Sustainable Development Goals.
(3) Total recordable injury rate per million hours worked with or without lost-time.
(4) Process safety event rate per million hours worked.
(5) In intensity compared with 2012 for water, air and energy; in absolute value compared with 2015 for climate.

OUR CONTRIBUTION TO SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS

OUR AMBITION

Become a pure Specialty Materials player by 2024

with a resilient and simplified portfolio

Financial targets (2024)

→ Sales of **10 to €11bn**
→ Organic growth **>GDP**
→ High profitability of **~17% EBITDA margin**
→ **Strong** cash **generation**

Underpinned by strict financial discipline

→ Recurring capital expenditure of approximately **5.5% of sales**
→ Strictly managed working capital of **~14% of sales**
→ Net debt (including hybrid bonds) **<2x EBITDA**
→ ROCE **>10%**
→ **Solid investment grade** credit rating

Long-term non-financial targets

Sustainable solutions (2030)
→ Percentage of ImpACT+ sales [2]: **65%**

Safety (2030)
→ Total recordable injury rate (TRIR) [3]: **0.8**
→ Process safety event rate (PSER) [4]: **2.0**

Climate and environment [5] (2030)
→ Greenhouse gas emissions: **-38%**
→ Volatile organic compound emissions: **-65%**
→ Chemical oxygen demand: **-60%**
→ Net energy purchases: **-20%**

Diversity in senior management and executive positions (2030)
→ Percentage of women: **30%**
→ Percentage of non-French nationals: **50%**

Sustainable procurement (2025)
→ Percentage of purchasing spend with relevant suppliers covered by a Together for Sustainability assessment: **80%**

Our priorities

Offer

sustainable solutions driven by innovation and product stewardship

→ Boost **new energies** and **clean mobility**
→ Develop **lightweight materials** and **design**
→ Enhance **living comfort** and **home efficiency**
→ Manage **natural resources** and promote **circular economy**
→ Develop **electronic solutions**
→ Design solutions that reduce **health, safety and environmental risks**

Support

our customers in their geographic expansion through a policy of targeted investments

Act

as a responsible manufacturer deeply rooted in host communities

→ Ensure **employees' health** and **equipment safety**
→ Act for **climate** and reduce our **environmental footprint**
→ Contribute to the development of **territories**

OUR **VALUE CREATION**

Since its stock market listing in 2006, Arkema has engaged in an in-depth transformation process guided by an ambitious plan to create long-term value for all of its stakeholders.

SUPPLIERS AND CUSTOMERS

Offer innovative, sustainable solutions tailored to customers' specific needs

82%
of satisfied or extremely satisfied customers

more than 1,700
suppliers assessed with regards to CSR [(1)]
71% of the Group's purchases with relevant suppliers [(1)]

222
patent applications filed
90% relating to sustainable development

Numerous partnerships
announced with ERPRO 3D Factory in 3D printing, Morrow and Verkor in batteries

51%
of sales assessed significantly contributing to the SDGs [(2)]

(1) Covered by a Together for Sustainability (TfS) assessment.
(2) On the basis of an assessment of 85% of the Group's third party sales in 2021.

REGIONS AND COMMUNITIES

Contribute to the social and economic development of the regions where Arkema operates

€758m
in recurring and exceptional capital expenditure

€288m
in recurring cash taxes

Numerous partnerships
focused on research with public laboratories and universities (École Polytechnique in France, Monash University in Malaysia)

Financing
of projects to support education, through a dedicated fund, led by nonprofit organizations in
15 countries

2021 Data..

PLANET

Engage for the climate and the environment

-34% greenhouse gas emissions [(1)]

-15% net energy purchases [(2)]

-50% volatile organic compound emissions [(2)]

-55% chemical oxygen demand [(2)]

(1) Greenhouse gas emissions in absolute terms relative to 2015 (Scopes 1, 2 and ODS).
(2) In EFPI terms compared with 2012.

EMPLOYEES

Promote the individual and collective development of the Group's men and women

€1.5bn payroll expenses

20,200 employees

26.2% women

1.0 injury rate (TRIR)

6.0% of capital owned by employees

24 hours of training on average per employee per year

SHAREHOLDERS

Create long-term value with an ambitious transformation plan while gradually increasing the dividend

14.4% return on capital employed [(1)]

€756m recurring cash flow

€3.0 [(2)] 2021 dividend per share

€300m [(3)] share buyback program

(1) Excluding PMMA.
(2) Dividend proposed at the annual general meeting on 19 May 2022.
(3) Executed between 21 May and 24 November 2021, and followed by a 3.19% reduction in the Group's share capital, on 24 January 2022.

AN EXPERIENCED AND DIVERSIFIED BOARD OF DIRECTORS

Arkema's governance includes a Board of Directors with a Chairman and Chief Executive Officer and a senior independent director, as well as three specialized committees. The Chairman and CEO is furthermore supported by an Executive Committee comprised of a Chief Operating Officer, 5 operational and functional Executive Vice-Presidents and 3 operational Senior Vice-Presidents.

Composition of the Board of Directors at 31 December 2021

14 directors

1 senior independent director

45% women (1)

73% independence rate (1)

Arkema's Board of Directors comprises 14 directors, including 8 independent directors, 2 directors representing employees and 1 director representing shareholder employees, equating to an independence rate of 73% (1).

Except for the directors representing employees, directors are appointed by the ordinary general meeting for a 4 year term.

(1) *Excluding directors representing employees and shareholder employees, in line with the recommendations of the AFEP-MEDEF Code.*

Jean-Marc Bertrand (63) ISGC
Shareholder employees rep. - IT project manager
Year current term expires: 2022

Thierry Le Hénaff (58)
Chairman and Chief Executive Officer, Arkema
Year current term expires: 2024

Nathalie Muracciole (57) NCCGC
Employee rep. - Corporate Talent Department
Year current term expires: 2024

Hélène Moreau-Leroy (57) NCCGC
Senior independent director
Chairman and Chief Executive Officer, Hutchinson
Year current term expires: 2023

Susan Rimmer (46)
Employee rep. - Global Product Stewardship Manager
Year current term expires: 2024

Marie-Ange Debon (56) AAC ✪
Chairman of the Executive Board, Keolis
Year current term expires: 2022

Laurent Mignon (58)
Chairman of the Executive Boar, BPCE
Year current term expires: 2023

Ilse Henne (49) AAC
Chief Transformation Officer, Thyssenkrupp Materials Services
Year current term expires: 2025

Fonds stratégique de Participations
Represented by
Isabelle Boccon-Gibod (53) ISGC AAC
Management consultant
Year current term expires: 2022

Ian Hudson (64) ISGC AAC
Chairman of the Board of Directors, Carbios
Year current term expires: 2023

Philippe Sauquet * (64) NCCGC
Company director
Year current term expires: 2022

Bpifrance Investissement
Represented by
Sébastien Moynot (49) ISGC
Member of the management committee of Bpifrance Investissement Large Cap.
Year current term expires: 2025

Thierry Pilenko (64) NCCGC ✪
Company director
Year current term expires: 2025

Victoire de Margerie (58) ISGC ✪
Chairman, Rondol Industrie
Year current term expires: 2023

AAC *Audit and Accounts Committee*
NCCGC *Nominating, Compensation and Corporate Governance Committee*
ISGC *Innovation and Sustainable Growth Committee*
✪ *President*

* *Co-opted by the Board of Directors' meeting on 9 November 2021 temporarily as a replacement for Alexandre de Juniac who resigned.*

The Board is attentive to maintaining:

- a diversity of experience, in particular as regards international experience;
- skills complementarity, notably with current and former executives with experience in industry (the chemical industry and customer-driven businesses in particular), finance, acquisitions and their integration, corporate social responsibility and digital;
- a majority of independent directors; and
- a high level of gender balance.

PROPOSED CHANGES TO THE COMPOSITION OF THE BOARD OF DIRECTORS

(submitted to the annual general meeting of 19 May 2022)

Ratification of the co-optation of Philippe Sauquet as an independent director;

- Reappointment of Philippe Sauquet as an independent director for a four-year term; and
- Appointment of Nicolas Patalano as a director representing shareholder [(1)] employees for a four-year term.

(1) *Another candidate, Uwe Michael Jakobs, not approved by the Board of Directors, is submitted to the vote of the annual general meeting. As there can only be one seat for a director representing employees, only the candidate with the most votes and at least the majority, will be appointed.*

OTHER CHANGES IN 2022

(submitted to the annual general meeting of 19 May 2022)

- Reappointment of Fonds Stratégique de Participations as a director for a four-year term, represented as before by Isabelle Boccon-Gibod; and
- Reappointment of Marie-Ange Debon as an independent director for a four-year term.

Directors' skills matrix (excluding the Chairman and CEO)

	CHEMICALS	INDUSTRY	INTERNATIONAL CAREER	CEO	FINANCE	CSR	M&A	DIGITAL
in %	46	62	38	31	54	54	54	15
Jean-Marc Bertrand	●					●		●
Sebastien Moynot*		●			●	●	●	
Marie-Ange Debon*		●		●	●		●	
Isabelle Boccon-Gilbod		●	●		●	●	●	
Ilse Henne*		●			●			
Ian Hudson*	●		●		●	●		
Victoire de Margerie*	●	●	●			●		
Laurent Mignon				●	●		●	●
Hélène Moreau-Leroy*		●	●	●	●		●	
Nathalie Muracciole	●							
Thierry Pilenko*		●	●	●			●	
Susan Rimmer	●					●		
Philippe Sauquet	●	●				●	●	

* *Independent directors.*

THE **BOARD'S WORK**

The Board of Directors

It determines the Group's strategic guidelines and oversees their implementation.

Its approval is required for:

→ **investments** in excess of **€80m**;

→ **acquisitions** or **divestments** with an **enterprise value** in excess of **€130m**;

→ financial statements, with oversight on the quality of information provided to shareholders and financial markets.

More generally, it promotes the Group's long-term value creation for all of its stakeholders, taking into consideration notably the social and environmental implications of its activities.

11 MEETINGS

including one meeting on Group strategy, with a 100% attendance rate

92%

ATTENDANCE RATE in 2021

To accomplish its missions, the Board is supported by the work of 3 SPECIALIZED COMMITTEES

AUDIT AND ACCOUNTS COMMITTEE			**NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE**			**INNOVATION AND SUSTAINABLE GROWTH COMMITTEE** *(since 20 May 2021)*		
The Audit and Accounts Committee oversees matters including the quality of internal control and the reliability of information provided to shareholders and financial markets.			The Nominating, Compensation and Corporate Governance Committee issues in particular recommendations on matters including the composition of the Board of Directors, the compensation policy for the Chairman and Chief Executive Officer, and good governance practices.			The Innovation and Sustainable Growth Committee is tasked with assessing the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth. Together with the Audit and Accounts Committee and the Nominating, Compensation and Corporate Governance Committee, this new committee will help perform a full review of the Group's ESG and non-financial challenges.		
6 MEETINGS	96% ATTENDANCE RATE	75% INDEPENDENCE RATE	3 MEETINGS	100% ATTENDANCE RATE	75% INDEPENDENCE RATE	1 MEETING	100% ATTENDANCE RATE	60% INDEPENDENCE RATE

Annual assessment of the Board of Directors' operating procedures

The Board of Directors carries out an annual self-assessment of its operating procedures using a questionnaire that it validates. An external assessment is carried out by an independent consulting firm in cooperation with the Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors every 3 years.

For 2021, the Board of Directors' annual assessment was carried out by Spencer Stuart with the help of a self-assessment questionnaire. The results showed that the directors continue to be very satisfied with the Board's operating procedures, reporting stronger commitment in the context of the pandemic.

From a general viewpoint, it emerges from this assessment that Arkema's governance this year is again at a level in line with best practice. In effect, on average more than 90% of directors consider that the dynamics of the functioning of Arkema's Board of Directors and its performance are very satisfactory, despite the deep evolution of its composition in the past few years given the expiry of the terms of office of several directors in place since 2006. The directors unanimously manifest a real pleasure working together in a professional and pleasant environment.

THE **EXECUTIVE** COMMITTEE

The Chairman and Chief Executive Officer is also supported by an Executive Committee comprising a Chief Operating Officer, 5 operational and functional Executive Vice-Presidents, and 3 operational Senior Vice-Presidents.

Composition of the executive committee at 31 December 2021

NAME	POSITION	AREA OF RESPONSIBILITY
Thierry Le Hénaff	Chairman and Chief Executive Officer	
Marc Schuller	Chief Operating Officer	Advanced Materials, Coating Solutions and Intermediates segments, North America region, commercial excellence, raw materials and energy procurement
Reporting to Marc Schuller:		
Richard Jenkins	Operational Senior Vice-President	Coating Solutions segment
Marie-Pierre Chevallier	Operational Senior Vice-President	Performance Additives Business Line
Erwoan Pezron	Operational Senior Vice-President	High Performance Polymers Business Line
Vincent Legros	Chairman and Chief Executive Officer, Bostik	Adhesive Solutions segment
Luc Benoit-Cattin	Executive Vice-President, Industry and CSR	Industrial safety, environment and sustainable development, technique and construction, supply chain, quality and goods and services procurement, processes and operational excellence
Bernard Boyer	Executive Vice-President, Strategy	Planning, economic studies, acquisitions/divestitures, internal audit and internal control, insurance and risk management, and legal affairs
Marie-José Donsion	Chief Financial Officer	Accounting, financial control, treasury management, financing, taxation, investor relations, IT and digital transformation
Thierry Parmentier	Executive Vice-President, Human Resources and Communication	Human resources and communication

The R&D department falls within the remit of Armand Ajdari, Chief Technology Officer (CTO) of Arkema who joined the Group on 1 January 2022, and reports directly to the Chairman and Chief Executive Officer.

→ 20 %
of members are women

GENERAL COMMENTS

In this document:

- the term “Company” refers to the company named Arkema, whose shares are traded on the regulated market of Euronext Paris;
- the terms “Arkema”, “Group” or “Arkema Group” refer to the group composed of the Company and all the subsidiaries and shareholdings it holds directly or indirectly; and
- the term “Bostik” refers to the Bostik group.

This document contains forward-looking statements about the Group’s targets and outlook, in particular in the “Profile, ambition and strategy” section and section 5.2. Such statements may in certain cases be identified by the use of the future or conditional tense, or by forward-looking words including but not limited to “believes”, “targets”, “expects”, “intends”, “should”, “aims”, “estimates”, “considers”, “wishes”, “may”, etc. The Group notes that all its targets are set under the assumption of standard market conditions and in line with current International Financial Reporting Standards. It also notes that these statements are based on data, assumptions and estimates deemed reasonable by the Group at the date of this document and within the time frame in question, in particular with regard to future development of global demand, conditions relating to raw material and energy costs, balance between supply and demand for products marketed by the Group and their price levels, and currency exchange rates. They may change or be amended due to uncertainties linked to the economic, financial, competitive and regulatory environment in which the Group operates, as well as to health conditions relating to pandemics such as the Covid-19 crisis, geopolitical equilibriums and climate change. In addition, the business activities and the Group’s ability to meet its targets may be affected if one or more of the risks described in section 2.1 of this document were to materialize. Furthermore, achievement of the targets implies the success of the strategy presented in the “Strategy” section of this document.

The Group does not undertake to meet and does not give any guarantee that it will meet the targets described in this document.

Investors are urged to pay careful attention to the risk factors described in section 2.1 of this document. The materialization of one or more of these risks could have an adverse effect on the Group’s activities, condition, financial results or targets. Furthermore, other risks not yet identified or considered as not material by the Group could have the same adverse effect.

This document also contains information on the markets in which the Group operates. This information is derived in particular from research produced by external organizations. Given the very rapid pace of change in the chemicals sector in France and the rest of the world, this information may prove to be erroneous or out of date. Accordingly, trends in the Group’s business activities may differ from those set out in this document.

For 2021, the Company has prepared annual financial statements and consolidated financial statements for the period between 1 January and 31 December. These financial statements are presented in chapter 5 of this document. Chapter 5 of this document provides a comparative analysis between the 2021 consolidated financial statements and the 2020 consolidated financial statements.

The alternative performance indicators used by the Group are defined in note 4 of the notes to the consolidated financial statements in section 5.3.3 of this document.

A glossary defining the technical terms used in this document can be found at the end of this document.

INNOVATION AND BUSINESS OVERVIEW

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

1.1 Innovation strategy

Clearly defined in a Group policy in 2018, innovation is an integral part of Arkema's growth strategy and its contribution to advancing sustainable development and addressing major challenges arising from global megatrends. Innovation enables Arkema to:

- design and develop products and solutions that meet our customers' needs while contributing to planet-friendly, sustainable development;
- anticipate technological and market changes and adapt the Group's portfolio accordingly while protecting the environment; and
- enhance the Group's operational excellence and help preserve natural resources by providing production facilities with new technologies and processes, thereby enabling the Group to produce safely and competitively while limiting its environmental footprint, in line with its commitment to being a responsible chemicals manufacturer.

Innovation is at the heart of the Group's growth strategy, with Specialty Materials products less than five years old generating almost €1 billion in sales. Innovation is based on:

- a dedicated organization, including an incubator to foster the emergence of new products;
- a portfolio of research and development (R&D) projects;
- active patent and trademark management;
- a collaborative innovation ecosystem; and
- the development of digitalization.

1.1.1 A dedicated organization

Innovation is supported by a network organization incorporating several specialized functions:

- a Research and Development department that reports directly to the Chairman and Chief Executive Officer, which:
  - coordinates all of Arkema's research programs worldwide, the development of long-term research platforms and the implementation of partnerships,
  - ensures that innovation projects funded by Arkema's various Business Lines and activities are scientifically and technologically relevant and in line with the Group's overall strategy and its sustainable development commitments,
  - creates and steers corporate R&D programs and identifies disruptive development opportunities and new research areas;
- a scientific committee comprising representatives from the R&D department, the Sustainable Development department, the Process department, the Industrial Property department, the Group businesses' global R&D departments, the scientific departments and Arkema's main R&D centers; and
- research centers spread across the three regional hubs (Europe, North America and Asia).

The scientific and technological knowledge of Arkema's R&D teams is further strengthened by world-renowned scientific advisors from the academic world, as well as numerous academic and industrial partnerships.

To stay up to date with the latest knowledge and technologies in their area of expertise, the Group's researchers regularly attend and speak at scientific seminars and conferences, participate in "innovation days" organized by key customers and suppliers, and collaborate with academic partners, notably by contributing to the supervision of doctoral theses.

In 2021, R&D expenditure totaled €243 million, representing 2.6% of Group sales. R&D expenditure as a percentage of sales varies between businesses. It is higher in specialty areas and particularly in the Advanced Materials segment, where R&D helps find solutions for customers and respond to global megatrends. Arkema's R&D teams comprised more than 1,600 researchers in 2021, spread across three regional research and innovation hubs.

R&D expenses break down among Arkema's four segments and its corporate research program as follows:

- **11% for the corporate research program**

Defined by the R&D department and subject to the approval of Arkema's Executive Committee, this program addresses major challenges arising from global megatrends by preparing breakthrough innovations, which are developed commercially by the Group's segments at a later stage. It coordinates research efforts in such high-potential, cross-cutting areas as batteries, composite materials and hydrogen storage, photopolymerization processes for fast composite material implementation, adhesives and coatings, and chemical recycling of polymer materials;

- **40% for the Advanced Materials segment**

The global challenges of sustainability and energy transition require the development of new, innovative materials which combine extreme performance, implementation productivity, lightness and recyclability. They are used for high-value-added applications in markets such as transportation, production and storage of renewable energy, 3D printing, water treatment and consumer electronics. In the field of polymers, the Advanced Materials segment's R&D develops polyamides, PVDF and PEKK for the lightweighting of structures by substituting metal parts with thermoplastic composites in the automotive and aerospace industries, and are used for new production techniques such as 3D printing which enable optimal design of complex parts. The R&D department designs innovative and competitive solutions for the production and storage of renewable energy (photovoltaics, wind power, batteries, hydrogen storage), renewable materials (polyamide 11, surfactants, Kynar® CTO PVDF) that contribute to reducing the consumption of fossil raw materials and make recycling easier (surfactants for roads coatings), as well as in water treatment (PVDF, hydrogen peroxide), animal nutrition (Intermediates for methionine), and consumer goods (high performance polymers and elastomers for consumer electronics, sport, technical textile, etc.). It forms strategic technological partnerships with leading industrial customers, such as those developed with Hexcel in composites for the aeronautics industry, with CJ CheilJedang in animal nutrition and with EOS and HP in 3D printing. The segment's technical excellence is reflected in the strong reputation of brands such as Rilsan®, Pebax®, Kynar® and Luperox®;

- **21% for the Adhesive Solutions segment**

In the widely diverse area of adhesives, Arkema is focusing its R&D efforts on sustainable solutions. The packaging sector is currently undergoing significant change, with numerous projects aimed at redesigning packaging to incorporate recyclability directly at the design stage. Bostik is contributing to these changes through the development of new adhesives. Research on industrial adhesives for the assembly of durable goods or the manufacture of hygiene products is also driven by sustainable development requirements, either through the use of renewable raw materials or the creation of more efficient assembly technologies. In 2020, Bostik significantly diversified its offering of specialty hot-melt adhesives by offering films and powders in addition to the traditional granules. One of the main areas of innovation is in engineering adhesives, which are experiencing high growth in the electronics, security and medical markets. Lastly, a large portion of Bostik's R&D is dedicated to reducing the environmental impact of buildings and developing innovative, functional adhesives and waterproofing products for the construction and DIY markets, thus helping to reduce buildings' climate impact while improving indoor air quality;

- **21% for the Coating Solutions segment**

The segment's R&D develops innovative solutions for the coatings market. There is a constant evolution of coatings toward solutions without controversial substances that meet the increasingly strict requirements with regards to the protection of people and the environment. Thus water-based resins technologies are being developed to replace conventional solvent-based technologies, while maintaining the same level of technical performance. R&D is also developing technologies for industrial coatings, with photocure resins for the food Packaging ink and furniture markets, and powder resin technology for high performance and durability applications. In solvent technologies, an important line of research consists in optimizing drying speeds while lowering the environmental footprint by reducing the use of volatile organic compounds in favor of raw materials from renewable sources or from the circular economy. At the same time, new additive technologies using solvent-free processes are being developed, with optimized cost/performance profiles, for the decorative paints and industrial coatings markets, with the integration of bio-based technologies. Lastly, 3D printing solutions constitute another development focus, using the know-how gained in the area of photocure resins for coatings. In addition to working closely with customers to provide responsive technical support, the segment's R&D teams also carry out process research, which enables them to optimize production costs and produce new formulas on an industrial scale; and

- **7% for the Intermediates segment**

This segment's R&D objectives focus on ensuring that its processes are competitive and finding new applications and end markets for its products. One of its primary objectives is to continuously improve its processes in order to make them safer, more reliable, more productive and therefore more competitive, while minimizing their environmental impact. To this end, R&D teams study the benefits of new raw materials, test new catalysts and reactor types and develop new synthesis pathways. They also contribute to the development of new products such as the new HFO low global warming potential (GWP) refrigerants.

1.1.2 A portfolio of research and development projects

Global population growth and changing lifestyles are affecting demand for energy and materials, as well as needs in the areas of health, well-being and mobility. They are also driving climate change and resource scarcity. Against this backdrop, and based on a forward-looking analysis of global megatrends, the Group is driving growth through innovation *via* a portfolio of R&D projects that provide solutions to economic and social challenges and contribute to the United Nation's 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals (SDGs). For further details, see section 4.2 of this document.

The Group's analysis led to the definition of the following five cross-business platforms, which target areas with strong development potential and form the base of its portfolio of R&D projects:

- new energies;
- natural resources management;
- lightweight materials and design;
- living comfort and home efficiency; and
- electronics solutions.

In addition to these five innovation platforms, a number of process technology platforms focused on generating innovative production methods promote the principles of eco-design. These platforms are described in section 1.1.2.6 of this chapter.

Moreover, the Group is also prioritizing the development of a circular economy, in line with the recommendations of the materiality assessment conducted in 2019. This area is now associated with renewable products and water management within the "Natural resources management" platform.

The innovation work carried out within these platforms is supplemented by the Business Lines' ongoing efforts to improve their product ranges, in order to meet market and customer expectations.

Arkema incorporates corporate social responsibility into all of its R&D projects and implements eco-design and circular economy techniques, as described in section 4.3 of this document. When identifying the risks and opportunities of each project, Arkema takes into account the entire value chain, from raw material extraction to product end of life, as well as the United Nations' Sustainable Development Goals. For further details, see section 4.3.5 of this document.

1.1.2.1 "New energies" platform

The development of new energies is a megatrend driven by the world transition to a less fossil-fuel-dependent economy. Through this platform and the innovative solutions it generates, the Group is contributing to the fight against climate change and to the United Nations' SDG 7: "Ensure access to affordable, reliable, sustainable and modern energy for all" and SDG 13: "Take urgent action to combat climate change and its impacts".

Innovative polymer materials and chemicals are used to varying degrees in the new energy solutions currently available, including rechargeable batteries, photovoltaic panels, wind turbines and solar thermal power plants.

Thanks to its technological expertise, Arkema offers a number of new solutions aimed at improving the production, conversion, transportation and storage of these new forms of energy.

Solutions for batteries

Thanks to innovation in materials, binders and electrolyte salts, Arkema has a range of solutions designed for use in the development of batteries.

The Kynar® PVDF fluoropolymer, for example, is used in the main components of lithium-ion batteries – in the electrodes as the binder for the active phase and as a protective coating for the separator. These products play a very important role in the battery's lifespan and performance. For this reason, they are the subject of constant, innovative research to improve current-generation batteries and to develop tomorrow's solid-state batteries.

Lithium salts, synthesized from the Group's various chemistries are also used inside batteries, to move lithium ions from one electrode to the other. Battery manufacturers need lithium salts, such as the Foranext® solution, that can withstand the increasingly demanding conditions of use placed on their products amid the need for constantly growing electric vehicle driving range and charge speeds.

FOCUS

Christian Collette Center of Excellence dedicated to batteries

In a context of rapidly accelerating growth in electric mobility around the world and renewable energy storage needs, Arkema opened a new center of excellence dedicated to batteries at its Pierre-Bénite Research Center in France in November 2021.

Improvements in battery performance, greater energy density and shorter charging time, greater autonomy and lighter weight of vehicles today represent key R&D areas to meet the challenge of energy transition. Thanks to its recognized expertise and unique offering of innovative, durable and high performance materials, Arkema is ideally positioned at the heart of the battery ecosystem to support its customers and partners in the clean mobility revolution. This center of excellence is equipped with state-of-the-art design and analysis equipment, including a dry room and an electrode coating line. It draws on the scientific and technical complementarity of the Pierre-Bénite Research Center's researchers. Alongside this platform, a pilot line dedicated to the pre-industrialization of the next generations of electrolytes for the batteries of the future is already operational. The teams will conduct research with the Group's academic partners (CNRS, CPE in Lyon, LEPMI in Grenoble and ENSCM in Montpellier), as well as with partners in the battery ecosystem, with which strategic agreements have been concluded (start-ups, manufacturers, gigafactories).

This Center of Excellence has been named the Christian Collette Center of Excellence for Batteries, in honor of the Group's R&D Vice President who passed away in April 2020. It was partly financed by the *Région Auvergne-Rhône-Alpes*.

Materials solutions for hydrogen mobility

Arkema has positioned itself as a benchmark "materials" partner for hydrogen mobility systems. The technical challenges to address correspond to the areas of development of high performance materials that are both lightweight and resistant to extreme conditions. Moreover, the deployment of hydrogen as the energy solution of the future will require an industrial scale-up. As a major chemicals group, Arkema has the appropriate know-how to achieve this.

The Rilsan® polymers offer low hydrogen permeability and so can be used in the manufacture of tank liners resistant to low temperatures (-40°C).

The carbon fiber composites and related processes developed by Arkema open up possibilities for the production of entirely thermoplastic high-pressure (700 bars) tanks for cars, trucks, buses or trains, which would be more resistant to alternating stress and fully recyclable at the end-of-life stage. The Group is also looking into composite solutions for electrolyzer or cryogenic (liquid hydrogen) tanks for long-distance or air transportation.

Lastly, its Kynar® high-chemical resistance fluoropolymers are prime candidates for fuel cells to improve the durability of bipolar plates and to provide innovative and competitive solutions for materials comprising membrane electrode assemblies (MEAs).

Materials for photovoltaic cells

Photovoltaic cells are made up of a number of highly technical organic materials that protect the silicon layer from outside elements. Arkema harnesses its performance materials expertise to bring to this market a large number of innovations, such as:

- Apolhya® grafted polyolefins, which are used for the encapsulation or protection of photovoltaic cells;
- Luperox® organic peroxides, for the production of transparent films to encapsulate photovoltaic cells;
- Kynar® fluoropolymers, for panel backsheet protection; and
- Bostik Vitel® polyester adhesives, which are used for binding photovoltaic backsheets.

Materials and products for the wind turbine industry

With its Elium® thermoplastic liquid resin and its structural adhesives, Arkema offers a breakthrough innovation in the composites market, especially in the production of wind turbine blades. The resin's recyclability represents a significant advantage for wind turbine blades, for which end-of-life recycling is a major industrial and environmental issue. Arkema has been participating in the Zero wastE Blade ReseArch (ZEBRA) project since September 2020. Led by IRT Jules Verne, this project aims to create the first 100% recyclable wind turbine blade and brings together Arkema, Engie, LM Wind Power, Owens Corning and Suez. Arkema's position in this consortium demonstrates the Group's commitment and drive to be part of a product design model with a circular economy approach.

In 2020, the Elium® technology won the Pierre Potier prize, which is awarded by the French Ministry of Industry to commend sustainable development initiatives by the chemical industry.

1.1.2.2 "Natural resources management" platform

Global population growth, rising living standards and industrial intensification are all driving an increase in the use of fossil fuels and therefore contribute to global warming. Mindful of the need to reduce the use of non-renewable fossil resources, Arkema has long been involved in the development of bio-based products, thereby supporting the United Nations' SDG 12: "Ensure sustainable consumption and production patterns." In 2020, Arkema joined the World Business Council for Sustainable Development (WBCSD), with a view to acting in partnership with the network to help boost the transition to a more sustainable world.

Arkema has developed a wide range of bio-based polyamides derived from the castor plant, which is mainly grown in water-scarce regions of India. These unique products are used in a wide variety of markets, including the automotive, energy, optics and electronics markets.

Arkema's portfolio of bio-based polyamides has expanded considerably since production began over 70 years ago. With the Pebax® Rnew® range, for example, Arkema has developed thermoplastic elastomers that deliver outstanding energy return, lightness, shock resistance and durability. Offering a very broad spectrum of flexibility, this range of polymers has become the standard for ski boots and sports shoe soles. Moreover, transparent Rilsan® Clear can also be produced from bio-based raw materials (Rilsan® Clear Rnew®), creating interesting new design possibilities for injection-molded parts. These transparent polymers offer greater flexibility and easier processing capabilities than existing solutions. Combining ultra-light weight, high transparency as well as chemical and mechanical resistance, Rilsan® Clear products offer new opportunities in various markets.

The Group's expertise and innovation mean that it can offer a wide range of renewable polyamides in diversified markets such as transportation, consumer goods, energy and 3D printing. Examples include:

- evolutions in the flagship Rilsan® polymer range, a reference in the automotive industry at the heart of technological solutions for the energy transition, with applications in hybrid vehicle fuel supply, electric vehicle battery cooling and, more recently, in fuel cells;
- products that are both flexible and heat-resistant, such as the Rilsan® HT range for the transportation market. These polyamides offer outstanding performance, enabling them to replace metal parts to help lighten vehicles and, by extension, reduce vehicle emissions;
- highly transparent materials such as Rilsan® Clear Rnew®, for eyewear frames, watches and respiratory masks;
- light, resilient elastomers capable of returning the elastic energy absorbed during deformation, like those used in Pebax Powered® sports shoes;
- rigid materials designed to serve as reinforcements in composites, such as the cross-linkable Platamid® or the Rilsan® XDM50 and XZM60 ranges designed for the numerous structural parts found in smartphones, tablets and other mobile devices; and
- Rilsan® Invent Natural fine powders used in powder bed fusion additive manufacturing.

Arkema has also developed a special sulfur-based intermediate for the production by its partner, South Korea-based CJ CheilJedang, of L-methionine, a methionine from renewable sources produced by replacing the use of propylene with a unique fermentation process. These innovations have been implemented at the Kerteh production facility in Malaysia. The remarkable results obtained have led Arkema to set up a research program on enzyme catalysis as a synthesis process for other products in its portfolio.

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Kynar® CTO, a new breakthrough range of renewable PVDF grades for lithium-ion batteries

Arkema has introduced a major innovation with the launch of its new fluoropolymer range, made from carbon derived from renewable raw materials. Kynar® CTO PVDF grades, using the Mass Balance approach under the ISCC+ certification process, will be specifically targeted for the lithium-ion battery market, as functionally identical alternatives to Arkema's flagship binder grades, Kynar® HSV900 and Kynar® HSV1810.

This patent pending technology allows a climate change impact reduction of almost 20% of the Kynar® PVDF binder (expressed in kg CO_2 eq./kg, according to the ISO 14040 standard) while reducing dependence on upstream crude oil consumption. The crude tall oil used in upstream feedstock production is a residue of the Kraft process of wood pulp manufacture. The new Kynar® CTO grades are certified to be compliant with industry leading responsible forestry standards. They do not result in deforestation, and there is no direct competition with food crops.

These grades will initially be produced at the Pierre-Bénite plant in France for the European market. In a second phase, the production of this range of sustainable PVDF grades will be extended to each of Arkema's PVDF manufacturing sites worldwide and will be made available to all traditional PVDF markets and applications.

In the field of water treatment, Kynar® resins are used as ultrafiltration membranes to treat wastewater or make water drinkable. They allow for much finer filtration of suspended matter, bacteria and viruses while increasing the volumes of treated water by 20%, at constant energy levels. They also allow the doubling of the service life of certain filtration systems from five years to ten years.

Among the Group's product offering, acrylic acid is used to manufacture polyacrylates used in water treatment facilities for the flocculation of suspended matter. Arkema also continues developments to increase the use of Albone® hydrogen peroxide in the disinfection of cooling systems or as a product to treat drinking water or swimming pool water. Compared with traditional chlorine-based treatment solutions, this solution allows the elimination of chlorinated discharges.

Lastly, the Group has made the circular economy a development priority and offers, in particular, Elium® resin-based composite parts, ensuring scraps and end-of-life parts are 100% recyclable through mechanical or chemical recycling processes. Since it is chemically recyclable, the resin can be used over and over again while preserving the same properties as a virgin resin, making this technology a perfect fit for the circular economy.

Arkema's R&D teams also form partnerships in order to assess and develop processes for recycling the polymers used in thermoplastic composites, which will enable users to recycle their waste *via* dedicated channels.

The Group's ongoing commitment to bio-based and recycled products is demonstrated by the fact that products at least 25% made from renewable or recycled raw materials account for around 10% of Group sales.

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Arkema strengthens its commitment to the circular economy with the acquisition of Agiplast

Agiplast, specialized in the regeneration of high performance polymers, in particular specialty polyamides and fluoropolymers, was a historical Group partner in recycling operations. The company generates annual sales of around €15 million and operates a plant in Italy. Agiplast's strong know-how in mechanical recycling technologies will now enable Arkema to offer high quality recycled polymers to its customers. Prior to the deal, in October 2019, Arkema launched the Virtucycle® program in collaboration with Agiplast to develop loops for the collection and regeneration of high performance polymers while minimizing CO_2 emissions.

With this 2021 acquisition, Arkema has become the first fully integrated high performance polymer manufacturer, offering both bio-based and recycled materials in order to address the challenges of resource scarcity and end-of-life products. This acquisition is thus in line with Arkema's sustainable growth strategy, and in particular the transition to a circular economy.

1.1.2.3 "Lightweight materials and design" platform

Global population growth, rising living standards, increased mobility and urbanization, as well as the faster pace of industrialization in emerging markets are all factors that contribute to global warming. By developing solutions that can be used to reduce the weight of land and air vehicles and thereby lower fuel consumption, Arkema contributes to the United Nations' SDG 13: "Take urgent action to combat climate change and its impacts".

The polymers developed by Arkema are ideally positioned to support this trend, be they high temperature polyamides designed to replace certain metal components in car engines (Rilsan® HT), structural adhesives that substitute for mechanical bonding systems, or composite materials.

3D printing, or additive manufacturing, also helps to meet this goal. By enabling the design of complex parts, these technologies simplify assembly and make it possible to replace the metal parts traditionally derived from smelting or tooling, with a subsequent reduction in weight. Additive manufacturing optimizes design, driving a reduction in the raw materials used and in the losses incurred during the prototyping phase.

Composite materials

The development of thermoplastic composite materials, and their assembly with adhesives, is a good illustration of this research platform's work. Current carbon- or glass-fiber-based composites make heavy use of thermoset polymers, for which the cross-linking process is irreversible. These resins present two limitations: they are extremely hard to recycle and their production cycle time makes them difficult to use in high throughput industries such as automotive.

To address this challenge, Arkema has developed thermoplastic polymer-based composites with innovative resins (Elium®, Kepstan® and Rilsan®), which are adapted to the specific needs of various markets. The recyclable Elium® resin, for example, is used in applications in the automotive, wind power, shipbuilding and construction industries, while Kepstan® PEKK makes it possible to obtain particularly hard-wearing and flame-retardant parts that meet the stringent specifications of the aerospace industry. In terms of performance, replacing steel parts with substitutes made from these thermoplastic resins is expected to deliver weight savings of between 30% and 50%.

3D printing

The "Lightweight materials and design" platform places particular emphasis on additive manufacturing (3D printing) technologies, which are enjoying fast growth in the aerospace, electronics, automotive and healthcare industries. The Group's product range has grown significantly more diversified in recent years and now includes the Rilsan® Invent Natural polyamide 11 powders, Kepstan® PEKK powders, N3xtDimension® UV curable resins and Pebax® thermoplastic elastomers. In this way, Arkema has stepped up development to occupy a unique position, with a range that now covers all additive manufacturing technologies: powder bed fusion, filament extrusion and UV curing.

To support the rapid development of 3D printing as an industrial manufacturing method, Arkema opened a third global center of excellence for 3D printing based on powder bed fusion technologies in Serquigny, France in 2019. This center has reinforced the Group's network, which comprises a center based in Exton, Pennsylvania in the United States for photocure liquid resins inaugurated in 2018, and another in King of Prussia, also in Pennsylvania, for filament extrusion. Lastly, Arkema also launched a commercial platform dedicated to 3D printing. Named "3D Printing Solutions by Arkema", this platform aims to meet the needs of end customers by offering them development partnerships, a unique range of materials and services and Arkema's application-oriented expertise.

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Arkema invests in ERPRO 3D FACTORY, a specialist in large-series additive manufacturing

ERPRO 3D FACTORY (E3DF) is a French company founded in 2017 that specializes in large-series additive manufacturing. Since its creation, E3DF has already produced more than 19 million parts, most of which have been made with 100% bio-based polyamide 11 powder. Arkema has acquired a 10% stake in E3DF to gain new expertise and accelerate the development of new applications for its high performance polymers.

Arkema set up a close partnership with E3DF in 2018, in order to develop numerous projects in cosmetics, medical, automotive and eyewear applications using its unique range of bio-based and recyclable specialty polyamides, and its N3xtDimension® advanced liquid UV curable resins, perfectly suited to the fast-growing and demanding additive manufacturing market.

With this investment, Arkema has become a member of the strategic committee of the company and thus reinforced its existing partnership. The combination of Arkema, designer of innovative solutions, and E3DF, a specialist in large-series additive manufacturing, will accelerate the development of new high-value added applications in 3D printing.

1.1.2.4 "Living comfort and home efficiency" platform

Energy efficiency, health, comfort and environmental friendliness are key concerns in developing the building of the future, with consumer demand in the field regularly becoming greater and more complex. The responses provided to these needs contribute to the construction of sustainable cities and communities, the focus of the United Nations' SDG 11: "Make cities and human settlements inclusive, safe, resilient and sustainable". Mindful that this trend is likely to continue over the long term, Arkema has made it a key focus of its R&D strategy.

Arkema thus offers solutions for the thermal insulation of buildings, which is achieved by combining vacuums or air, which have low thermal conductivity, with materials that provide mechanical strength, such as glass, metal and wood. In particular, Arkema markets a range of high performance adhesives and sealants, such as adhesives for making double-glazed windows and adhesives for the manufacturing of doors and insulation panels. The Kynar Aquatec® PVDF emulsion is used in the formulation of white coatings for cool roofs, which reduce buildings' energy consumption. These resins are exceptionally durable, thus preserving the white finish for an especially long time without maintenance.

This expertise continues to be actively developed within Bostik, where it forms a significant R&D focus. Particular attention is paid to formulations where the company proactively limits the use of additives with unfavorable toxicity profiles. For example, the most recent floor covering adhesives are phthalate- and solvent-free and have sufficiently low volatile organic compound (VOC) content to obtain health certifications like EMICODE® EC1 Plus and to meet the environmental standards required for LEED® and BREEAM® certification.

The coating resins activity in the Coating Solutions segment also contributes to the development of healthier, more environmentally friendly homes. Most new grades of acrylic and alkyd emulsions, which are developed by this business, can be used without the addition of a coalescing agent, enabling customers to prepare very low VOC coatings. Some grades also capture formaldehyde from the air. Moreover, the new binders for exterior paints offered by Arkema have enhanced dust and water resistance and excellent stability with regard to environmental conditions. Thanks to these improvements, consumers can use the coatings for a number of years, thereby reducing the environmental impact of maintenance and replacement works.

This innovation platform also benefits from the development of the Smart House by Arkema, which is located at the Venette R&D site in France. This one-of-a-kind laboratory-house was designed to bring together players in construction to cooperate on innovation and sustainable development. The purpose of the concept house is to test, develop and approve new solutions to major challenges facing the construction industry, particularly energy efficiency, environmental footprint and the health and comfort of building occupants. Since its creation, the project has offered a real-scale illustration of several innovative solutions, including solutions that improve occupants' acoustic comfort and new adhesive concepts that make it possible to recycle plastic flooring by simplifying the replacement process and reducing the associated costs. The improved functionality of construction components such as walls and floors is also under review. The approach developed at the Smart House is part of the Group's open innovation ecosystem, where input from such diverse participants as economists, rental companies, architects, customers, universities and suppliers provides a better understanding of future needs.

1.1.2.5 "Electronics solutions" platform

The numerous innovations for electronics, and particularly mobile devices, contribute to the United Nations' SDG 9: "Build resilient infrastructure, promote sustainable industrialization and foster innovation".

Through its high performance polymers range (specialty polyamides and fluoropolymers), Arkema offers innovative solutions for the mobile device market, which includes smartphones and tablets. These solutions relate to battery safety and life per charge and to the internal structural parts of these devices, which are required to be increasingly thin while offering ultra-high rigidity and made using the same simple injection molding process, as well as to the external parts, which need to be stain- and shock-resistant but also have aesthetic and haptic qualities. Rilsan® polyamide 11 is the foundation for these latest innovations, combining the very high level of performance required for these applications with the guarantee of a 100% bio-based and recyclable solution. Arkema has developed an elastomer version of Rilsan®, Pebax® Rnew®, and a transparent version, Rilsan® Clear Rnew®. Arkema completes this range of materials with adhesive solutions for their assembly. A new range of engineering adhesives has been developed and marketed by Bostik under the brand name Born2Bond®. The range includes photocure adhesives for the assembly of electronic equipment with enhanced precision and productivity, and photocure sealants shaped *in situ*, which ensure that the devices are watertight and can be dismantled and repaired.

With its fluorinated electroactive polymers (Piezotech®), Arkema provides an extremely innovative range of materials for emerging electronics segments, such as organic, flexible and printed electronics. Piezotech® fluorinated electroactive polymers and inks exhibit unique piezoelectric, pyroelectric, electrostrictive, electrocaloric and high dielectric permittivity properties, making them central to the development of next-generation sensors (pressure, deformation, infrared, etc.), actuators (haptic, medical, microfluidic, etc.) and flexible transistors for use in various next-generation products such as screens, solid-state cooling systems, energy recovery systems, printed loudspeakers and more. Depending on their composition, these materials offer a wide range of functional properties, including extreme sensitivity to deformations, vibrations, heat and the creation of sensations, energy, or even cold. Already used in smartphones and acoustic sensors, these materials also offer attractive possibilities in consumer electronics such as car dashboards and seats, virtual reality gloves, smart textiles and footwear, fitness trackers, video game controllers, flexible screens, smart pill dispensers and more. Professional applications currently being evaluated include connected labels and packaging (see "Smart labels" box), border controls, medical imaging, catheters, organic photovoltaic and connected sensors for cutting-edge manufacturing facilities. To develop these innovations, Arkema draws on a vast network of partners, including universities, industrial companies and trade organizations in the European Union and around the world.

FOCUS

Smart labels: Piezotech® materials in the spotlight

The SUPERSMART European project funded by EIT (European Institute of Innovation and Technology) and coordinated by Arkema with 10 partners won the 2021 Organic Electronics Association competition award for the Best Publicly Funded Project Demonstrator. This project advances the emerging technology of paper printed organic electronics to the industrial phase.

Two innovative demonstrators were designed and produced on a pilot scale: a smart label including an impact sensor based on Arkema's Piezotech® piezoelectric material and a smart counterfeit-proof label with conductive tracks and an electrochromic display directly printed on paper. The data detected on both components can simply be read *via* a cell phone application. Life cycle assessments and recycling studies have demonstrated the environmental benefit of these new solutions. Potential applications include packaging of pharmaceutical and medical products to track their exposure to impacts, falls or vibration during transit, and flooring to detect falls or abnormal patient movements in medical facilities. This recognition by the organic electronics community paves the way for a new, more sustainable electronics industry and a large number of new applications using Arkema's piezoelectric materials.

Certain Foranext® high-purity fluorinated Intermediates play an important role in the various stages of the manufacture of semi-conductors, where they are used to selectively eliminate matter through plasma etching.

The Sartomer® and Sarbio® specialty monomers and photocure resins have been developed to protect printed circuits and electronic components through encapsulation and coating. They improve the mechanical resistance of electronic devices and provide better protection against damage caused by the environment, thus increasing longevity.

Moreover, the arrival of 5G telecommunication networks brings a strong increase in demand for functional materials (dielectric properties, transparency to microwaves) and for specific energy storage systems, which represent development opportunities for the Group's innovative materials, such as Kynar® fluoropolymers, Elium® resins, Nanostrength® additives and Sartomer® resins.

1.1.2.6 “Process technology” platforms

Innovation in the area of manufacturing technologies helps to improve reaction yield and reduce the environmental footprint of manufacturing processes by reducing energy and water use, limiting air emissions and effluent discharges, and minimizing waste generation. Arkema has thus deployed several technology platforms that enable it to contribute to the United Nations' SDG 12: “Ensure sustainable consumption and production patterns”. These platforms focus primarily on:

- the use of the latest innovations derived from molecular modeling to more accurately predict chemical reactions;
- new solutions that intensify the separation of the primary product from the reaction by-products;
- the development of online analyses that monitor changes in the reaction process and the purity of products without the need for human intervention to obtain samples, thereby avoiding drifts in the production and ensuring consistent product quality; and
- the use of innovative technologies to recycle effluents and/or recover the chemical components present.

1.1.3 Patent and trademark management

Arkema notably uses patents to protect the innovations generated by its research and development efforts, whether in relation to its innovative manufacturing technologies or products. Intellectual property rights also enhance the value of the Group's products and brands in the eyes of its customers and enable it to be recognized as one of the most innovative companies in its industry. As a result, the Group's portfolio of patents and trademarks represents a key asset for its business.

1.1.3.1 Patents

Protecting the Group's technologies, products and processes with patents is key in optimally managing its business.

Consequently, Arkema files patent applications in its main markets in order to protect new chemical compounds, new materials with high technical performance, new synthesis processes for major industrial products and new product applications.

The number of patents granted and the number of patent applications filed annually are good indicators of R&D investment and performance. In 2021, Arkema filed 222 priority patent applications, of which 200 related to sustainable development. At 31 December 2021, it held 10,196 patents and had 5,254 patent applications pending [1]. The high ratio of pending patent applications to patents filed per year is due to the lengthy examination process.

Patent protection, in countries where Arkema seeks it, is typically granted for the maximum legal period of twenty years, calculated from the application date. The level of protection varies from one country to another, depending on the patent type and scope. Arkema seeks patent protection in many countries and regions, primarily in Europe, Asia, North America and South America.

Arkema actively protects its markets. To this end, it monitors competitors and takes action against any third-party infringements of its patents. The Group also challenges third-party patents that are granted without justification and takes legal action to have them declared null and void.

The expiration of a basic patent for a product or process can lead to increased competition as other companies bring new products to market. In some cases, however, the Group may continue to benefit commercially from a patent after its expiration by leveraging expertise related to a product or process or by filing for application or improvement patents.

Arkema also has a policy of obtaining patent licenses to meet operating requirements, or granting them to third parties. For inventions by employees, the Group continues to use the system that it implemented in 1989, whereby it grants additional compensation to employees whose inventions have given rise to a commercially exploited patent.

1.1.3.2 Trademarks

Trademark protection varies from country to country. While in most countries, trademark rights are the result of registration, in some, they may be based on usage regardless of registration. Trademark rights are obtained by registering the trademark nationally, internationally or even supra-nationally in the case of EU trademarks. Registrations are usually granted for a ten-year term and can be renewed indefinitely.

Arkema implements a centralized, dynamic trademark registration policy that draws on a worldwide network of intellectual property advisors.

In particular, Arkema holds the trademark rights to its main products. Examples of Arkema's flagship brands include Kynar®, Pebax®, Rilsan®, Forane®, Carelflex®, Evolution®, Bostik®, Sader® and Quelyd®. Arkema has also trademark protected the names of its latest innovations, such as Kepstan®, Elium® and N3xtDimension®.

Mindful of the importance of its brand portfolio, Arkema monitors trademark registrations by competitors in similar business sectors and has a policy of taking legal action against infringements.

(1) *All patent applications filed as part of a centralized purpose – with the World Intellectual Property Organization (WIPO), for example – are counted as a single application, even though the application may result in several patents being granted depending on the number of countries subsequently selected.*

1.1.4 Research incubator

The aim of the research incubator is to bring new products to market by carrying out disruptive innovation projects.

These projects are characterized by:

- their anticipation of changes in technologies or markets;
- significant project risks but high value added if successful;
- a market approach closely coordinated with that of the relevant business segments (one project may involve several Group activities); and
- a portfolio that is balanced between projects that are expected to be brought to market within five years and projects with longer timelines.

Since its creation, it has notably developed Nanostrength® nanostructured copolymers, which enhance shock resistance of polymers, and Apolhya®, used notably for photovoltaic cells protection, as well as piezoelectric polymers *via* the Piezotech subsidiary. Working closely with academic and industrial partners, Piezotech is developing applications for electroactive polymers, notably in the area of haptics for virtual reality devices and sensors for consumer electronics.

The incubator was also behind the 2016 launch of Arkema's thermoplastic composites range, which includes:

- the Elium® range of solutions for infusion molding or Resin Transfer Molding (RTM) technologies; and
- impregnated continuous fiber-reinforced thermoplastic solutions, such as the Rilsamid® Matrix range, for automatic fiber placement and thermo-stamping.

The incubator also developed PEKK, a polymer withstanding ultra-high temperatures, under the Kepstan® brand. This activity was initiated in 2010, production capacities were doubled in France in 2017 and a world-scale PEKK plant at the Mobile, Alabama site in the United States started production early 2019. These investments will help to meet growing demand in the carbon fiber reinforced composites and additive manufacturing (3D printing) markets (for further details, see section 1.1.2.2 of this chapter).

1.1.5 A collaborative innovation ecosystem

The aim of collaborative innovation is to jointly develop innovative solutions with both academic research teams and industrial partners (customers, suppliers and even competitors). This open innovation approach takes the form of participation in industrial research chairs, sharing of laboratories with recognized research institutions, public-private research partnerships and industrial partnerships. The ecosystem also includes collaboration with start-ups or innovative companies, equity investments in such companies or the acquisition of specific technologies.

Research chairs, shared laboratories and partnerships with universities

The R&D department has set up numerous upstream partnerships with scientific organizations, universities and public and private research laboratories, such as the CNRS and the CEA in France and several universities in France, the United States, Canada, Belgium, Japan, South Korea and Malaysia. These partnerships take the form of research chairs, shared laboratories and doctoral and post-doctoral research contracts. The contribution made by these external experts enables the Group to advance its research in scientific areas related to its R&D projects.

In 2018, Arkema joined forces with France's École polytechnique and its Foundation to create an international research and teaching chair dedicated to innovative materials named "Design and modeling of innovative materials". Designing and modeling new materials and related processes requires a multidisciplinary approach that goes beyond materials chemistry to include the physical and mechanical aspects involved in their manufacture and implementation. Arkema together with École polytechnique and its Foundation all aim to leverage innovation in order to meet the energy, technological, industrial and environmental challenges facing the world today and in the future. The research and development topics explored by the chair include polymer materials, thermoplastic composites and adhesives, with a particular focus on the relationship between process, structure and properties and on the optimization of implementation processes and mechanical properties.

In Asia, Arkema opened an innovation center in South Korea within the Hanyang University in Seoul. The center is specialized in high performance polymers and renewable energies, areas in which the university excels. More recently, Arkema forged a partnership with Monash University in Malaysia. The purpose of this collaborative research center is to develop, in the Kuala Lumpur campus, understanding of biocatalysis, a discipline that could lead to more sustainable processes than those achieved with traditional chemistry, and to identify new ways to access sulfur products.

Industrial partnerships and technology acquisitions

Arkema also forms downstream partnerships with industrial partners as part of joint research programs with customers, suppliers and even competitors to develop new products and technologies. As part of this, Arkema establishes many research partnerships with customers in order to better understand market demand and to accelerate the development and time-to-market of innovative technical solutions.

The R&D department has a technology acquisition policy that targets high value-added SMEs and start-ups and supports them in their development process, allowing them to grow in an application-oriented environment thanks to Arkema's resources and expert staff. These equity interests enable the Group to position itself in the ultra-innovative product and high-tech markets. In 2021, Arkema launched the "Start-up Connect" program, which invites start-ups specialized in advanced materials from around the world to approach Arkema with a view to establishing a dedicated research collaboration and benefiting from the Group's technological support and experience. This initiative combines the dynamism of small, agile, innovative organizations with Arkema's unique expertise in specialty materials to develop the innovations of tomorrow.

FOCUS

Arkema acquires a stake in Verkor and accelerates its batteries strategy in Europe

In July 2021, Arkema became a shareholder and technological partner of Verkor, a French start-up specialized in the production of high performance batteries for electric vehicles. Arkema is thus strengthening its development in batteries and clean mobility.

Arkema contributed several million euros to the company's €100 million round of fundraising, which will enable the construction of the Verkor Innovation Center near Grenoble in France, then the launch of the 1st gigafactory dedicated to battery production whose construction is expected to start in 2023. The Verkor Innovation Center, which should be operational in 2022, will provide a collaborative space to optimize industrial processes and create new generations of batteries.

Arkema is thus joining an ambitious project involving close technological collaboration with leading partners such as Renault Group, EQT Ventures, EIT InnoEnergy, Groupe IDEC, Schneider Electric, Capgemini, Tokai Cobex and Demeter. The Group will bring its wide range of high performance materials and products for batteries and will thus participate in setting up an integrated industrial battery production chain in Europe.

1.1.6 Development of digitalization

A Digital Transformation department was created in 2018 to set the Group's strategy in this field and drive more widespread use of the innovations associated with digital technology. This digital transformation concerns many of the Group's activities.

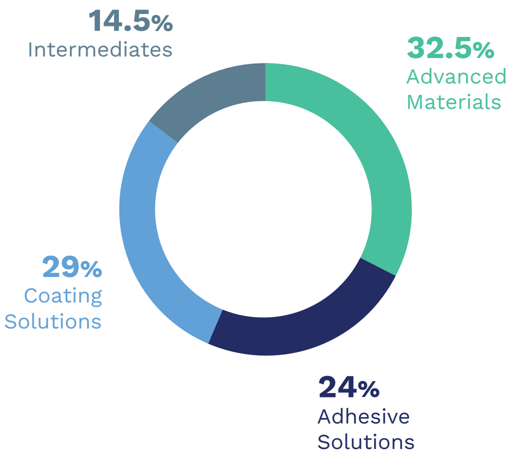
The digital transformation roadmap, which has been rolled out across R&D, aims to reduce time-to-market for new products and materials by focusing on five priorities:

- digitization of laboratories to capture data;
- data governance to share and organize data using cloud-based software platforms;
- use of data science (modeling, artificial intelligence) to predict how formulations and materials will behave;
- adoption of data visualization tools (business intelligence – BI) to manage project portfolios in real time; and
- implementation of new customer support services using data sharing.

1.2 Business overview

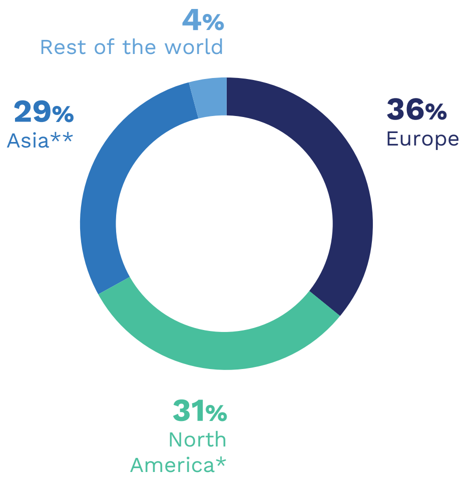
Arkema's goal is to become a pure player in Specialty Materials offering the most innovative and sustainable solutions to meet its customers' current and future challenges, particularly in the face of major climate and societal issues. This ambition was demonstrated again very recently by the Group's new corporate communication strategy, built around its new brand signature: "Arkema, innovative materials for a sustainable world". The Group is organized around three complementary, coherent segments, with growing technological and commercial synergies: Adhesive Solutions, Advanced Materials and Coating Solutions, which make up the Specialty Materials platform. These three segments accounted for 85.5% of the Group's sales in 2021 and offer attractive growth prospects and strong synergies in terms of business development, manufacturing and innovation. The Intermediates segment consists of activities with more volatile results for which the Group will implement differentiated strategies and whose share will be gradually reduced over time, and disappear by 2024.

The breakdown of 2021 sales by segment, reflecting the ongoing refocus towards Specialty Materials, was as follows:



In 2020, the breakdown of the Group's sales by segment was as follows: 25.5% for Adhesive Solutions, 32% for Advanced Materials, 24.5% for Coating Solutions and 18% for Intermediates.

The breakdown of 2021 sales by region, based on the geographic location of customers, reflected a balanced footprint among regions and was as follows:



** United States, Canada and Mexico.*

*** Asia and the Middle East.*

In 2020, Group sales by region broke down as follows: 36% in Europe, 33% in North America, 27% in Asia and 4% in the Rest of the world.

1.2.1 Adhesive Solutions

Adhesive Solutions (Bostik) includes all of Arkema's adhesives, glues and sealants for the construction and DIY markets, as well as a large number of industrial markets. In 2021, Bostik reported sales of €2.3 billion, making it one of the global leaders in Adhesive Solutions.

Adhesive Solutions are organized into two Business Lines:

- **Construction & Consumer**, which includes Bostik's solutions for construction and building renovation (adhesive solutions for floors, tiles, waterproofing, joints, assembly, insulation and wall and floor surface preparation); and
- **Industrial Assembly**, which includes Bostik's solutions in industrial adhesives for durable goods (transportation, assembly, etc.) and consumer goods (hard and soft packaging, labels and tapes, etc.) as well as in hygiene.

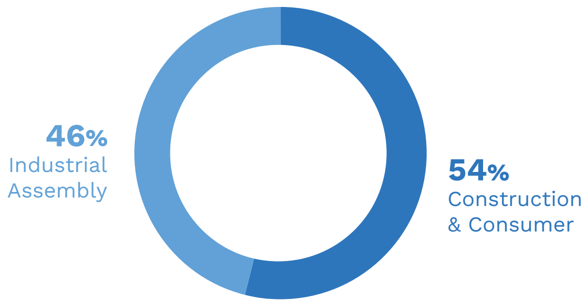
In the coming years, Arkema will continue to accelerate growth in Adhesive Solutions, in particular through bolt-on acquisitions, and to gradually improve its financial performance to close in on the industry leaders.

Adhesive Solutions at a glance

Key figures

(In millions of euros)	2021	2020	2019
Sales	2,278	1,996	2,055
EBITDA	316	261	264
EBITDA margin *(%)*	13.9%	13.1%	12.9%
Recurring operating income (REBIT)	250	198	205
REBIT margin *(%)*	11.0%	9.9%	10.0%
Recurring capital expenditure	77	69	67
Capital employed	2,864	2,667	2,612

TOTAL SALES BY BUSINESS LINE



MAIN PRODUCTS AND MARKETS

Bostik is the world number three in adhesives and sealants [1].

	Solutions/main markets	Main competitors
Construction & Consumer Business Line		
Sealants	Sealing, insulation and waterproofing solutions	Sika, Soudal, Henkel
Walls and floors	Floor and wall preparation products, tile, wall, floor and ceiling adhesives	Sika, Ardex, Mapei
Consumer/DIY	adhesive solutions for repairs, attachment, assembly, decoration and renovation	Henkel
Industrial Assembly Business Line		
Durable goods	Assembly (electronics, engineering adhesives), automotive and other means of transportation (air, rail, etc.)	Henkel, HB Fuller, Sika
Packaging	Packaging, labels and tapes	Henkel, HB Fuller
Non-woven	Hygiene and personal care	Henkel, HB Fuller

Main growth drivers

The global adhesives and sealants market is estimated at some €55 billion [2]. It covers the industry and hygiene sector (47%), the construction market (41%) and consumer goods (12%). From a geographic point of view [2], North America represents around 28% of global demand, Europe around 31% and Asia and the Rest of the world around 41%.

Over the next few years, the annual global adhesive market growth is expected to be above GDP, underpinned by the increasing replacement of traditional mechanical assembly systems with new adhesive-based bonding and assembly solutions that contribute to **materials lightweighting** and can be used for the **assembly of new materials** such as composites. The use of adhesives is therefore increasing in markets such as batteries and electronics.

Adhesives and sealants also help **improve the energy efficiency** of buildings and contribute to the fight against climate change thanks to the development of numerous insulation and waterproofing solutions. Over the coming years, growth in these areas will be driven notably by recovery plans deployed in European countries, for example, as part of the Green Deal.

(1) *Source: internal estimates.*
(2) *Source: Arkema and IHS Specialty Chemicals Update Program – Adhesives and Sealants, December 2019.*

More generally, the adhesives market will benefit from **global population growth**, in particular from the use of adhesives to make baby diapers, feminine hygiene products and adult incontinence products, and from the strong momentum in emerging economies, where consumption of adhesives *per capita* is currently much lower than in Europe or the United States.

Lastly, the adhesive solutions market is still very fragmented with a large number of local players, continuing to offer opportunities for **consolidation through** small- or medium-sized bolt-on **acquisitions**.

Main advantages

To support its growth objective, the Adhesives Solutions segment can, in particular, capitalize on:

- strong customer proximity, solid commercial positions and a large portfolio of high performance technologies;
- strong and well-known **global** (Bostik®) **and local** (Sader®, Quelyd®, Evo-Stik®, Mem®, Fortaleza®, XL Brands®) **brands** that promote customer loyalty, especially in construction and consumer products;
- a **global footprint**, with 63 production units in Europe, North America and Asia, operations in 43 countries, and 4 regional R&D centers;
- a **unique model** in the adhesives industry, combining Bostik's expertise in formulations and applications with Arkema's materials science know-how and, in particular, its in-depth knowledge of polymers, additives and coating. This combination, which offers strong technological and business synergies (access to OEMs and Group market's expertise), enables Bostik to enhance its innovation capacity, develop tailor-made solutions for its customers and reduce the time-to-market; and
- an ability to **identify and integrate** small- to medium-sized bolt-on **acquisitions** and generate significant synergies. Excluding the proposed acquisitions of Permoseal and PMP, Bostik has completed 11 acquisitions since 2017, representing total sales of approximately €555 million.

Ambition, strategy and projects

2024 ambition

By 2024, Arkema's ambition is to reach a step change in Adhesive Solutions in terms of size and profitability, and to consolidate its position as a global market leader. For this segment, the Group is aiming for sales of more than €3 billion in 2024 and high-single-digit average annual sales growth, including acquisitions, in the period 2020-2024. Following the announcement of the Ashland Performance Adhesives acquisition, which was finalized on 28 February 2022, the Group raised its EBITDA margin target for the segment and is now aiming for a level above 17% in 2024, *versus* the target of 16% previously announced at the Capital Markets Day on 2 April 2020 (compared with the 2019 level of 12.9%).

Strategy

For the period 2020-2024, the Group aims to significantly increase the size of the Adhesive Solutions segment, which will require, in particular:

- the continuation of bolt-on acquisitions in what is still a fragmented market, with the ambition of carrying out two to three small operations per year and one to three medium-sized acquisitions over the period. These acquisitions are expected to contribute to approximately two-thirds of the segment's sales growth; and
- more sustained organic growth in high performance industrial adhesives which meet customers' technical expectations in particular in the area of lightweighting, as well as in sealants and flooring adhesive systems in the construction and DIY markets, where growth is driven by new environmental regulations and their increasingly widespread application in emerging countries. This growth will also rely on the continuation of geographic expansion, mainly in high-growth countries and regions such as China, India, Southeast Asia, Latin America and the Middle East.

In addition, in order to continue improving its financial performance, Bostik has launched a new phase of cost rationalization, and will strengthen its operational and commercial excellence programs.

Main projects completed or underway

Acquisitions

As part of its bolt-on acquisition strategy, Bostik regularly acquires small- and mid-sized businesses with a view to enhancing its technology portfolio and expanding its geographic footprint. These transactions offer significant synergies in terms of geographic, technological and business development thanks to highly complementary ranges and know-how.

Acquisition	Description	Sales	Acquisition date
Construction & Consumer Business Line			
LIP	The Danish leader in tile adhesives, waterproofing systems and floor preparation solutions	~€30m	January 2020
Ideal Work	An Italian company specialized in high value-added decorative floor technologies	~€10m	October 2020
Poliplas	A Brazilian leader in hybrid-technology sealants and adhesives	~€10m	March 2021
Edge Adhesives Texas	Manufacturer of hot-melt adhesives and pressure sensitive adhesive tapes for residential construction	~US$12m	June 2021

Acquisition	Description	Sales	Acquisition date
Permoseal	One of the leaders in adhesive solutions for woodworking, packaging, construction and DIY in South Africa	~€44m	Project announced on 17 December 2021, subject to approval by antitrust authorities and expected to be finalized in second-quarter 2022
Industrial Assembly Business Line			
Prochimir	A company specialized in high performance, solvent-free, thermobonding adhesives	~€30m	October 2019
Fixatti	A company specialized in high performance, solvent-free, thermobonding adhesive powders	~€55m	October 2020
51% interest in CMC (Crackless Monomer Company)	Creation of a joint venture with Taiwanese company Cartell Chemical Co. to produce specialty cyanoacrylate monomers	-	December 2020
Ashland Performance Adhesives	A leader in high performance adhesives in the United States (pressure-sensitive adhesives, structural adhesives for bonding in construction, composites and transportation, as well as adhesives for flexible Packaging)	~US$360m	February 2022
Shanghai Zhiguan Polymer Materials (PMP)	Company specialized in hot-melt adhesives for the consumer electronics market	>€1m	First-quarter 2022

On 31 August 2021, Arkema announced the proposed acquisition of Ashland's Performance Adhesives business, marking another key step in Bostik's growth and the Group's 2024 ambition. With its large range of key technologies and well-known brands, Ashland Performance Adhesives is a first-class leader in high performance adhesives in the United States. The company, which has enjoyed sustained growth in recent years and has significant growth potential in Europe and Asia, generated sales of approximately US$360 million in 2021 and a high EBITDA margin, above 25% [(1)]. It employs 330 people and operates 6 production plants, mainly in North America. The offer was made on the basis of a US$1,650 million enterprise value, *i.e.*, 15 times the estimated 2021 EBITDA after taking into account the tax benefits linked to the structure of the transaction, estimated at US$200 million. Given the very strong geographical, application and integration complementarity in acrylics, the expected pre-tax synergies are estimated at a high level of around US$45 million, or 12.5% of the sales of the acquired entities. Their progressive implementation over the next five years will reduce the EV/EBITDA multiple to 8.7 in 2026. Within the 1st year of integration, this deal, financed fully in cash, is expected to have an accretive impact on net earnings per share and the accretive impact should reach €1 per share by 2026. The transaction was finalized on 28 February 2022.

Investments

As part of its geographic expansion policy, in 2020, Bostik started up a new industrial adhesives plant in Nara, Japan, within the Bostik-Nitta joint venture in which the Group holds an 80% interest, in order to serve Japanese customers in the growing diaper, hygiene, packaging, labeling, transportation and electronics markets.

Operational and commercial excellence

In order to continue improving its performance, Bostik has launched the second phase of its operational excellence program aimed at optimizing its industrial base and maximizing synergies with the rest of the Group, whether in procurement, talent management or shared services (finance and IT). These actions should help improve Bostik's EBITDA margin by around 100 basis points by 2024 compared to 2019.

Bostik is also continuing its actions in commercial excellence by strengthening its customer intimacy and its pricing policy, ramping up digital solutions (e-commerce, launch in 2021 of the Bostik Academy, a digital platform dedicated to construction professionals) and capitalizing on the Group's sales network through key accounts and joint initiatives between the Group's various activities.

1.2.2 Advanced Materials

The Advanced Materials segment is highly exposed to the major challenges of sustainable development and as a result offers a wide range of high-tech solutions. Thanks to substantial investments in innovation and R&D, these solutions mean the segment is able to meet the growing and increasingly complex needs of customers in materials lightweighting, new energies (batteries, wind power, etc.), access to water, bio-based or recyclable materials, and new production processes (3D printing), particularly for cutting-edge sectors such as automotive, electronics, health, nutrition, sport, oil and gas extraction, and aeronautics.

Advanced Materials are organized into two Business Lines:

- **High Performance Polymers**, materials with excellent mechanical, chemical and thermal resistance properties that can be used in a very wide range of high-value added applications; and
- **Performance Additives**, comprising tailor-made solutions which are essential to improve the properties of certain materials or optimize production processes.

(1) Including pro forma adjustments.

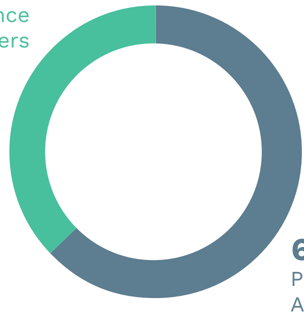
Over the coming years, Arkema intends to maintain a high level of investment and innovation in this segment in order to meet the rising demand for sustainable materials.

Advanced Materials at a glance

Key figures

(In millions of euros)	2021	2020	2019
Sales	3,087	2,527	2,693
EBITDA	662	496	584
EBITDA margin *(%)*	21.4%	19.6%	21.7%
Recurring operating income (REBIT)	408	245	353
REBIT margin *(%)*	13.2%	9.7%	13.1%
Recurring capital expenditure	249	204	205
Capital employed	2,663	2,505	2,645

TOTAL SALES BY BUSINESS LINE



Main products and markets

	Ranking [1]	Main competitors	Main markets	Average annual expected growth rate
High Performance Polymers Business Line				
Specialty long-chain polyamides (PA11, PA12)	World leader	Evonik, Ems, Ube	Automotive and transportation, electronics, consumer goods (sports equipment, textiles), electric cables, water transportation, oil & gas, medical	4% to 5% of which ~7% in Asia
Fluoropolymers (PVDF)	World leader	Solvay, Kureha	Architectural coatings, chemical industry, new energies (lithium-ion batteries, photovoltaics), water treatment, oil & gas	9% to 10%
PEKK		Solvay, Victrex and Evonik	3D printing, aeronautics, oil & gas	4% to 5%
Performance Additives Business Line				
Thiochemicals	No. 1 worldwide	Chevron Phillips Chemical	Animal nutrition, energy, solvents, polymers	4% to 5%
Specialty surfactants	No. 1 worldwide in crop nutrition	BASF, Clariant, Croda, Evonik, Kao, Nouryon, Solvay	Crop nutrition, infrastructures, mineral extraction, oil & gas	3.5%
Organic peroxides	No. 2 worldwide	Nouryon, United Initiators	Polymers	3%
Hydrogen peroxide	No. 3 worldwide	Solvay, Evonik, Nouryon	Paper pulp, chemical products, water treatment, disinfection, electronics	2% to 3%
Molecular sieves	No. 2 worldwide	Honeywell (UOP)	Gas separation, petrochemicals, healthcare (medical oxygen), construction, pharmaceutical packaging	3%

(1) Source: internal estimates based notably on market studies.

Main growth drivers

Due to their properties, Advanced Materials serve a broad range of markets. They are particularly well positioned to respond to a growing demand for sustainable materials, thus offering very attractive growth prospects.

Advanced Materials and in particular specialty polyamides, or PEKK, are especially sought after for **materials lightweighting** in several markets such as automotive, aeronautics, sports equipment and wind power. These materials can be used as a substitute for metal in a certain number of applications, thereby significantly reducing the weight of vehicles and their CO_2 emissions. 3D printing also helps to meet this goal by designing complex parts that replace traditional metal components.

Arkema has developed a comprehensive range of unique solutions for these technologies, especially in the Advanced Materials segment, with PVDF, PEKK and polyamide 11.

In addition, in response to the challenge posed by the **increasing scarcity of natural resources**, Advanced Materials offer a broad range of innovative solutions in:

- **new energies**, where Arkema's materials are widely used in the lithium-ion battery and photovoltaics markets. The Group is also working on very promising new solutions in the areas of wind power (recyclable wind turbine blades using Elium® resin), batteries (electrolyte salts, thermoplastic composites for casing) and hydrogen;

- **bio-based solutions** such as polyamide 11, derived from castor oil, or bio-surfactants, thereby helping to reduce consumption of fossil fuel-based raw materials; and
- **recyclable solutions**, or the improved recyclability of products that use them. This is the case for the Elium® resin or Cecabase RT® additives for asphalt. In 2021, Arkema strengthened its recycled solutions portfolio with the acquisition of Agiplast, a company specialized in the regeneration of high performance polymers (specialty polyamides and PVDF) with annual sales of around €15 million. The deal also fits perfectly with the Virtucycle® program launched in 2019 to industrialize the recycling of high performance polymers.

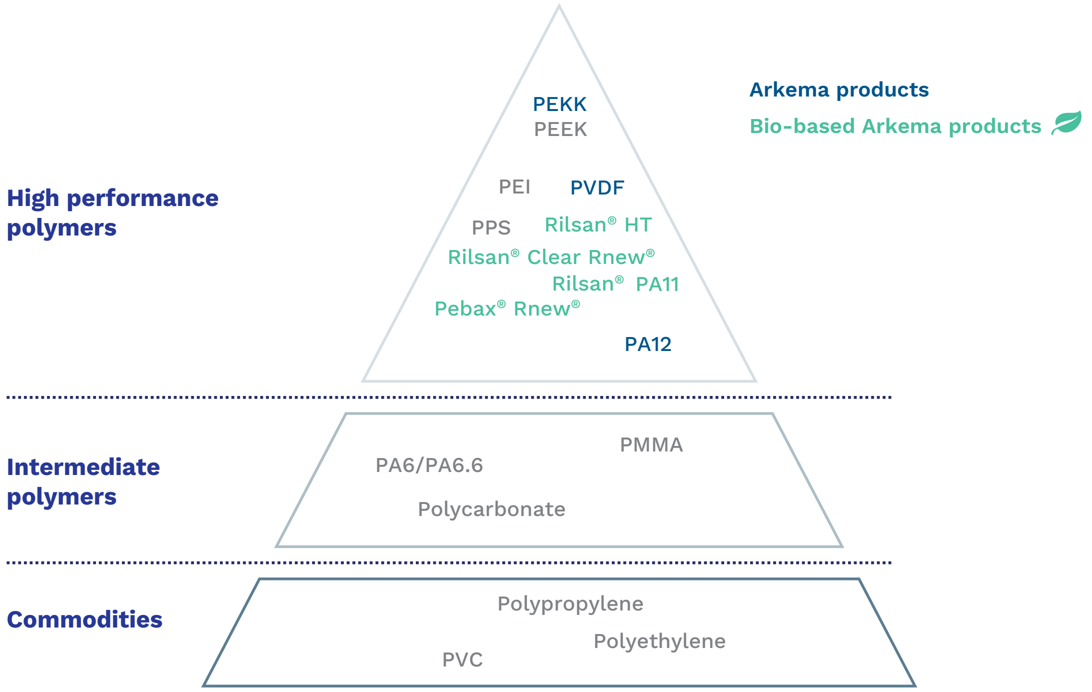
More generally, Arkema's Advanced Materials meet the growing needs of the world population in the areas of water treatment and management (specialty polyamides, Kynar® PVDF, hydrogen peroxide), consumer electronics (high performance polymers), animal nutrition (Intermediates for methionine) and consumer goods (high performance polymers for sport, technical textiles, etc.).

In view of this positioning and the diversity of its end markets, the Advanced Materials segment aims for annual growth of around 4% on average.

Main advantages

Arkema has strong foundations to develop innovative, high performance solutions for cutting-edge markets and support its customers in their growth. In particular, the Group offers one of the highest performance ranges of polymers in the market.

Ranking of polymers by performance



Furthermore, supported by strong technical and commercial intimacy with its customers, the Group:

- holds **leading commercial positions** and is one of the world's leading players in its main product lines (see above table entitled "Main products and markets");
- dedicates **significant resources to innovation**, enabling it to regularly launch new applications and provide customers with the technical support they need. In 2021, Advanced Materials spent 3.1% of sales on R&D expenditure;
- has formed **long-term strategic and technological partnerships** with industrial customers who are leaders in their field, such as Hexcel for aerospace composites, CJ CheilJedang for animal nutrition, and EOS and HP for 3D printing. In the field of batteries, in 2021, Arkema became a shareholder of Verkor, a French start-up specialized in high performance batteries;
- draws on **well-known brands** such as Rilsan®, Kynar®, Kepstan®, Pebax® and Carelflex® that help secure customer loyalty;
- offers **a unique portfolio of high performance bio-based solutions** using, in particular, polyamide 11, for which Arkema is the world's only producer, and bio-surfactants (Sensio™, which was launched in 2019). The Group has also invested in the production of bio-methionine by its South Korean partner CJ CheilJedang. Lastly, in 2021, Arkema launched new, renewable Kynar® PVDF grades (Kynar® CTO) for the lithium-ion battery market. These new grades enable the climate change impact of Kynar® PVDF binders to be reduced by 20%; and
- serves these markets worldwide thanks to a **competitive industrial footprint** on three continents. This geographic presence will be further strengthened by the construction of a facility for polyamide 11 and its monomer in Singapore and downstream production capacities in China.

Ambition, strategy and projects

2024 ambition

Arkema's ambition is to accelerate organic growth in Advanced Materials while maintaining a high level of profitability. The Group is therefore targeting average organic sales growth of around 4% per year in the period 2020-2024, and a 2024 EBITDA margin stable compared with the 2019 level, *i.e.*, around 22%.

Strategy

Over the coming years, Arkema intends to maintain a high level of investment and innovation in Advanced Materials in order to meet the exponential demand for sustainable and high performance materials.

Growth in the segment will notably come from new innovative developments in high-value added and high-growth applications that address major challenges arising from global megatrends (3D printing, water treatment, consumer electronics, new energies, composites for materials lightweighting), as well as from new manufacturing capacities, mainly in Asia. The Group is also committed to strengthening its strategic and technological partnerships with its customers, which are the source of a multitude of developments and disruptive innovation opportunities, in particular in thermoplastic composites, lithium-ion batteries, hydrogen, mineral extraction solutions and animal nutrition.

Lastly, although future growth in Advanced Materials is expected to remain essentially organic, Arkema has not excluded the possibility of bolt-on acquisitions in order to strengthen its portfolio of technologies and to diversify its end markets even further.

Main projects completed or underway

Investments

As part of its Advanced Materials growth strategy, Arkema has completed numerous investment projects over the last three years, with others still in progress:

	Project description	Site	Main markets	Start date
High Performance Polymers Business Line				
Specialty polyamides	+50% global production capacity of **Orgasol®** PA12 powders	Mont, France	Rapidly growing niche industrial applications in the coatings, composites and 3D printing markets	2019
	+25% global production capacity of **polyamide 12**	Changshu, China	Cable protection, automotive, sport, consumer electronics	2020
	+50% global production capacity of **monomer amino 11 and polyamide 11**	Singapore	Automotive, 3D printing, consumer goods such as sports and electronics	2022
	Polyamide 11 powder plant	Changshu, China	Sustainable home appliances, transportation, 3D printing	2023
	+25% global production capacity of **Pebax®** elastomers	Serquigny, France	Sports, consumer goods	2023
Fluoropolymers	+50% production capacity dedicated to the lithium-ion battery market	Changshu, China	Lithium-ion batteries	2020
	+50% production capacity	Changshu, China	Lithium-ion batteries, water filtration, semiconductors, coatings	2022
	+50% production capacity	Pierre-Bénite, France	Lithium-ion batteries	2023
PEKK (Polyetherketoneketone)	World-scale facility	Mobile, United States	Composites for aeronautics, electronics, oil & gas and 3D printing	2019
Performance Additives Business Line				
Thiochemicals	Doubling of **methyl mercaptan** production capacity	Kerteh, Malaysia	Animal nutrition	2020

Partnerships

Arkema is also actively expanding its partnerships in Advanced Materials.

To this end, with a view to furthering its developments in composites, Arkema opened a joint R&D laboratory in France with Hexcel in 2019 as part of a strategic alliance to develop next-generation thermoplastic composites for the aerospace industry by combining the expertise of Hexcel in carbon fiber and Arkema's expertise in PEKK.

In Thiochemicals, Arkema partnered with South Korean Group CJ CheilJedang (CJ) in two manufacturing joint ventures. Arkema Thiochemicals Sdn. Bhd. (86%-owned by Arkema and 14%-owned by CJ) supplies methyl mercaptan (MeSH) from its Kerteh complex to CJ Bio Malaysia Sdn. Bhd. (86%-owned by CJ and 14%-owned by Arkema) in volumes sufficient to cover all of the needs of CJ Bio Malaysia Sdn. Bhd. with respect to the manufacture of methionine at its production facility on the same industrial site. In the United States, Arkema Inc. signed a long-term contract with Novus International, Inc. on 1 January 2002 for the production of 3-methylthiopropionaldehyde (MMP), an intermediate in the manufacture of methionine, at its Beaumont site in the United States.

In the field of batteries, in 2021, Arkema became a shareholder of Verkor, a French start-up specialized in high performance batteries, by contributing to a round of fundraising by the company to finance the construction of an innovation center in France.

Lastly, in 3D printing, Arkema announced in June 2021 that it had acquired a 10% stake in ERPRO 3D FACTORY, a company specialized in large-series additive manufacturing, mainly using polyamide 11 powder, thus enabling the Group to gain new expertise and accelerate its development on this market.

Portfolio management

To strengthen its positioning and expand its portfolio of sustainable solutions, Arkema is pursuing a policy of bolt-on acquisitions.

To consolidate its positioning in specialty surfactants where the Group has historically been a niche player, Arkema completed the acquisition in July 2019 of ArrMaz, a major player in specialty surfactants for crop nutrition, mining and road infrastructure, with sales of US$290 million. This transaction has resulted in the creation of a new leader in specialty surfactants thanks to the excellent fit between Arkema and ArrMaz in terms of technologies, geographic reach and formulation expertise.

In polymer recycling, in June 2021 Arkema acquired Agiplast, a company specialized in the regeneration of high performance polymers, in particular specialty polyamides and fluoropolymers. Agiplast's known-how in mechanical recycling technologies and formulation will enable Arkema to offer new high-quality recycled polymer solutions to its customers. The company, with annual sales of around €15 million, operates a plant in Italy and has 32 employees. With this acquisition, Arkema has become the first fully integrated high performance polymer manufacturer, offering both bio-based and recycled materials in order to address the challenges of resource scarcity and end-of-life products.

At the same time, Arkema pursued the repositioning of its portfolio on its core businesses with the finalization on 1 December 2021 of the divestment of its epoxides business, valued at US$38.8 million. Based in Blooming Prairie in the United States and employing approximately 45 people, this business generated annual sales of around US$40 million.

1.2.3 Coating Solutions

The Coating Solutions segment includes the entire range of Arkema's materials and technologies for the coating market (decorative paints, industrial coatings). The Group's offering of high performance solutions and innovative technologies make it a global leader on a market that is exposed to increasingly strict environmental standards. Its coherent activities are backed by a competitive upstream in acrylics.

The segment is organized into two Business Lines: **Coating Resins** and **Coating Additives**.

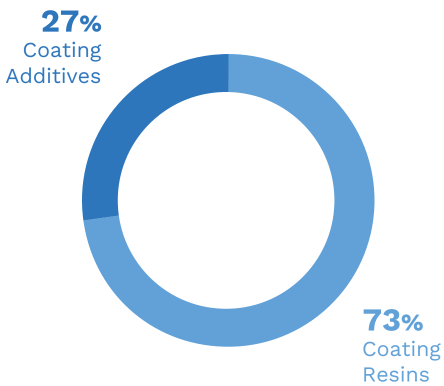
Arkema is aiming to accelerate growth and increase profitability in this segment over the coming years.

Coating Solutions at a glance

Key figures

(In millions of euros)	2021	2020	2019
Sales	2,746	1,911	2,148
EBITDA	525	261	310
EBITDA margin *(%)*	19.1%	13.7%	14.4%
Recurring operating income (REBIT)	407	142	197
REBIT margin *(%)*	14.8%	7.4%	9.2%
Recurring capital expenditure	97	83	121
Capital employed	1,509	1,311	1,432

TOTAL SALES BY BUSINESS LINE *



** At 1 January 2021, a business generating annual sales of around €50 million was transferred from the Coating Resins Business Line to the Coating Additives Business Line. The 2019 and 2020 figures have not been restated.*

MAIN PRODUCTS AND MARKETS

	Ranking [1]	Main competitors	Main markets	Average annual expected growth rate
Coating resins Business Line				
Acrylic monomers	No. 2 worldwide	BASF, Nippon Shokubai, Dow	Coatings (decorative paints and industrial coatings), superabsorbents, adhesives, water treatment, energy	~3 to 3.5%
Coating resins	No. 4 worldwide	Allnex, Covestro, BASF	Decorative paints, industrial coatings, inks, mastics, adhesives	~4%
Coating Additives Business Line				
Photocure resins (Sartomer)	No. 2 worldwide	Allnex, Eternal, Miwon	Industrial coatings, graphic arts, optics, electronics, 3D printing, ink jet printing	~5%
Rheology additives (Coatex)		Dow, BASF, Elementis	Paper, paint, water treatment, detergency, cosmetics, textiles	~5%

(1) Sources: *internal estimates based notably on market studies.*

Main growth drivers

Over the next few years, the expansion of the Coating Solutions segment should be driven by growing demand for sustainable solutions that are both resistant and easy to use.

For several years now, environmental requirements have been increasing with respect to paints and coatings. Thanks to an extensive range of 100% dry content powder and photocure resins, as well as water-based emulsions, Arkema's Coating Solutions offer customers solutions that are respectful of the environment and meet increasingly demanding standards with respect to low volatile organic compound emissions. As such, the Group is well placed to help its customers meet these environmental and regulatory challenges.

Moreover, the excellent technical performance of its resins, such as its photocure resins (stain, impact and scratch resistance and almost instant curing), mean it can respond to the increasingly demanding requirements on promising markets such as 3D printing, electronics and optics.

These major trends should support the ambition of the Coating Solutions segment to achieve average annual sales growth of almost 3%.

Main advantages

To pursue its development, the Coating Solutions segment can, in particular, capitalize on:

- its positioning among the **leading world players** in its various product lines (see above table entitled "Main products and markets");
- its **presence across the entire value chain**, with competitive, world-scale plants in acrylics and, downstream, businesses specializing in solutions for coatings;
- the widest **range of products and technology** on the market;
- **long-term partnerships** with customers that are leaders in their markets, whether in acrylics or various downstream activities;
- solid **R&D capabilities**, with five R&D centers around the world specializing in materials for coatings. Other than providing technical assistance to customers, these centers contribute to the development of low environmental impact solutions (formulations with low volatile organic compounds, bio-based solutions, etc.); and
- a global **industrial footprint**.

Ambition, strategy and projects

2024 ambition

Arkema intends to accelerate the average organic sales growth of its Coating Solutions segment to almost 3% per year between 2020 and 2024, while simultaneously increasing its profitability in order to raise its EBITDA margin to around 16% by 2024, *versus* 14.4% in 2019.

Strategy

To achieve this ambition, the Coating Solutions segment will strengthen the presence of its downstream activities in higher-growth regions such as Asia. It will also actively pursue the development of its sustainable offering, notably in solutions with low volatile organic compounds, such as powder resins, photocure resins and water-based emulsions, which meet customers' growing needs for solutions that are ever more respectful of the environment. Arkema may also carry out bolt-on acquisitions to continue to reinforce its portfolio of technologies and its geographic presence in downstream activities.

These developments will be underpinned by measures to improve operational efficiency and by reinforced integration, thereby raising the segment's global performance and resilience.

Main projects completed or underway

Investments

As part of its strategy to accelerate growth in its Coating Solutions segment, Arkema has completed numerous investment projects over the last three years, with others still in progress:

	Project description	Site	Main markets	Start date
Coating Resins Business Line				
Acrylic monomers	New reactor with an annual capacity of 90,000 tonnes to replace two end-of-life reactors with annual capacities of 45,000 tonnes each	Clear Lake, United States	Superabsorbents, paints, adhesives, water treatment	2019
Coating resins	New polyester powder resin manufacturing facility	Navi Mumbai, India	Powder coating	2019
Coating Additives Business Line				
Photocure resins (Sartomer)	+30% production capacity in China	Nansha, China	Electronics, 3D printing, renewable energy	2019
	Doubling of production capacity in China	Nansha, China	Electronics, 3D printing, renewable energy	2023

Partnerships

The Coating Solutions segment formed several important partnerships to support its customers in their growth.

For example, Coatex signed a long-term contract for the supply of dispersants to the Omya Group. The sales under this contract represent a material part of Coatex's overall revenues.

It is also the case in 3D printing:

- in June 2019, Arkema announced a strategic partnership with Carbon®, a world leader in digital printing, to develop new materials in connection with this technology. As part of the partnership, Arkema has acquired an equity interest in Carbon® representing US$20 million; and
- Sartomer signed a partnership with Continuous Composites to combine Sartomer's N3xtDimension® range of solutions with the patented continuous fiber technology CF3D®, resulting in significantly lower manufacturing costs, as well as greater flexibility and speed compared with traditional processes.

Acquisitions

Arkema also carries out bolt-on acquisitions to continue to reinforce its portfolio of technologies and its geographic presence in downstream activities.

In October 2019, Arkema completed the acquisition of Lambson, a company with annual sales of approximately €45 million specializing in photoinitiators for curing, a technology meeting the demands of cutting-edge markets such as electronics, 3D printing, composites and high performance coatings. These solutions fit perfectly with Sartomer's offering and enable it to speed up its development in this growth market.

In December 2020, Arkema announced the acquisition of Colorado Photopolymer Solutions in the United States, a company specializing in photopolymer formulation for 3D printing, with applications in the medical, composites, construction and consumer goods sectors. Thanks to this acquisition, Sartomer will be able to provide its customers and partners with an integrated offering of customized and formulated solutions.

Operational excellence and integration

As part of its drive to raise its overall performance and resilience, the Coating Solutions segment is rolling out an operational excellence program and strengthening value chain integration between acrylics and its downstream activities (coating resins, photocure resins, additives).

In this context, Arkema in particular replaced two end-of-life acrylic-acid reactors with annual capacities of 45,000 tonnes each with a new reactor with an annual capacity of 90,000 tonnes at its Clear Lake site in the United States. The investment, which was made in 2019 and represents approximately US$90 million, makes Clear Lake one of the most competitive acrylics sites in North America.

Arkema is also working to secure its supply of propylene, a strategic raw material for its Coating Solutions. In France, Arkema has a contract with Total Petrochemicals France (TPF) for the supply of propylene to its Carling site (for further details, see section 2.1.3 of this document). In the United States, it has a long-term contract with Enterprise Products Partners L.P. for the supply of propylene produced by propane dehydrogenation (PDH).

Lastly, Arkema is continuing the downstream integration of its acrylics business, which is already relatively strong in the United States and Europe, but still limited in Asia. This integration will continue to be reinforced over the coming years, particularly through the development of long-term partnerships with industry leaders, the geographic expansion of downstream activities in strong growth areas, and bolt-on acquisitions downstream of its value chain.

1.2.4 Intermediates

Since the divestment of PMMA on 3 May 2021, the Intermediates segment combines two activities in which the Group has strong positions and high quality assets, but where results are more volatile: Fluorogases and Asia Acrylics.

Intermediates at a glance

Key figures

(In millions of euros)	2021	2020	2019
Sales	1,378	1,425	1,816
EBITDA	316	231	381
EBITDA margin *(%)*	22.9%	16.2%	21.0%
Recurring operating income (REBIT)	219	109	261
REBIT margin *(%)*	15.9%	7.6%	14.4%
Recurring capital expenditure	61	88	99
Capital employed	745	685	984

Strategy

Arkema is carrying out a strategic review of its Intermediates activities in order to implement differentiated strategies for each one, enabling it to maximize value and gradually reduce their share in the portfolio by 2024. This involves assessing a range of different alternatives that may include divestments and partnerships.

As part of this review, the Group finalized the divestment of its PMMA business to Trinseo on 3 May 2021, based on an enterprise value of €1,137 million, or over 9 times its EBITDA. With 7 production sites (4 in Europe and 3 in North America) and some 860 employees, the PMMA business generated annual sales of over €500 million. In June 2020, the Group had also divested its Functional Polyolefins business, which was attached to the PMMA activity, for an enterprise value of €335 million. This business represented annual sales of around €250 million. These transactions have strengthened the Group's foothold in Specialty Materials, whose share in total sales increased from 79% in 2019 to 85.5% in 2021.

In Fluorogases, the Group is examining potential alternatives to reduce its exposure to the most emissive applications, particularly those used for air conditioning and industrial refrigeration, which currently represent approximately half of the business's sales.

Lastly, the Group is reviewing options to rebalance its acrylic activities in Asia between upstream and downstream, notably through partnerships upstream and bolt-on acquisitions downstream.

Description and main projects of the Intermediates businesses

Fluorogases

The Fluorogases activity manufactures and markets a range of HCFC and HFC products under the Forane® brand and develops HFOs with zero ozone depletion potential (ODP) and low global warming potential (GWP). This is a worldwide business for the Group, with production sites in France, the United States and China.

These products are used in refrigeration, air-conditioning and foams. These so-called "emissive" usages are subject to regulatory changes and annual average growth is limited to approximately 1% [(1)]. These gases are also used in the manufacture of fluoropolymers (including the PVDF produced by Arkema) and are expected to grow by an average of 4%-5% annually [(2)].

Arkema is the world number three in fluorogases [(1)], its main competitors being Chemours, Honeywell, Orbia and several Chinese players.

With regard to emissive applications, the implementation of the Montreal and Kyoto Protocols and the Kigali Amendment has led to a change in fluorogas regulations in a certain number of countries. For this reason, the transition from old generations (HCFC) to existing generations (HFC) then to new low-GWP generations (HFO) of products is taking place progressively at a different pace depending on the region, application and product.

For example, the European F-Gas regulation introduced a quota system that aims to gradually reduce or, in a few cases, ban the use of HFCs in certain applications (a new quota reduction came into effect on 1 January 2021), while the European directive on Mobile Air-Conditioning systems (MACs) has banned the use of refrigerant gases with a global warming potential higher than 150 in all new vehicles sold in Europe since 1 January 2017. Similarly, the United States has introduced regulations (the AIM Act) that will come into effect in 2022 and that aim to gradually reduce HFC production and consumption by 85% over a 15-year period. Also in the United States, since the ban on producing and importing HCFC-22 in early 2020, only sales of existing stockpiles and recycled products are authorized. Lastly, in Asia, sales and production allowances were implemented in line with the Kigali Amendment, based on average sales and production during the period 2020-2022, leading to the start-up of numerous new HFC plants in China in the 2nd half of 2019.

These regulatory changes weigh on volumes and may lead to high selling price volatility. The sale of HCFC-22 represented a significant proportion of income in the United States between 2018 and 2020. Since sales are now limited to stockpiled and recycled products, the Group expects a reduced contribution in the coming years. This contribution should definitely disappear in 2025. Similarly, the implementation of the F-Gas regulation substantially tightened the balance between HFC supply and demand in Europe, in particular in 2018. Since 2019, illegal imports of HFC have significantly affected the business' performance in the region.

To reduce the volatility of the results of this activity, the Group is committed to expanding the share of less cyclical, higher value-added specialty applications. Arkema is working on very promising medium- and long-term developments in batteries (electrolyte salts) and electronics. In addition, Arkema is contributing to the development of new generations of fluorogases (HFO), such as 1234yf for automotive air-conditioning and 1233zd, which is used as a new blowing agent in polyurethane foams for insulation purposes and in new applications including electric vehicle battery thermal management. In June 2021, Arkema announced that it had signed an agreement with Aofan to manufacture 1233zd in China. The 5 kt/year capacity is expected to be commissioned in mid-2022. Arkema also announced an investment of around US$60 million in a 1233zd production unit with a capacity of around 15 kt/year

(1) Source: *Arkema internal estimates.*

(2) Source: *IHS Chemical Economics Handbook – Fluoropolymers, April 2019.*

at its Calvert City site in the United States, which is expected to start up end-2023.

Lastly, to secure its supply of hydrofluoric acid in the United States at a stable and competitive price, Arkema signed a long-term supply agreement with Nutrien Ltd in 2020 for the supply of its Fluorogases and Fluoropolymers production site in Calvert City. In connection with this project, Arkema will invest US$150 million for the construction of a 40,000 tonnes per year AHF production plant at Nutrien's site in Aurora in the United States, scheduled to come on stream in 2022. In line with the Group's climate plan, this investment will help reduce the Group's overall energy consumption and greenhouse gas emissions.

Asia Acrylics

In September 2019, Arkema finalized the acquisition of its partner's interest in Taixing Sunke Chemicals, their joint venture that produces acrylic monomers in China. Following the acquisition, Arkema is now the sole shareholder of the company and has production capacities in China of 480,000 tonnes of acrylic acid per year.

In light of its limited downstream integration in Asia, Arkema is reviewing options to rebalance its acrylic activities in Asia between upstream and downstream, particularly through new partnerships upstream and bolt-on acquisitions downstream.

1.3 Corporate departments

The corporate departments provide continuous support to Arkema's business segments, mainly in the areas of industry, accounting, taxation, legal affairs, IT, human resources and communication. They play a key role in enhancing Arkema's operational excellence and have enabled the Group to become one of the most efficient companies in its industry in numerous areas.

Under the authority of the Executive Committee and in particular the corporate Executive Vice-Presidents (see section 3.2.2.2 of this document), the corporate departments are responsible for ensuring the overall coherence and control of Arkema. More specifically, they coordinate procurement and logistics and maintain expertise in such key areas as safety, environment, R&D and process engineering. Some of the corporate departments work for Arkema as a whole. This is notably the case for Internal Audit and Internal Control, Communication, Investor Relations, Accounting, Controlling, and Legal Affairs.

As an exception to the general organizational principles governing the corporate departments, the Raw Materials and Energy Procurement department and the Commercial Excellence department report directly to the Chief Operating Officer.

In addition, the R&D department reports directly to the Chairman and Chief Executive Officer, reflecting the importance of R&D in the Group's strategy.

The table below shows Arkema's corporate departments at 31 December 2021.

Corporate department	Units within the corporate department	Main responsibilities
Human Resources & Communication	HR Development	Ensure that the Group has the people and skills it needs to carry out its strategy
	Labor Relations and Remuneration Systems	Implement lasting solutions to facilitate social dialogue within the Group
	Institutional Relations	Establish and maintain constant dialogue between the Group and its various stakeholders
	Communication	Communicate and share the Group's strategy and ambitions with external parties (customers, journalists, civil society representatives and the general public) and with employees internally
Industry & CSR	Safety and Environment	Manage personal and environmental risks by implementing a management system that meets the highest international standards and by instilling a culture of excellence in health, safety and the environment (HSE) across the Group
	Sustainable Development	Roll out the sustainable development strategy validated by the Executive Committee and coordinate initiatives relating to corporate social responsibility, product stewardship and regulatory compliance
	Technical/Construction	Oversee the design and construction of new industrial facilities, leverage technical expertise and organize technical support for the Group's operational units
	Supply Chain	Optimize customers' supply chain by meeting their quality of service expectations, while also optimizing Arkema's working capital and transportation costs both safely and responsibly

Corporate department	Units within the corporate department	Main responsibilities
	Operational Excellence	Develop a culture of operational efficiency to ensure the competitiveness of Arkema's industrial sites
	Goods and Services Procurement	Develop and deploy a goods and services procurement strategy that optimizes the operating costs and investments of Group entities over the long term
	Processes	Coordinate the development of process optimization and technological innovation policies in the Group's various businesses
Finance	Accounting/Consolidation	Prepare the Group's consolidated financial statements in accordance with IFRS. Define the guidelines and help optimize the preparation of financial statements by Group subsidiaries by setting up shared services centers
	Controlling	Prepare performance analyses. Organize the budget process, financial forecasts and the follow-up of financial objectives
	Financing/Treasury	Set up financing and cash management arrangements, manage banking relationships and anticipate the Group's strategic developments
	Taxation	Ensure compliance with tax laws and regulations, documentation of intragroup transactions and follow-up of tax audits
	Information Systems	Define the Group's information systems strategy, organize its networks, infrastructure and applications and ensure their secure and optimized management, supervise the implementation of IT projects, and support users in their application of IT solutions and their adoption of new practices
	Investor Relations	Manage investor and analyst relations, organize the annual general meeting and contribute to communicating the Group's strategy
	Digital Transformation	Define the Group's digital transformation strategy and roadmap. Implement the appropriate governance and organizational structure. Coordinate the various actions taken by the digital managers appointed within the corporate departments and activities
Strategy	Acquisitions/Divestitures	Manage acquisitions and divestitures, as well as joint venture projects
	Legal Affairs	Ensure that operations are conducted in compliance with the applicable laws and regulations, as well as Group procedures, and participate in defending Arkema's interests
	Planning/Economic Studies	Undertake the studies and analyses necessary to guide the Group's strategic decisions
	Internal Audit/Internal Control	Define internal control guidelines and ensure their application within the Group's various entities
	Insurance	Set up and manage all forms of insurance coverage (property damage, civil liability, etc.)
R&D	Research Program	Drive commercial development of products and solutions with the aim of continually improving the Group's performance and enhancing its operational excellence, while contributing to sustainable development goals. Provide production facilities with new technologies and processes that will enable the Group to produce safely and competitively while reducing its environmental footprint.
	Research Platforms	Coordinate the Group's five cross-business research platforms, which target areas with strong development potential and contribute to social and environmental progress
	Incubator	Lead the development of breakthrough innovation products through to integration into a Group business
	Partnerships	Set up partnerships with academic research teams and industrial partners (customers, suppliers and even competitors). Manage the start-up detection program
Raw Materials & Energy Procurement	Raw Materials, Energy and Packaging Procurement	Guarantee the Group a secure supply of energy, raw materials and packaging by selecting suppliers that meet the Group's competitiveness, quality, performance and security requirements and that share Arkema's expectations in terms of corporate social responsibility and the values of its Business Conduct and Ethics Code
Commercial Excellence	Global coordination and management of the sales network	Deploy best practices across the sales network. Promote cross-business cooperation and the adoption of new tools. Strengthen customer proximity and the development of associated innovations and new commercial opportunities

1.4 Material contracts

There are no other material contracts than the ones Arkema has entered into in the ordinary course of its business, which notably include multi-year sales contracts, agreements that relate to certain operating procedures at production sites and contracts to secure access to raw materials or energy resources. These contracts, which represent a material source of supply or financial income for certain Group activities, are described in section 1.2 or 2.1 of this document, as appropriate.

Moreover, in connection with the Spin-Off of Arkema's Businesses in 2006, Total SE and certain Total group companies have made certain guarantees or commitments, many of which are still in effect, for the benefit of Arkema relating to Arkema's actual or potential environmental liabilities arising from certain sites in France, Belgium and the United States, at which operations have ceased in the majority of cases. These guarantees and commitments are described in note 10.3 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

RISKS AND INTERNAL CONTROL

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

2.1 Main risks

Arkema carries out its business activities in a rapidly changing environment, which creates various risks that may be beyond its control. Thus, the health crisis that marked 2020 and continues today, has increased the criticality of certain risks to which the Group is exposed, particularly supplier dependence, raw material price changes, supply chain risks, cyberattacks as well as risks linked to capital expenditure projects. Nevertheless, while the pandemic affected the Group's operating and financial performance in 2020 and, to a lesser extent, in 2021 in certain regions, the risk mitigation and prevention measures in place enabled the Group to diminish the consequences thereof. In addition, stakeholders' increasingly demanding expectations with regard to the climate have led the Group to pay particular attention to the related risk and particularly to "transition" risks.

The items described below constitute the main risks and uncertainties to which Arkema considers itself to be exposed at the date of this document. The occurrence of one or more of these risks could have a material adverse impact on the Group's business activities, financial position, results or future prospects, as well as on its image and reputation.

The means implemented by Arkema to identify, assess and manage risks, particularly the set-up and regular update of its risk map, are outlined in this section as well as in section 2.2 of this chapter.

At the date of this document, the main risks to which Arkema considers itself to be exposed have been categorized as follows without any order of precedence being established between the risks:

- industrial risks;
- risks relating to compliance, legal proceedings, societal expectations and internal control;
- operational risks;
- economic and business risks;
- project and innovation risks; and
- financial risks.

In accordance with regulation (EU) 2017/1129 of the European Parliament and of the Council of 14 June 2017 (known as "Prospectus 3") and ESMA Guidelines published in October 2019, the risks are ranked within each category. The risks are classified by descending order of importance at the date of this document, based on their potential negative impact and their probability of occurrence, after factoring in risk mitigation measures deployed by the Company. Each risk presented has a clear and direct link with the Group and its business activity. However, this list is not exhaustive and other risks of which Arkema is currently unaware or that it deems not to be significant at the date of this document could also occur and adversely affect its business activities, financial position, results or future prospects, as well as its image and reputation. Moreover, Arkema may alter its assessment of the order of importance of the risks to which it is exposed at any time, notably as a result of external developments or changes in the Group's business activities.

Risks related to non-financial issues are identified by the CSR icon.

2.1.1 Industrial risks

The industrial risks described below are considered in view of the potential impact they could have both on Arkema and on the environment and stakeholders (notably customers, suppliers and people living nearby).

Accident at sites, external storage or warehouse facilities or during transportation CSR

Because of the very nature of the Group's operations and the level of hazard, toxicity or flammability of certain raw materials or finished products, and production, supply or delivery processes, different kinds of accidents (such as explosions, fires and pollution) may occur at Arkema's facilities, at storage and warehouse facilities used by Arkema or during the transportation of various products and raw materials by road, rail, sea or air.

In particular, Arkema operates many industrial facilities, including 30 "Seveso" classified sites in Europe (as defined by directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of hazards linked to major accidents involving dangerous substances), *i.e.*, more than half of the Group's European sites. Outside Europe, the Group operates industrial facilities that fall under a similar classification, including 17 such facilities in the United States where hazardous substances that are liable to present significant risks to the health or safety of neighboring communities and to the environment are used, produced or stored. These classified sites accounted for approximately 53% of Arkema's total sales in 2021.

Incidents or accidents at certain Group sites may also occur due to certain weather phenomena (storms, floods, droughts), the frequency and intensity of which may have increased due to climate change. For further details on this subject, see the "Climate" heading in section 2.1.3 "Operational risks" of this document. In addition, like other chemical sector players, Arkema owns or uses a small number of pipelines to transport hazardous chemical products.

Finally, Arkema may suffer the consequences of possible malicious acts against its facilities or equipment, notably those manufacturing hazardous products and/or "Seveso" classified sites.

Any accident, regardless of whether it occurs at one of the Group's production sites or during the transportation or use of products manufactured by Arkema, may adversely affect the operation of certain units at its industrial sites and cause delays in production. This could lead to commercial problems, generating significant losses in terms of sales and earnings for the activities concerned, and significant potential costs, in particular due to administrative authorizations or insurance deductibles and damages not covered by current insurance policies. Should an accident occur, Arkema could also be held liable (i) owing to injury or damage to people (notably due to exposure to hazardous substances being used, produced or destroyed by Arkema or present on its sites), and/or to property, or (ii) for having caused damage to natural resources. In addition, any accident may give rise to compensation claims on grounds of contractual liability (in particular in its role as the shipper, in the case of transportation), tort liability or, as appropriate, product liability.

Risk management

In order to best prevent the risk of accidents, the Group defines scenarios that enable it to assess and anticipate the consequences of various events. As part of its preventive measures, all Arkema facilities and activities worldwide are also covered by a Group-wide safety management program adapted to the risks that each may face. Details are provided in section 4.5 of this document.

In addition, in order to minimize the risk of accidents related to transportation and storage, Arkema endeavors to:

- use transportation means that are deemed less dangerous (barge, pipeline, road-rail or rail), when technical and financial conditions allow it;
- where possible, strictly select suppliers based on the Warehouse Safety and Quality Assessment System (SQAS), which was established under the aegis of the European Chemical Industry Council (CEFIC) by a consortium of European chemical manufacturers and which also covers the Middle East and Asia, and the Chemical Distribution Institute – Terminals (CDI-T) scheme at a global level;
- assess the quality and safety performance of the carriers used;
- ensure regular maintenance of the transportation equipment that it owns, hires or leases (freight cars, ISO-containers, tankers and pipelines);
- carry out systemic risk assessment studies when a modal shift is required;
- implement a variety of operational risk assessment measures, including vetting bulk charter vessels and having the transportation safety management system maintained by the Transportation Safety team, which reports to the Group Safety and Environment department; and
- conduct storage audits prior to signing contracts – repeated every three years for warehouse facilities housing hazardous materials – under the responsibility of the relevant business management.

For pipelines, Arkema notably carries out hazard studies that specify consequence prevention and mitigation measures and implements regularly tested monitoring and response plans.

Security directives are regularly updated in line with recommendations from the public authorities in order to strengthen the security of the Group's industrial facilities. In France, the Group's upper-tier Seveso sites have undergone and are regularly subject to security audits by the authorities, with no evidence found of significant deviations from required standards. The audits enabled minor adjustments to be made where necessary. In addition, in the context of ever-increasing caution linked to terrorist attacks since 2015 and malicious acts, additional security measures have been put in place.

Lastly, in order to effectively manage potentially critical situations on Group sites and during transportation, Arkema has defined crisis management procedures for its various plants based on the Group Crisis Management directive. A year-round on-call system enables the Group to supervise any crisis that may occur by setting up a dedicated crisis management team. The Group also regularly offers training courses in "Crisis management and communication" and conducts simulations of crises and of setting-up of crisis management teams.

Exposure to chemicals

CSR

Arkema has used toxic or hazardous substances to manufacture its products in the past, and continues to do so. Employees and former employees of Arkema and, in some cases, employees of external companies and service providers, Arkema customers and people living near Arkema's industrial sites may have been exposed or may still be exposed to these substances (ingestion, inhalation, skin contact, etc.) and, as a result, may have developed or may develop specific illnesses from such exposure. In addition, for certain substances currently regarded as risk-free, chronic toxicity, even at very low concentrations or exposures, could be discovered in the future. In 2021, 26 occupational illnesses were reported Group-wide, of which 10 were related to exposure to asbestos and 9 to exposure to chemicals. These figures include illnesses not yet included in the tables listing occupational illnesses. In France, 4 Group sites have been included by ministerial decree on a list of sites whose current employees would be entitled to the early retirement provisions for asbestos workers. For further details, see section 4.5.2.2.4 of this document.

Certain Group products may moreover be used directly or indirectly in sensitive applications, such as medical and food applications.

In the event that specific pathologies were to be linked to substances used by the Group or present in the products that it sells, the Group cannot rule out the possibility that it may be held liable.

Risk management

Through product stewardship, Arkema takes care to ensure that its products do not impact people's health or safety in general. These aspects are taken into account during the product design stage. Regulatory compliance plays a key role in ensuring product safety for the entire value chain, customers and stakeholders.

Arkema has put in place safety and monitoring procedures for its products and the products it uses in its manufacturing processes. It also regularly conducts research on the toxicity of its products and the products it uses, and in addition has developed a tool for monitoring individual exposure to toxic products. For this purpose, the Group employs regulatory experts supported by a global network of correspondents based in its industrial sites and within its businesses and subsidiaries, and experts in physicochemistry, toxicology and ecotoxicology who work to improve knowledge and understanding of the hazard characteristics of the substances and products used, manufactured, imported and marketed by Arkema. The various procedures in place are described in section 4.2.4 of this document.

In the particular case of medical applications, Arkema has put in place strict rules governing the applications for which Arkema markets its products. In addition, two committees – the Europe/Asia Medical Device Risks Committee and its equivalent for the Americas – are responsible for giving their preliminary opinion regarding all decisions in this area. These two committees communicate regularly to coordinate opinions while taking into account the specific regulations of each region.

Furthermore, Arkema may, if necessary, be forced to withdraw certain products from the market or to cease using certain substances or find substitutes for them in its manufacturing processes, particularly in certain sensitive markets.

Group employees who may potentially be exposed to toxic or hazardous substances in the workplace benefit from medical monitoring adapted to the specific risks related to their activities. When they leave the Group, particularly for retirement, they may benefit, in accordance with applicable legislation, from specific post-occupational medical monitoring established on the basis of information provided by Arkema on the hazardous chemicals they handled over the course of their professional career.

Pollution at sites, warehouse facilities or during transportation CSR

Arkema has activities in business areas that entail significant environmental liability risks, with respect to both the operation of its industrial units and to accidents resulting in pollution at one of Arkema's production sites, at a warehouse or during the transportation of products manufactured by Arkema. The Group cannot rule out the possibility that claims will be made in connection with its operations or products, seeking to hold it liable for uninsured events or for amounts exceeding the cover limits. Should Arkema be held liable for environmental claims, the amounts covered by provisions or included in its investment plans could prove to be insufficient due to the intrinsic uncertainties involved in projecting expenditure and liabilities relating to the environment. In particular, the assumptions used to determine these provisions and investments may need to be adjusted, mainly due to changes in regulations, changes in the interpretation or application of regulations by the relevant authorities, the technical, hydrological or geological constraints of environmental remediation or the identification of as yet unknown pollutants. Moreover, achieving compliance with environmental protection regulations for Arkema sites that are still in operation or were previously operated, or for sites where operations have ceased, is likely to generate substantial financial costs for Arkema.

Contingent environmental liabilities and the related provisions are detailed respectively in notes 10.2.1 and 10.2.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Risk management

Environmental risk is managed by the implementation of a policy defined and monitored by the Environmental Remediation team within Arkema's Safety and Environment department and rolled out within its various businesses under the responsibility of the industrial Vice-Presidents. The components of this policy are detailed in sections 4.5.1 and 4.5.3 of this document.

Arkema also benefits from guarantees from subsidiaries of TotalEnergies with respect to former industrial sites, which were granted prior to Arkema's stock market listing. A description of these guarantees can be found in note 10.3 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Risk of loss of occupancy of certain industrial sites

Arkema owns most of the land on which its industrial sites are built, but some of the Group's industrial facilities in its worldwide network, especially in Asia, are located on land that belongs to third parties, either due to local regulations or for technical or strategic reasons. In such cases, Arkema occupies the land under the terms of leases or similar agreements. If these agreements were to be terminated or not renewed, or if a site were to be expropriated, it could lead the Group to incur significant expenses related in particular to the demolition of existing facilities, the clean-up or remediation of these sites and the reconstruction of new facilities. The Company may even be forced to cease certain production activities, which could have a material adverse impact on its business activities, financial position and earnings. Such an event could lead to several scenarios, including having to move production (and thus all the costs this would involve), or a loss of earnings or margins. For further details on the location of the Group's industrial sites around the world, see the "Profile, ambition and strategy" section of this document.

Risk management

When negotiating contracts, Arkema secures its right to occupy land by implementing sufficiently long terms and lengthy notice periods. Contractual expiration dates are monitored regularly to anticipate any problems regarding renewals. Where applicable, in the event of an expropriation, the Group endeavors to negotiate compensation with a view to reducing future costs related to rebuilding or relocating the units concerned.

2.1.2 Compliance, legal proceedings, societal expectations and internal control

Non-compliance with business practices CSR

The Group is present in 55 countries and uses commercial intermediaries throughout the world, including in Asia, the Middle East, Africa and South America, where it generates 33% of its consolidated sales.

As indicated in section 4.4.2.2 of this document, Arkema pays special attention to the commercial intermediaries it uses in order to minimize the risk of corruption or fraud. Despite this vigilance, there is still a risk that an intermediary may violate laws, resulting in liability on the part of Arkema. If this were to happen, significant sanctions and/or fines could potentially be imposed on the Group, in particular based on US regulations with an extraterritorial reach.

Moreover, 21 of the countries in which the Group operates are subject to financial or commercial restrictions and some of the Group's products fall within the definition of dual-use goods regulated by international conventions (notably diethylamine and diisopropylethylamine).

Finally, the Group is exposed to the risk of anti-competitive business practices, including price-fixing and cartel-type arrangements. This risk is accentuated by the fact that there are a limited number of competitors in many markets in which the Group does business.

Non-compliance with any of these laws or regulations in one or more countries may result in significant fines being levied on the Group or civil or criminal charges being brought against it and/or its employees.

Risk management

Arkema has put in place a business compliance and ethics program, which notably covers antitrust, export control and anti-corruption laws together with procedures and guidelines on each of these topics. Training is also given within the Group to prevent risky behavior and maintain a suitable level of awareness in these areas. In 2021, 66% of the Group's employees took the anti-corruption training module.

In 2021, internal audit and internal control frameworks as well as due diligence processes applicable to mergers and acquisitions for the Group were also updated to strengthen the points relating to the compliance program. In this respect, particular attention was paid to anti-corruption.

In addition, pursuant to the French law of 9 December 2016, known as the "Sapin II Law", a corruption risk map was drawn up in 2018 and continues to be refined and updated regularly based in particular on interviews as part of the general risk map exercise performed by the Group (see section 2.2.4 of this chapter). It is intended to serve as a guide for implementing procedures to assess customers, suppliers and intermediaries.

Regulatory requirements and societal expectations CSR

Arkema's operations, carried out in 55 countries, are subject to constantly changing national and international laws and regulations in a large number of fields, including safety, environmental protection, antitrust legislation, company law, commercial law, intellectual property, labor law, personal data protection, tax law, customs regulations and product stewardship. These laws and regulations impose increasingly strict obligations, particularly concerning industrial safety, occupational health, emissions and discharges into air, water and land of toxic or hazardous substances, rational use of resources, labeling, traceability, handling, transportation, storage and disposal of toxic or hazardous substances and exposure thereto, clean-up of past industrial sites, and soil and groundwater remediation.

If existing product regulations were to be amended to become more restrictive for Arkema or if new regulations were adopted, it could (i) compel Arkema to significantly scale back on or even discontinue the production and marketing of certain products, (ii) restrict Arkema's ability to alter or expand its facilities, (iii) possibly compel Arkema to abandon certain markets, incur significant expenditure to produce substitute substances or institute costly emissions control or reduction systems, or (iv) exclude Arkema from certain markets if it could not develop substitute products. At the date of this document, fluorogases have been identified as the most exposed to regulatory changes.

The implementation of the Montreal and Kyoto Protocols and the Kigali Amendment has led to a change in regulations with regard to emissive fluorogas applications in a certain number of countries. For this reason, the transition from old-generation refrigerants (hydrochlorofluorocarbons, or HCFCs) to existing generations (hydrofluorocarbons, or HFCs) then to new generations of low global warming potential refrigerants (hydrofluoroolefins or HFOs) is taking place progressively at different paces depending on the region, application and product. For example, the European F-gas regulation no. 517/2011, which aims to reduce volumes brought to market by more than 80% between 2015 and 2030, has introduced a quota system and gradual bans on certain usages, while the European MAC (Mobile Air-Conditioning) directive has banned the use of refrigerant gases with a global warming potential higher than 150 in all new vehicles sold in Europe since 1 January 2017. In the United States, HCFC-22 quotas were revised downward for the 2015-2019 period and, since 2020, the production and import of HCFC-22 are no longer allowed. Only sales of stockpiles and recycled products are authorized. In late 2021, the United States also adopted regulations (the AIM Act) to reduce HFC gas emissions by 85% in 15 years through the implementation of quota allocations starting in 2022.

The implementation of the European F-gas regulation substantially tightened the balance between HFC supply and demand in Europe, in second-half 2017 and in 2018. Since 2019, however, illegal imports of HFCs into Europe have weighed on both prices and volumes, significantly affecting the business' performance in the region.

There have also been discussions, particularly in Europe and the United States, on changes in regulations concerning per- and polyfluoroalkyl substances that could have an impact on certain Group fluoropolymer chemical activities. Moreover, the French Law of 10 February 2020 relating to the fight against waste and to the circular economy, which introduced restrictions on the use of microplastics intentionally added to products, will have a limited impact on some of the Group's products used in cosmetic applications from 2027.

In parallel, in 2022, the European Commission is expected to finalize a proposed restriction on the use of microplastics in certain applications, which could mean that France will eventually have to align its own legal provisions with the new European regulatory framework.

As part of the "Green Deal" and with the launch of the "Chemicals Strategy for Sustainability", Europe opened a major new regulatory chapter for the assessment and management of chemical risks, based on a heavily revised generic approach to hazard and risk. The strategy will be implemented over the coming years according to the normal process for developing – or revising – the related regulations.

As a general rule, Arkema pays particular attention to ensuring compliance with all laws and regulations applicable to the Group. Non-compliance could result in significant fines being levied on Arkema or in civil or criminal charges being brought against it and/or its employees. As regards tax, Arkema applies documented transfer pricing policies to its inter-company flows that are recognized by the OECD and reasonable with due regard to the risks and functions of Group entities. However, the tax authorities may disagree with these policies or the margins allocated to the various entities, which may lead to tax reassessments. A description of the most significant current or potential litigation is given in note 10.2.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Lastly, the Group is especially attentive to the societal expectations expressed by civil society, non-governmental organizations and local associations. For a chemical company like Arkema, higher expectations could, in certain cases, lead to more stringent requirements in various areas of the business, such as product stewardship, environmental management and increased consideration of impacts related to climate change and human resources management, resulting in significant additional expenditure and investment to adapt to these requirements. Failure to take action or delays in implementing measures to meet these requirements could result in financial losses through loss of market share or even reputational damage for the Group.

Risk management

All of the Group's operational and corporate departments, both at the corporate and local levels, assisted by the Group's Legal department and, where necessary, specialist consultants or the relevant government authorities, work continuously to ensure that a high level of knowledge of the applicable legal framework is maintained, and to anticipate any future developments in order to comply with the applicable laws and regulations at all times.

The Group is supported by a global network of regulatory experts based in its industrial sites and within its operational units and subsidiaries. These experts are more specifically responsible for monitoring regulatory changes (especially those that concern products being developed in several countries) and producing the documents required to comply with the regulations within the prescribed time limits. These experts are involved in professional associations that monitor proposed legislative or regulatory changes at the state or agency level, thus helping the Group to anticipate regulatory changes and prepare accordingly. For further details, see section 4.2.4 of this document in particular.

In cases where regulatory changes lead to restrictions on the use of raw materials or the marketing of finished products, Arkema works to develop new products or substitutes and relies on its R&D to develop alternative solutions. For further details, see section 1.1 of this document.

Legal, administrative and arbitration proceedings

In the normal course of its business, Arkema is or may become a party to a number of administrative, legal or arbitration actions, suits and proceedings, as a result of which it and/or its employees may be found tortiously or contractually liable on various grounds, such as violating the various laws applicable to the Group, full or partial failure to fulfill contractual obligations, termination of established business relationships, pollution, non-conformity of products, exposure to chemical products, non-compliance with export control regulations, or violating anti-corruption laws, as well as over disagreements concerning the interpretation of the law, established case law, international treaties or tax authorities' commentaries in one of the many countries in which Arkema does business.

A description of the most significant current or potential litigation is given in note 10.2.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

To the best of the Company's and the Group's knowledge, there are no other administrative, legal or arbitration proceedings currently underway, or with which the Company or the Group are threatened, that are likely to have or have had over the course of the past 12 months a material adverse impact on the results or financial position of the Company or the Group. However, it cannot be ruled out that, in the future, new proceedings, related or unrelated to existing proceedings, could be initiated against an Arkema entity. Should such proceedings have an unfavorable outcome, they could adversely impact Arkema's business activities, financial position or results.

Risk management

The Group has implemented a policy whereby the Legal department monitors all administrative, legal or arbitration actions, suits and proceedings, with support from specialist law firms where necessary.

All legal risks related to current or potential litigation are subject to a quarterly review. In this context, each business, corporate department and subsidiary must provide the Group Accounting and Consolidation department and Legal department with a written summary of any legal risks or proceedings that affect, or are likely to affect, the Group's business activities, results or financial position. These two departments analyze the risks and legal proceedings that were identified and determine, in liaison with the internal contacts concerned, the amount of the provisions relating to such risks and legal proceedings based on the rules described in note 2 "Accounting policies and new standards" and note 10 "Other provisions and other non-current liabilities, contingent liabilities and litigation" to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Internal control failures linked to recently acquired subsidiaries

As part of its overall corporate strategy, Arkema pursues a bolt-on acquisition program that targets small and mid-sized businesses. Over the past three years, the Group has acquired several companies or groups of industrial companies, such as ArrMaz, Lambson, Prochimir, LIP, Fixatti, Poliplas and Agiplast. The internal control systems of the subsidiaries acquired vary in terms of their maturity. This may result in errors due to poor knowledge of best practices and attempts at internal or external fraud that may cause financial or even reputational damage to the Group.

Risk management

Following the completion of an acquisition, Arkema needs an average of two years to deploy its global internal control and risk management procedures. This system, its organization, main stakeholders and framework are described in section 2.2 of this chapter.

2.1.3 Operational risks

Dependency on suppliers

CSR

In the case of certain raw materials, equipment and services (storage in particular) that are essential to its business, Arkema is, to a significant extent, dependent on a limited number of suppliers and, in some cases, a single supplier. Default by a major supplier, the non-renewal of supply contracts for certain raw materials or their renewal on less favorable terms, and significant price increases could therefore have an adverse impact on Arkema's industrial and financial performance.

In particular, the Group has entered into certain multi-year supply contracts, including those governing Arkema's supply of propylene and oxo alcohols, hydrofluoric acid (HF), 1.1.1-trichloroethane and cyclododecane (CDA), which are used as a main raw material for acrylic monomers, fluorogases, fluoropolymers and polyamide 12, respectively. With regard to the supply of propylene for the acrylics business at the Carling site in France following the shutdown by Total Petrochemicals France of its steam cracker in Carling, the Group signed an agreement with Total on 3 September 2015, which ended on 30 April 2021. On 19 May 2021, the two companies signed a long-term agreement extending the supply of propylene to the Carling site.

In the first half of 2021, Arkema France negotiated new terms and conditions for the electricity supply to some of its industrial sites to cover its medium-term needs.

Some of Arkema's French production plants, which consume and ship significant quantities of bulk raw materials classified as "hazardous materials" for transportation purposes, are dependent on the quality of service provided by rail operators and storage authorizations at the sites in question, especially when there are constraints on transportation solutions for operational or regulatory reasons (*e.g.*, single wagons and not full trainloads; no road alternatives). They are therefore monitored very closely, in liaison with the authorities, infrastructure managers and freight operators. The supply chain pressures seen in 2021 once again highlighted the importance of this matter.

Risk management

Arkema has implemented a policy of spreading supplier risk at product-line level and at geographic exposure level for its supplies of raw materials, energy resources, services and for some equipment.

The Group's centralized procurement policy for raw materials and goods and services aims in particular to analyze and, insofar as possible, comprehensively address its exposure to the risk of significant dependence on supplies and suppliers.

This policy is based on the following principles:

- diversification of sources of supply when technical conditions allow it;
- the development of long-term partnerships or contracts for supply situations that are subject to severe structural constraints due to the supply and demand balance or the limited number of suppliers; these partnerships also provide the Group with a competitive long-term cost of supply;
- prudent management of the duration of contractual commitments;
- supply chain and inventory management adapted to both business and industrial requirements, particularly for strategic products;
- a thorough assessment of suppliers based on the following criteria: position in the relevant market, industrial and CSR performance, financial strength and development; and
- participation in certain investments or development projects.

Customer risk

For some of its business activities, Arkema has entered into agreements representing significant income with certain customers, the most significant of which are described in sections 1.2 and 1.4 of this document for each business concerned. Any crisis affecting an economic sector of Arkema's customers, together with termination, non-renewal or renewal on less favorable terms than those initially agreed for the main contracts, could lead to significant losses in sales and earnings for the businesses concerned, and a sharp deterioration in their profitability. In some exceptional cases, when the customer breaches its contractual commitments, Arkema may initiate legal proceedings or arbitration to enforce its rights. For more information on disputes, see note 10.2.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

More generally, the Group's relationships with a large number of customers expose it to credit risk. At 31 December 2021, accounts receivable net of provisions amounted to €1,432 million. These accounts receivable are detailed by due date in note 11.6.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document. Arkema's exposure to credit risk is linked to the individual characteristics of its customers.

Risk management

In addition to a highly diversified customer base, the Group's sales are evenly balanced across the different regions in which it operates, thus limiting the geographical concentration of credit risk.

Regarding customer credit risk, Arkema has set up a global credit insurance program that, given the quality of its customer portfolio and low claim rate, allows it to cover a significant proportion of its accounts receivable. Arkema has also deployed a specific credit risk management policy that consists in regularly assessing the solvency of each of its uninsured customers. Uninsured customers whose financial situation does not meet Arkema's solvency requirements are only supplied after payment. For more information, see note 11.6.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document. The policy concerning provisions for fully or partially uninsured bad debt is also detailed in this note.

IT and cybersecurity risk

The Group's industrial and management processes, and communication between employees and third parties, are highly dependent on information technology systems based on complex and ever-changing technical environments. Interruptions to the operation of critical applications or loss of sensitive data (due to system failure or intrusion or malicious use of IT systems) could have a material impact on the Group's business activities, earnings or financial position.

In the event of system failure or intrusion or malicious use of the IT systems, the Group may have to shut down or slow down all or part of one or more industrial units or departments. Given the nature of the Group's business and the sensitive nature of its industrial processes, any interruption in the operation of critical applications or loss of sensitive data (for any reason whatsoever) may result in the shutdown or slowdown of all or part of one or more industrial units or departments as a precautionary measure.

Risk management

The Group's IT department aims to provide systems access to authorized users while ensuring the integrity and confidentiality of sensitive data, in accordance with accreditations issued. Therefore, the Group constantly adapts its IT and industrial systems' prevention, detection and protection capabilities and implements organizational measures (IT systems security policy, application of international standards, user awareness-raising, user access management, business continuity plan) and technical measures (global cybersecurity operational center, data protection, networks and infrastructure) that reduce the Group's cyber risk exposure.

To ensure the reliability of its critical processes and compliance with security rules, the Group has set up an internal control system consisting of a number of IT general controls. The effectiveness of these measures, particularly in terms of cybersecurity, is assessed every year and action plans are put in place to address any identified weaknesses.

To boost cybersecurity at a local level, the IT department has implemented a new regional organization as described in section 4.5.2.6 of this document. Moreover, every Group site must comply with ten directives. Accordingly, the technical requirements of the Group's IT systems security policy comprise a behavioral component, which notably includes the implementation of the iSafe program to raise employee awareness about cybersecurity and data protection, and regular campaigns to build awareness and test responses around new fraudulent practices such as phishing.

Contractual commitments

In the course of its business activities, the Group has entered into multi-annual raw materials and energy procurement contracts to guarantee the continuity and security of supplies to its plants. Based on standard market practices in the Group's business sector, some of these long-term contracts include "take or pay" clauses, requiring the buyer to draw down minimum annual volumes over the term of the contract. Group companies may therefore be obliged to pay for minimum quantities whether or not they actually take delivery of these. In the event of failure to fulfill these contractual commitments or of early termination of the agreements by Arkema, these suppliers could claim compensation or penalties.

In the event of unfavorable economic conditions, a fall in demand or a change in demand for certain Group products, Arkema may not reach the minimum volume and may have to pay a penalty based on the total minimum annual volume cost. These contractual "take or pay" obligations may therefore have a negative impact on the Group's future operating income and cash flows. The Group's total financial commitments amounted to €1,072 million at 31 December 2021. For more information, see note 5.3.2 "Contractual commitments related to the Group's operating activities" to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Risk management

Each Group business deploys an industrial and commercial organization as well as a quality control system designed to help it fulfill its commitments. Furthermore, the Legal department supports the relevant businesses during the negotiation process for the various agreements.

After being reviewed by the Group's Legal department, material contractual commitments must be approved by the Executive Committee, which, depending on the situation, may request that a specific organizational structure be put in place.

Climate

CSR

The 6th assessment report of the Intergovernmental Panel on Climate Change (IPCC), published in 2021, clearly shows the impact of greenhouse gas (GHG) emissions from human activities on climate change. The report specifically states that limiting climate change by 2100 is contingent on rapidly and substantially reducing GHG emissions and achieving carbon neutrality by 2050. Arkema, as an industrial company, takes into account both "transition" risks, related to the transformation of the economy to limit global warming, and "physical" risks, corresponding to the impacts of climate change on its business activities.

- **Climate transition risks**

To manufacture the products it sells, the Group consumes energy, implements processes that emit greenhouse gases and uses materials which themselves emitted greenhouse gases when manufactured. Downstream, the transportation, implementation, use and end of life of products sold also generate greenhouse gas emissions.

Given society's increasingly high expectations for climate action, a lack of, or insufficient, commitment from Arkema, or an inability by the Group to reduce its emissions across its value chain, could have multiple consequences, in particular: (i) less appeal to investors, which could limit the Group's ability to grow, (ii) less interest from customers for the Group's products, due to a lack of solutions contributing to a low-carbon economy in response to their needs, and, more generally, (iii) a tarnished image, which could also impact the Group's ability to attract and retain the talent it needs. Falling short of regulatory requirements in countries or regions with emissions reduction policies (carbon taxes or quotas) could also generate additional costs (taxes or penalties) or require significant expenditure and investment to adapt to such requirements, thereby reducing the Group's profitability. Fluorogases, for example, have been identified as the products that are most exposed to regulatory changes for many years.

Moreover, as the economy shifts toward new, low-carbon technologies, difficulties accessing certain current raw materials could arise, impacting their availability or price, with potential consequences for the Group's business activities or profitability.

Risk management

Arkema has long been committed to meeting the climate challenge and managing the related risks, continuously improving its global warming response policy and stepping up its actions year after year. Between 2019 and 2021, for example, Arkema set Science-Based Targets across its value chain and implemented a number of measures in line with recommendations from the Task Force on Climate-related Financial Disclosures (TCFD). The Group also ensures it is taking appropriate climate measures by responding each year since 2016 to the CDP questionnaire, receiving a score of B in 2021. For further information on risk identification, policies, measures and projects implemented, results achieved and the related climate change performance indicators, see section 4.4 of this document. Capex and Opex for climate change mitigation action plans within the scope of activities eligible for the EU taxonomy regulation are included in the reporting disclosures in section 4.1.4 of this document. Concerning fluorogases in particular, Arkema is already anticipating the applicable regulatory changes by developing new blends or substitutes. For further details, see section 4.4.3.3 of this document.

- **Physical risks and natural disasters**

For several years now, climate change has been driving an increase in the frequency and intensity of certain weather events (floods, droughts and storms, in particular), which could lead to incidents or accidents at some of the Group's production sites. Due to their geographic location, 38 of Arkema's 141 industrial sites (especially those located in Texas in the United States) are exposed to these effects of climate change or to seismic risks. In 2021, 26 of these 38 sites were identified as being specifically exposed to climate risks. These classified sites account for around 34% of Arkema's total sales. For most of these sites, there are alternative production arrangements within the Group. Some, however, are the only manufacturing sites for the products in question. If all of these sites were to become unavailable as a result of significant damage resulting from a natural disaster, this could significantly affect the business concerned, leading to material losses in sales and earnings, and resulting in significant costs due to insurance deductibles and damage not covered by current insurance policies.

The effects of climate change could also impact Arkema's supply chain if, for example, a supplier or subcontractor could not supply one or more Group facilities, for reasons also related to climate change, thereby impacting the Group's operating and financial performance and its ability to deliver to its clients.

Risk management

Physical risks pose a threat in the long term, with increasing effects as time goes on, requiring the company to plan ahead in order to mitigate risks and seize opportunities. To prevent and limit the impacts of climate change to the greatest extent possible, the Group has drafted scenarios that notably take into account its evolution and consequences. Section 4.4 of this document, and more specifically sub-section 4.4.4, provides information on all adaptation measures implemented by the Group and the deployment of scenario-based approaches.

Risk related to health crises CSR

Serious health crises or pandemics, such as the Covid-19 pandemic which emerged in China at the end of 2019 and then spread to most regions throughout the world in 2020 and 2021, may lead public authorities in France and across the world to adopt measures to restrict the movement of people and the transportation of goods or even to lock down whole populations. These measures could cause disruptions on several levels for the Group. In particular, they could impact supply chains and weigh on customer demand in the different regions of the world. They could also result in partial or total closures of production units, research centers, head offices and other sites.

Health crises or pandemics may impact employees' health and limit their availability, as well as create difficulties with respect to the supply of certain raw materials or the delivery of products to customers.

They may also have a significant impact on the Group's business activity, financial performance and cash flow generation.

Risk management

In the event of a pandemic or serious health crisis, Arkema, in compliance with the applicable regulations, implements the necessary measures to protect its employees' health as a priority, to limit the impact of the exceptional situation on its business activities and results to the greatest extent possible, and, lastly, to prepare the return to more normal conditions. To this end, the Group notably deploys crisis management measures at both the central level and in the different countries in which it operates, led by trained personnel.

More generally, the Group ensures that business continuity plans are defined for its main industrial and administrative sites around the world. The plans include actions on two levels:

- health measures to limit the transmission of viruses and protect the health of employees and subcontractors working on the sites by (i) informing all personnel about health measures, raising awareness and providing alcohol-based sanitizers and protective masks, (ii) issuing instructions on how to contain isolated cases, and (iii) reducing the number of meetings and business trips;
- organization measures to ensure business continuity by introducing teleworking solutions and virtual meetings, wherever possible; and
- measures to adapt business activity to the level of absenteeism by organizing work in such a way as to enable a site to continue operating despite the absence of significant numbers of employees and, in extreme cases where a very large number of employees are absent, to ensure the safety of the site in question and environmental protection.

Lastly, the Group adopts a strict disciplined approach to financial policy in order to maintain a solid balance sheet and a high level of liquidity and regularly reviews its sources of financing in order to ensure they are sufficiently diverse and have an average maturity of more than three years. The Group may also reduce its recurring fixed costs, adapt its investment expenditure and further optimize its working capital when circumstances so require.

Supply chain disruption

Arkema's customer supply chain may be interrupted due to supplier failure, the unexpected shutdown of a Group production site (supplying other Group sites), supplier or customer production site, or a disruption affecting transportation, logistics or storage and warehousing facilities. These disruptions or extended shutdowns impacting a production site may result from problems with raw material or energy resource supplies, technical incidents, industrial action or natural disasters as well as serious government-declared health crises. They may lead to delivery delays over extended periods of time, which could adversely impact the Group's sales and earnings, as well as the quality of its customer relationships.

Moreover, in the event of difficulties with certain raw materials, alternative sources of supply may be limited or non-existent, or only be available at a very high cost.

Regarding transportation, due to stricter regulations on the transportation of hazardous materials, the temporary or permanent lack of transportation means for certain toxic or hazardous products to certain destinations, the market dominance of a single supplier or industrial action affecting transportation, Arkema may face delays in delivery or even refusal by its carriers to collect shipments, difficulties in meeting certain customer demands, increases in certain shipping costs or shipping equipment rental costs and reductions in certain shipments.

Lastly, Arkema uses many storage and warehousing facilities located on its industrial sites and elsewhere. The temporary unavailability of these storage facilities may lead to a production disruption or suspension at certain Group sites or to delivery delays for certain customers as alternative storage solutions are sometimes limited for certain products manufactured by the Group.

Risk management

In order to minimize the risks related to the transportation and storage of its raw materials and own products, Arkema endeavors to strictly select suppliers based on the Warehouse Safety and Quality Assessment System (SQAS), which was established under the aegis of the European Chemical Industry Council (CEFIC) by a consortium of European chemical manufacturers and which also covers the Middle East and Asia, and the Chemical Distribution Institute – Terminals (CDI-T) scheme at the global level. Arkema also endeavors to diversify its service providers and, in particular, split its product shipments between several carriers where possible. Lastly, the Group develops alternative solutions that combine transportation plans and distribution schemes, with a lag time for implementation, and can set up geographical swaps with other manufacturers.

Insurance cover default risk

Arkema's insurance policy is part of the overall risk management framework and, as such, is described in detail in section 2.2.6 of this document.

At the date of this document, Arkema believes that the limits of the insurance cover described in said section take into account the type of risks it incurs. However, in some cases, the possibility that Arkema could be required to pay substantial compensation for claims that are not covered by the existing insurance program, or that it will incur very substantial expenses that will not be reimbursed or only partially reimbursed under its insurance policies, cannot be excluded, notably in the event of an accident at a site or external warehouse, during transportation or in the event of natural disasters.

Arkema selects its insurers from the best and most financially solid companies when taking out policies. However, the possibility cannot be ruled out that, at the time of settling a claim, one or more of these insurers could be in a difficult, even compromised, financial situation that puts payment of the compensation in doubt. Furthermore, recent developments in the insurance market could result in unfavorable changes to the Group's insurance policies and an increase in policy premiums.

The Group's insurers, under certain conditions deemed customary in the insurance industry for those types of contracts, can prematurely terminate insurance policies in the event of a major claim. In such an event, the Group nevertheless remains covered throughout the notice period, which may vary depending on the policy.

Risk management

Since its creation, Arkema has maintained a department dedicated to the investment and management of the Group's insurance cover, backed by international insurance brokers to optimize and bolster its cover.

The Group issues regular calls for tenders to insurance brokers and insurers in order to ensure that it is always informed of the best offers available on the market. Insurance cover and insurers are selected based on objective criteria including price, the extent of coverage and the strength, experience and quality of the insurers.

Talent and skills risk CSR

Arkema's success is deeply linked to the quality and commitment of its employees and, as a result, to its ability to attract, integrate, motivate, promote and retain skilled employees across all regions in which the Group operates.

Arkema's experienced and committed teams enable the Group to:

- innovate by creating sustainable product and application solutions (in 2021, Arkema's R&D teams numbered more than 1,600 researchers working in 15 research centers structured around three regional research and innovation hubs);
- deploy complex industrial projects (such as the construction of the Thiochemicals platform in Malaysia in a new country using an innovative process and, more recently, the specialty polyamides platform in Singapore);
- successfully integrate acquisitions (in particular within Bostik); and
- more generally, adapt to different macro-economic environments and significantly improve Arkema's financial and non-financial performance.

Given that 33% of Arkema's employees are over 50 years old at the date of this document, the Group is organizing an effective skills transfer process from that generation to a new generation of employees over the coming years.

Difficulties in hiring or retaining skilled employees – especially those with particular expertise in the technologies required in sectors like Arkema's – or even the departure of experienced employees (due to resignation or retirement) could hamper the implementation of the Group's strategy and have a negative impact on its business activities and financial position.

Risk management

Arkema has implemented numerous initiatives aimed at attracting quality candidates, retaining top employees and reinforcing, notably thanks to targeted training, their skills and, as a result, the Group's overall expertise. For further details on the human resources development and talent management policy, see section 4.6.1 of this document.

Arkema's compensation policies value and fairly reward each employee's contribution to the Group's success. Arkema has also rolled out long-term incentives to motivate and retain employees (incentive schemes, profit-sharing plans, employee shareholding and performance shares). For further details, see sections 3.5 and 4.6.1.5 of this document.

Lastly, Arkema ensures that skills in certain sensitive technologies are shared by a sufficient number of employees in order to safeguard know-how within the Group.

Since 2020, the health crisis has highlighted the need to adapt ways of working to previously unimaginable circumstances, in particular with the introduction of temporary lockdowns in most countries in which the Group operates. Arkema responded quickly to these situations, implementing a remote working policy tailored to each country. The policy is reviewed to reflect changes in the health situation.

2.1.4 Economic and business risks

Change in prices of key raw materials and energy

Upstream of its activities, the Group uses raw materials and energy resources to manufacture its products, some of which are indirectly linked to the price of crude oil like propylene or butadiene, while others, such as sulfur, castor oil and fluorspar, are only minimally connected or not at all. The prices of these raw materials and energy resources can be highly volatile and therefore lead to significant variations in the cost price of the Group's products. The delayed impact of raw material price increases may have a significant impact on the earnings of certain Group businesses, particularly downstream businesses, which represent a significant portion of its activities.

Risk management

Arkema strives to optimize the costs of its raw material and energy supplies by diversifying its sources of supply. In some cases, the Group may therefore use derivatives such as futures, forwards, swaps and options, on both exchange and over-the-counter markets. These derivatives are matched with existing contracts (see notes 11.6.5 and 11.2.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document).

The Group also forges partnerships with certain suppliers who are leaders in their respective fields in order to build strong, long-term business relationships and ensure a competitive cost of supply.

Lastly, Arkema strives to deploy an appropriate pricing policy, in particular in downstream activities like adhesives or downstream acrylics, in order to pass on to its selling prices increases in the cost of the raw materials used to manufacture its products.

Strengthening competition

Arkema is confronted with strong competition in each of its businesses, especially in intermediate activities, with the strengthening of some of its competitors and the emergence of new players that could impact its own competitive position. Regarding the Group's intermediates activities, some competitors are larger and more vertically integrated, which could enable them to benefit from lower production costs for certain products that the Group also manufactures. Moreover, the economic development of certain countries like China has been accompanied by the rise of local competitors, resulting notably in new global capacities and the development of new technologies. This has led to growing competition on certain product lines, which could place lasting downward pressure on the selling prices and margins of these products.

Risk management

With a view to consolidating its competitive position, Arkema has since its creation implemented a policy of operational excellence and cost optimization to enhance the competitive advantages that it enjoys in its various product lines and to guarantee the quality and performance of the products offered to its customers.

Moreover, thanks in particular to its innovation, the Group is deploying a repositioning strategy to diversify its portfolio of products and application markets and strengthen its position in niche markets with higher added value.

Lastly, the Group forges long-term partnerships with customers who are leaders in their fields, enabling it to build solid and lasting commercial relationships with its main partners and support them in their development.

Geopolitical and macroeconomic instability

Arkema's global business, which generates a significant portion of its sales in certain regions of the world or countries (36% in Europe, 27% in the United States and 16% in China in 2021), exposes it to the direct and indirect consequences of trade disputes, embargoes, epidemics or pandemics, sudden changes in customs duties, terrorist activities, political instability and armed conflict. These events could, in particular, result in delays or losses in the Group's product deliveries to its customers or in the supply of raw materials and could therefore have a material adverse effect on its sales and earnings. In addition, they could lead to increased costs for products manufactured by the Group, as well as to higher safety costs and insurance premiums.

Risk management

With its balanced geographic presence in Europe, North America and Asia, the Group is able to spread its risk between the different geographic regions in which it operates. As Arkema gradually establishes production plants in the main geographical regions, this also secures local supplies to its customers present in the region and limits the flow of products between different regions.

In addition, to develop and implement effective policies and strategies in each of its foreign operations, Arkema relies on subsidiaries, which are placed under the supervision of a regional Vice-President, in most countries in which it has industrial and commercial operations. This organization helps the Group maintain relations with local authorities and economic players, defend its interests, and better anticipate changes in the local political and economic environment.

2.1.5 Project and innovation risks

Investment and acquisition projects

As part of its targeted growth strategy, based in particular on developing new products and expanding the Group's geographic footprint, Arkema is involved in complex, sometimes very large-scale projects, such as the current investment in Specialty polyamides in Asia and the investment in Thiochemicals in Malaysia that was finalized in early 2020. For the 2020-2024 period, the Group estimates that its exceptional capital expenditure will total approximately €525 million. These investments are described in the "Profile, ambition and strategy" section of this document. Arkema also invests around 2% of its annual sales in development projects designed to ensure its future growth. The completion of these projects may be delayed and/or result in expenses in excess of those initially budgeted for by the Group. These elements could weigh on the Group's growth prospects and the expected profitability of these investments and thus have a negative impact on its business, earnings and financial position.

In line with its ambition to become a pure Specialty Materials player, Arkema also deploys an ambitious bolt-on acquisition program that targets small and mid-sized businesses to strengthen its portfolio and Specialty Materials platform. In this respect, the Group has spent around €1 billion over the past three years. These acquisitions may expose Arkema to various risks, including in particular the risk of bearing potential liabilities or responsibilities related to the businesses acquired (notably relating to real estate owned or leased by companies acquired by Arkema), in spite of the quality of due diligence performed. In addition, the assumptions on which the acquisitions were made may fail to materialize, in particular the development prospects of these activities may not be achieved, or projected synergies may not be fully unlocked, which may adversely impact the valuation of goodwill together with the Group's growth prospects, earnings and financial position.

Lastly, as part of disposals of non-strategic activities, Arkema may have to provide guarantees to third parties for certain operations. It cannot be ruled out that when some of these guarantees are invoked, the compensation claims could exceed the provisions made by Arkema.

Risk management

For each of its investments, the Group solicits the necessary internal and external resources and expertise to ensure its projects are implemented under the best possible conditions.

Before entering into any external growth transaction, Arkema takes precautions when identifying targets, in particular by conducting in-depth evaluations of the activities and companies concerned and the various liabilities related to the business being sold, and by negotiating appropriate guarantees from the sellers or putting in place insurance cover for the same purpose with the advice of external consultants with expert knowledge in this area. Furthermore, acquisitions are carried out by teams of qualified experts under the responsibility of the Strategy department.

Innovation and technologies CSR

The Group's innovation policy, described in section 1.1 of this document, is a strategic pillar in Arkema's targeted growth strategy and a key component in its contribution to sustainable development. Whether aimed at manufacturing technologies, products or their applications, innovation makes it possible to create sustainable solutions. Innovation enables Arkema to:

- launch innovative new products and solutions on the market while continually improving their performance, and provide its customers with the technical support and solutions they need; and
- enhance the Group's operational excellence by providing production facilities with new technologies and processes, thereby enabling the Group to produce safely and competitively while limiting its environmental footprint, in line with its commitment to being a responsible chemicals producer.

In 2021, R&D expenditure totaled €243 million, representing 2.6% of Group sales.

Despite the investments made, the Group may be unable to develop new products and new applications or to develop new production processes. This inability, or a delay in the development of such new products, could prevent the Company from marketing certain products and could therefore have an adverse impact on its business and earnings.

Moreover, changes in processes used by customers or a switch from one technology to another in their products could drag down the Group's sales. In the field of batteries in particular, many technologies are currently being developed but it is impossible to say which ones will be successful. The Group is devoting significant R&D resources to preparing for the emergence of tomorrow's battery technologies. At this stage, however, the level of uncertainty remains high.

Risk management

With more than 1,600 researchers and €243 million in R&D expenditure, Arkema invests heavily in R&D each year to develop new products and processes that cater to both market demand and major challenges arising from global megatrends. This strong focus on innovation also enables the Group to adapt to regulatory changes. The R&D teams carry out important monitoring work, both in Arkema's own technological fields, but also further downstream in the technologies of its main customers' businesses. The organization and policy priorities of the Group's R&D, as well as the resources dedicated to R&D, are detailed in section 1.1 of this document.

Furthermore, Arkema has a technological development policy for its processes, in particular as part of its R&D programs, to give it ownership and control over the technologies that it uses in its major activities, and to help reduce its level of exposure to third parties in this regard.

Protecting intellectual property and know-how

Arkema is developing an innovation-based growth strategy structured around a dedicated organization, 15 R&D centers spread throughout the world and a research incubator. It therefore has a large R&D project portfolio. As such, the patents that protect the innovations generated by its research together with its trademarks represent a key asset for its business. At 31 December 2021, Arkema owned 10,196 patents and 222 new patent applications were filed in 2021 (203 in 2020), 200 of which relate to sustainable development. For further details, see section 1.1 of this document.

Consequently, aside from having an instantly negative impact on Arkema's results, patent or trademark infringements committed by a third party and any other type of intellectual or industrial property rights infringement could also harm the reputation and the perceived quality of the products concerned as well as the image of the Group. The Group also monitors patent applications filed by third parties. Such applications are only made public on publication and could have an impact on ongoing developments within the Group or on products recently brought to market. They could oblige Arkema to modify its product, thereby increasing the related R&D costs, or to negotiate a license to use the patented component. For further details on patent and trademark management, see section 1.1.3 of this document.

Lastly, the disclosure of confidential documents or the copying of processes or technologies that are critical to its production and to maintaining its international competitiveness could also adversely affect the Group's business and earnings.

Risk management

Arkema has developed an assertive policy to protect its innovations through the registration of patents, particularly with the support of a global network of industrial property consultants. For further details, see section 1.1.3 of this document.

When it comes to protecting its know-how and sensitive data and their confidentiality, particularly in the area of technology, the Group has strengthened its security policy by updating its procedures and application guides, which are applicable at all of the Group's sites, and has introduced an awareness-raising and training program for its employees. Lastly, Arkema subcontracts equipment essential to its critical processes to specific companies bound by confidentiality agreements. Files and technical manuals are managed by a restricted number of individuals.

2.1.6 Financial risks

Arkema is exposed to two types of financial risks: foreign currency risk and liquidity risk.

The information provided below is based on certain assumptions and expectations that, by nature, may prove to be inaccurate, particularly with respect to changes in exchange rates and Arkema's exposure to the associated risk.

Foreign currency

Given its international operations, Arkema is exposed to various types of currency risks:

- transaction risks related to Arkema's day-to-day operations and development projects;
- translation risks related to the consolidation in euros of subsidiaries' accounts that are denominated in currencies other than the euro. Fluctuations in the exchange rates of these currencies, particularly the US dollar-to-euro exchange rate, have had in the past and may have in the future a material impact on Arkema's financial position and operating income. The translation effect of a 10% change in the euro/US dollar exchange rate would have an estimated impact on consolidated EBITDA of around €50 million. For further details about the impact of the translation effect on Arkema's income statement and balance sheet, see sections 5.1.5 and 5.1.9 of this document; and
- risk of competitiveness related to the fact that, proportionately, in the euro zone, the Group incurs more operating expenses in euros than it generates sales in the currency owing to the fact that it is an export-focused company. As a result, Arkema's competitive position may be affected by the weakness of certain currencies, and in particular the US dollar against the euro, compared with its competitors positioned in countries with a weak currency. Furthermore, the weakness of certain currencies in countries with major imports from Arkema may affect its earnings.

Risk management

Arkema's objective is to minimize the impact of exchange rate fluctuations on its earnings and financial position.

Transactional risks are systematically hedged, at the latest when recorded in the accounts: Arkema companies hedge their foreign currency assets and liabilities against their respective functional currencies. Revenues and costs in foreign currencies are hedged essentially by spot foreign exchange transactions and sometimes by forward transactions.

Foreign currency risk linked to future flows, such as capital expenditure or sales flows, particularly export sales, may also be hedged. The Executive Committee is responsible for deciding whether such hedging is necessary, and the Financing and Treasury department is responsible for its implementation using simple derivatives. For further details, see notes 11.6.1 and 11.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Translation risk is not hedged as Arkema considers that it is inherent to its worldwide operations. However, Arkema reduces its balance sheet risk through a policy of allowing its companies to contract debt only in their functional currencies, except when a foreign currency loan is backed by a commercial risk in the same currency.

Arkema strives to mitigate the risk of lower competitiveness thanks to its strategy of achieving a greater balance in its geographic exposure.

Liquidity

Arkema has conducted a specific review of its liquidity risk and deems it is in a position to meet its future commitments.

Arkema uses bond issues and loans from banking institutions to finance its day-to-day operating requirements and development. However, unforeseen needs may also arise, resulting in particular from an increase in working capital or unfavorable market conditions. Additionally, market conditions may make it difficult to refinance bonds at maturity, or one or more banks may be unable to meet their obligations to Arkema with respect to one of its main credit lines, which would significantly reduce its access to financing under equivalent terms. For further details on borrowing terms and in particular on early repayment clauses, see notes 11.3 and 11.6 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Risk management

Arkema's financing policy, implemented by the Financing and Treasury department, aims to provide the Group with the necessary financial resources to fund its operations over periods of time adapted to its repayment ability. This policy is based on the following principles:

- having Arkema's long-term credit rated by two rating agencies and maintaining a solid investment grade rating;
- having a net debt (including subordinated debt) to EBITDA ratio of less than 2;
- maintaining cash reserves in excess of €500 million;
- having a Euro Medium Term Note (EMTN) program, to facilitate access to bond markets;
- maintaining average maturity at over 3 years; and
- diversifying its sources of financing.

2.2 Global internal control and risk management procedures

2.2.1 General organization: objectives and scope of internal control and risk management

Objectives

Arkema applies the Reference Framework of the French financial markets authority (*Autorité des marchés financiers* – AMF), published in 2007 and subsequently reviewed and expanded in 2010, which it has adapted to its business activities, size and organization.

Internal control is a Group-wide process defined and implemented by executive management, management and employees. Its objective is to ensure:

- compliance with current laws and regulations;
- compliance with the instructions and guidelines issued by executive management;
- the smooth operation of internal processes, notably those serving to protect assets; and
- the reliability of financial information.

Generally, internal control contributes to the management of Arkema's activities, the effectiveness of its operations, and the efficient use of resources.

However, no internal control process can provide absolute assurance that these goals are met. Despite the processes and controls in place, it cannot guarantee that all Arkema employees will constantly comply with the internal control guidelines and apply all the defined procedures.

Arkema has also implemented a risk management system that enables the Executive Committee to ensure that risks are at a level that it deems acceptable. This system contributes to:

- creating and protecting Arkema's value, assets and reputation;
- securing Arkema's decision-making and other processes so that objectives may be achieved more easily;
- ensuring consistency between Arkema values and actions; and
- rallying Arkema employees around a common vision of the main risks.

Scope

The internal control and risk management procedures are adapted to Arkema's organization, which is structured around three components:

- the segments of the Specialty Materials platform, which each comprise two Business Lines encompassing one or several activities, and the Intermediates segment, which includes two activities, with each activity responsible for its own performance and the implementation of internal control procedures (see section 1.2 of this document);

- the corporate departments (or support functions), which assist the segments and activities in their area of competence, such as finance, human resources, industry, legal affairs, IT, insurance and procurement, and ensure coherence and optimization at the Group level (see section 1.3 of this document); and
- the subsidiaries, in which Arkema performs its business activities (for further details, see section 6.1.2 of this document).

These internal control and risk management procedures apply to all fully consolidated Arkema Group companies. Internal control is not limited to procedures that improve the reliability of financial and accounting information.

2.2.2 Persons involved in internal control and risk management

Board of Directors and committees

The Board of Directors and its three committees (the Audit and Accounts Committee, the Nominating, Compensation and Corporate Governance Committee and the Innovation and Sustainable Growth Committee [1]), supported by the experience and expertise of their members, contribute to the promotion of an internal control and risk management culture adapted to Arkema's activities.

In particular, it is the responsibility of the Audit and Accounts Committee to oversee the effectiveness of internal control and risk management systems, and assess the schedule of the internal auditors and the results of their work.

Executive Committee

The Executive Committee implements the internal control process and ensures compliance by:

- defining the internal control framework and the rules for delegating responsibility;
- setting targets for each business, corporate department and subsidiary, and ensuring they have the resources for meeting these targets;
- supervising the implementation of the control procedures that help achieve the targets it has set;
- assessing the risks specific to each project submitted to the Executive Committee; and
- carrying out a review (annually and as deemed necessary) of Arkema's major risks, based on the work of the Risk Review Committee and its risk mapping presentation. In order to carry this out effectively, the Executive Committee relies on the Internal Audit and Internal Control department and the expertise of all its own members.

Each member of the Executive Committee is responsible for ensuring that the Internal Control Framework's Group-wide rules and principles (as described in section 2.2.3 of this chapter) are observed for the entities and businesses that he or she supervises.

Risk Review Committee

A Risk Review Committee was set up in October 2007 to strengthen the formal framework of risk identification, analysis and management, and to regularly monitor the development of risk factors. It is made up of the Strategy Executive Vice-President (committee chairman), the Industry Executive Vice-President, the Chief Financial Officer, the Legal Affairs Vice-President, the Sustainable Development Vice-President, the Group Safety and Environment Vice-President, the Insurance Vice-President, the Head of Group Accounting and Consolidation, the Head of IT and the Internal Audit and Internal Control Vice-President (committee secretary).

Every six months, or more often in response to specific events, the committee reviews:

- summaries of audits and assessments carried out by the Internal Audit and Internal Control, the Group Safety and Environment and the Insurance departments;
- reports on fraud or attempted fraud prepared by the anti-fraud unit;
- a summary and progress report of ongoing disputes presented by the Legal department;
- assessments of commercial intermediaries made by the commercial intermediaries' review commission;
- a list of risks identified in the surveys carried out by the Internal Audit and Internal Control, Legal and Group Accounting and Consolidation departments;
- a risk map prepared by the Internal Audit and Internal Control department; and
- the monitoring of corrective measures in all of these areas.

Following its review, the Risk Review Committee can decide on further corrective measures or request additional information, and can also request updates to the risk map.

The conclusions of its review are reported to the Executive Committee, which, upon completion of the process, may decide whether or not to update the main risks described in section 2.1 of this chapter.

The Risk Review Committee met twice in 2021.

Internal Audit and Internal Control department

The Internal Audit and Internal Control department is made up of the Internal Audit sub-department and the Internal Control sub-department, both of which are independent functions under the responsibility of the Strategy Executive Vice-President.

Arkema's internal control system meets the principle of the three lines of defense, as recommended by the IIA (Institute of Internal Auditors) and the IFACI (*Institut français de l'audit et du contrôle internes*). The first line is covered by all the operational functions, the second line by the support functions, including internal control, and the third by the internal audit functions.

The role of Internal Audit is notably to improve and develop controls in Arkema's management systems and processes and, more broadly, to ensure that its operating procedures comply with the Internal Control Framework.

(1) The Innovation and Sustainable Growth Committee was set up on 20 May 2021.

All processes and management systems (at the legal entity, Business Line, corporate department or other level) may be subject to an internal audit. The Internal Audit department discusses and agrees on its findings with the managers of the audited area before presenting them with a set of recommendations and related action plans that the managers of the entities or management systems commit to implementing.

An internal committee consisting of the Chief Financial Officer, the Strategy Executive Vice-President and the Internal Audit and Internal Control Vice-President regularly ensures that the recommendations have been followed.

The Internal Audit and Internal Control department defines a draft proposal for the audit plan based on:

- risk identification initiatives;
- interviews with Arkema's operational and corporate departments; and
- a selection of priorities from the various proposals gathered.

The final program is validated by the Executive Committee, and then approved by the Audit and Accounts Committee.

In 2021, the Internal Audit sub-department, made up of 8 internal auditors, carried out the following 39 audits:

- 14 audits of industrial sites or R&D centers in Europe, North America and South America;
- 19 audits of subsidiaries in Europe, Asia, Africa, North America, South America and Australia;
- 3 audits of processes or projects in Europe and Asia; and
- 3 audits of businesses in Europe and North America.

In 2021, 38% of audits were carried out remotely.

The primary mission of Internal Control is to strengthen Arkema's internal control systems. Its initiatives are communicated and implemented, at subsidiary level, by a network of correspondents within the subsidiaries' Finance and IT departments.

Internal Control is involved in the analysis and formal implementation of processes that impact financial information, for which key controls have been defined.

The methodology consists of:

- analyzing the main risks of error, omission or fraud in processes or sub-processes, which could have a material impact on Arkema's consolidated financial statements;
- identifying and implementing control procedures to minimize any risk of error, omission or fraud;
- periodically checking the existence and effective operation of these controls, carried out by the Internal Control correspondents based in the subsidiaries (self-audit) or by the Internal Audit sub-department; and
- defining corrective measures in the event of shortcomings and overseeing their implementation.

The list of procedures covered by this methodology is based on the 14 procedures of the AMF Reference Framework application guide published in 2007 and updated in 2010. It is adapted to the specific features and size of the subsidiaries.

All significant subsidiaries were covered by Arkema's internal control system in 2021. Its performance is measured annually, by self- or peer assessment, and recorded in the dedicated GRC (Governance, Risk and Compliance) tool.

Segments, Business Lines, activities, corporate departments and subsidiaries

Arkema is organized into segments as described in section 1.2 of this document. The segments of the Specialty Materials platform each comprise two Business Lines encompassing one or several activities, and the Intermediates segment includes two activities following the divestment of the PMMA activity in May 2021. Each activity coordinates the use of the resources required to meet the targets set in their respective areas and is responsible for its own performance and for implementing suitable control procedures and processes, in accordance with the principles and procedures defined in Arkema's Internal Control Framework, Business Conduct and Ethics Code, charters and guidelines. The corporate departments ensure that Arkema's organization is consistent and optimized.

Each subsidiary is placed under the responsibility of a local executive who is responsible for employing the resources defined with the businesses and the support functions to meet the subsidiary's targets, in accordance with current laws and the rules and principles defined by Arkema.

2.2.3 Internal control framework

Arkema's internal control and risk management systems are based on three core principles:

- clear definition of responsibilities and delegations of authority, observing rules governing the segregation of duties (in particular distinguishing between those who perform actions and those who approve them), to ensure that any person who makes commitments to third parties on behalf of Arkema has the authority to do so;
- identification, analysis and management of risks; and
- regular reviews, notably *via* annual internal control assessments and the internal audit program, to ensure internal control and risk management systems operate correctly.

Arkema's Internal Control Framework defines its organization and the guiding principles behind its operating procedures. Approved by the Executive Committee and available to all employees, notably *via* the intranet, it is based on the Safety, Health, Environment and Quality Charter, the Users' Guide for IT Resources and Electronic Communication, and the Business Conduct and Ethics Code put in place by Arkema, available on Arkema's website under the heading "Ethics". In line with the AMF Reference Framework published in 2007 and updated in 2010, the Internal Control Framework is based on five components:

- control environment;
- risk management (detailed in section 2.2.4 of this chapter);
- control activities;
- information and communication; and
- continuous assessment of the internal control system.

Control environment

The control environment is the basis for the other components of internal control and refers primarily to Arkema's organizational principles, its values as set out in the Business Conduct and Ethics Code and the level of awareness among employees.

All employees are informed of the importance attached to observing the rules of proper conduct set out in the Business Conduct and Ethics Code, the Health, Safety, Environment and Quality Charter, and the Users' Guide for IT Resources and Electronic Communication.

Arkema has put in place a compliance program described in section 4.6.2 "Compliance and ethics" of this document.

In addition a fraud prevention procedure has been put in place to record and centralize situations of fraud and therefore improve their handling and prevention.

In general, the roles and duties of every operational and corporate manager are set out in a job description. Their objectives, which include an internal control dimension, are set annually by their respective line manager, to whom they must periodically report on their activities.

Lastly, Arkema has set up a dynamic human resources management approach and a policy of ongoing training designed to ensure that employees' skills are continuously adapted, and to maintain a high level of individual engagement and motivation.

Control activities

Control activities involve applying the standards and procedures that help ensure that Group management directives are implemented at every level of Arkema.

To this end, a set of regulations has been formally documented in the Internal Control Framework, and general principles applicable to all Arkema entities have been defined in order to control the application of the operating procedures defined by the Executive Committee. For example, delegations of authority and investment management are the subject of specific notes.

- Businesses and subsidiaries are responsible for operational processes and therefore for internal control;
- corporate departments are responsible for defining and communicating policy and best practice guidelines relating to their area of expertise and ensuring that they are correctly applied, particularly in the following fields:
  - compliance with laws and regulations,
  - safety and environmental protection, and
  - the reliability of financial information; and
- controlling access to IT systems forms a key part of internal control and is subject to a formal management process, which involves both the departments using the systems and the IT department.

The Internal Audit team notably conducts assessments of Arkema's compliance with its Internal Control Framework in accordance with the audit plan validated annually by the Executive Committee and approved by the Audit and Accounts Committee.

Information and communication

IT systems are a key component of Arkema's organization.

Mindful of the opportunities and risks related to the use of information technologies, Arkema has set up an IT governance structure to control risks while creating value and improving performance.

This approach consists of deploying Group-wide the ten IT management practices drawn up formally by the French IT association for major companies, CIGREF (*Club informatique des grandes entreprises françaises*), as part of Arkema's IT systems security policy. For more details, see section 2.1.3 of this chapter.

Additionally:

- Arkema has a highly detailed financial reporting system, an essential management tool used by executive management;
- the main internal control documents are available on Arkema's intranet; and
- each support function develops professional best practices and communicates them throughout Arkema *via* the intranet.

Continuous assessment of internal control systems

The internal control system is assessed on an ongoing basis. The Executive Committee is responsible for the overall internal control system, its performance and its oversight. However, each subsidiary actively contributes to improving internal control performance within its own scope.

In general, any weaknesses in the internal control system must be reported to line management and, if necessary, to the Executive Committee.

In addition, recommendations made by the Internal Audit sub-department on completion of its audits are systematically reviewed, and a summary is presented to the Audit and Accounts Committee. When decisions to apply corrective measures are adopted, their implementation is monitored on a formal basis.

Furthermore, as part of their engagement, the statutory auditors may alert Arkema (represented by the Finance department and the Internal Audit and Internal Control department) and the Group's Audit and Accounts Committee regarding any weaknesses that they may have identified. These factors are taken into account by Arkema in its efforts to improve internal control.

2.2.4 Risk identification and management

In the course of its business, Arkema is exposed to a number of internal and external risks.

As Arkema's structure is highly decentralized, risk assessment and management is the responsibility of the businesses, corporate departments and subsidiaries. Each of these entities has a duty to reduce the risks inherent in their activities.

Arkema's risk management system is based on regular reviews of risk identification, analysis and treatment, as follows:

- every month, each business presents its results and indicators to its operational Executive Vice-President, who is a member of the Executive Committee, and the Executive Committee reviews the results of the segments and their respective activities;

- the Group Accounting and Consolidation department organizes a quarterly review of risks and legal disputes that may have to be reported in Arkema's financial statements. The businesses, corporate departments and subsidiaries report on their entity's risks, which are analyzed and addressed at quarterly meetings with the Chief Financial Officer, the Group Accounting and Consolidation department, the Legal department, and the Internal Audit and Internal Control department; and
- the Internal Audit and Internal Control department carries out an annual survey of risks among Arkema's main entities, namely the businesses, corporate departments and subsidiaries. The risks are identified and analyzed and the most significant risks are grouped together and positioned on a risk map, which is presented to the Risk Review Committee. The Risk Review Committee then assesses the need to update the risk map and puts forward suitable action plans where necessary. As part of this map, certain specific risks may be presented on an additional map. The committee's conclusions are reported to the Executive Committee prior to the definition of the internal audit plan. This plan is drawn up on the basis of the risk map and the need to cover Arkema's scope of activity on a regular basis. Material risks known to Arkema are allocated to a member of the Executive Committee. They are also examined by the Audit and Accounts Committee and presented to the Board of Directors. The main risks are set out in section 2.1 of this chapter, where they have been classified into the following sections:
  - industrial risks,
  - risks relating to compliance, legal proceedings, societal expectations and internal control,
  - operational risks,
  - economic and business risks,
  - project and innovation risks, and
  - financial risks.

2.2.5 Accounting and financial control procedures

Operational and corporate managers' control and understanding of their business' financial performance represents one of the key factors in Arkema's financial control system.

Organization of the finance function

The finance function is the responsibility of the Chief Financial Officer and includes:

- a Group Accounting and Consolidation department, which produces the consolidated financial and accounting information and ensures the reliability of the data constituting Arkema's financial information;
- a Controlling department, which provides management analyses and financial forecasts to Arkema's different entities to facilitate their management;
- a Tax department, which ensures compliance with the applicable laws and regulations on tax declarations and payment and carries out the overall tax planning process for the Group;
- a Financing and Treasury department, whose role is to optimize the Group's financing and liquidity and manage counterparty risk; and
- an Investor Relations department, whose remit is to establish, develop and maintain relations with investors, shareholders and financial analysts, and publish financial information once it has been approved by the Board of Directors.

Each business has its own management control team, which monitors and analyzes the business' performance monthly, and each subsidiary is responsible for its own monthly accounts and half-year and full-year financial information.

Accounting reporting and controlling

The Group Accounting and Consolidation department and the Controlling department define the financial principles and guidelines set out in the financial reporting manual and Arkema's management framework. The Group Accounting and Consolidation department also monitors accounting laws and regulations for the Group and ensures that specific technical provisions applicable to Arkema are taken into account.

The purpose of the financial reporting process, established in accordance with these principles, is to analyze actual performance compared with forecasts and prior periods. The reporting schedule is structured around:

- a five-year plan drawn up each year by the Strategy department. The plan is reviewed and approved by the Executive Committee and enables it to understand the financial consequences of the Group's major strategic choices and the main threats identified in the environment under consideration;
- an annual budget, which sets out the financial performance targets for the following year in line with the medium-term plan. The budget preparation process falls within the remit of the Controlling department. The budget represents a key benchmark for measuring the actual performance of the four segments and their respective businesses, the corporate departments and Arkema's subsidiaries as a whole; and
- a monthly forecast and reporting process, which enables business trends to be taken into account in order to refine end-of-period forecasts for the quarter and the year. The Controlling department prepares a consolidated report each month, by segment and by activity, based on the consolidated data provided by the Group Accounting and Consolidation department, that includes the month's significant events, the performance indicators and the updated forecasts. These components are systematically reviewed by the Group's Executive Committee.

The fundamental financial reporting principles are set out in the financial reporting manual and Arkema's management framework. These reference documents are updated regularly by the Group Accounting and Consolidation department and the Controlling department, following approval by the Chief Financial Officer or the Executive Committee, depending on the type of amendment and its significance.

One of the main purposes of accounting-related reporting is to analyze actual performance compared with forecasts and prior periods based on the processes described below.

Parent company and consolidated financial statements

Arkema publishes consolidated financial information on a quarterly basis. The half-year financial statements at 30 June are subject to a review by the statutory auditors and the full-year financial statements at 31 December to an audit. The quarterly information at 31 March and 30 September is presented in summary form only (balance sheet, income statement and cash flow statement). Press releases concerning financial information are prepared by the Investor Relations department and submitted to the Company's Board of Directors for approval.

At the end of each accounting period, the Group Accounting and Consolidation department reviews the financial risk portfolio with each business, corporate department and main legal entity of the Group.

The preparation of the parent company's financial statements is part of the general procedure for the preparation of annual financial information. Furthermore, the Company submits management forecast documents to the Board of Directors in compliance with regulatory provisions.

IT systems

The IT department defines and coordinates the IT systems for the entire Group.

Arkema is continuing its program to transform and rationalize its IT systems using SAP integrated software, which is helping to improve the Group's control environment, particularly through procedure review and improved automated checks. This integration effort also applies to Group acquisitions.

Representation letters

Each year, Arkema issues a representation letter attesting in particular to the accuracy and consistency of the consolidated financial statements. This letter is signed by the Chairman and Chief Executive Officer and the Chief Financial Officer and addressed to the Group's statutory auditors. In support of this representation letter, the operational and financial heads of each consolidated subsidiary make an annual undertaking to observe the internal control rules and ensure the accuracy of the financial information supplied, in the form of a representation letter to the Group's Chairman and Chief Executive Officer, the Chief Financial Officer and the statutory auditors.

Following the same procedure, Arkema's half-yearly representation letter is based on the main subsidiaries' half-yearly representation letters, which certify that the subsidiaries' half-yearly consolidated financial statements have been prepared in accordance with Arkema's financial reporting manual.

2.2.6 Arkema's insurance policy

Arkema implements an insurance cover strategy that combines a prevention policy designed in close cooperation with insurers (in particular for property damage, *via* joint periodic visits which result in the regular issuance of technical recommendations implemented by the Group), and the purchasing of insurance policies.

The Group's policy is to centralize its insurance against risks relating to the production, transportation and marketing of its products worldwide. Arkema uses international insurance brokers to optimize its cover of all Group companies. As a general rule, the Group's insurance cover limits apply either to each claim, or to each claim and each year, and vary according to the risks covered. In most cases, cover is limited both by certain exclusions standard to these kinds of contracts and by deductibles that are reasonable given the size of the Group.

For the financial year ended 31 December 2021, total premiums paid by the Group, and relating to the Group's insurance policies presented below, amounted to less than 1% of its sales for the period.

The Group's insurance policies are drawn up to cover current risks while also accommodating any new acquisitions or disposals that may take place during the year.

The Group retains a certain level of risk through the deductibles on its insurance policies, and centrally through a captive insurance company that is active only in property insurance. The objective of the captive company is to optimize the Group's external insurance costs.

Arkema believes that its insurance policies are consistent with those currently available on the insurance market for groups of similar size and involved in similar business activities.

Descriptions of the insurance policies taken out by Arkema are provided below to a level of detail that enables it to comply with confidentiality requirements and protect its interests and competitiveness.

Civil liability

The Group has contracted civil liability insurance policies with leading insurance companies. The civil liability policies are subject to applicable exclusions and sub-limits but cover the Group worldwide against the financial consequences of civil liability claims in the context of its business activities and in respect of physical, material or non-material damage or losses caused to third parties. These policies cover up to €700 million for the Group. Deductibles vary, particularly depending on the subsidiaries' location.

Property damage

The Group's sites are covered by leading insurance companies against material damage and any resulting business interruption. This cover is intended to avoid any significant financial loss and to ensure the resumption of operations in the event of property damage. However, certain property and types of damage can be excluded from the insurance policy's cover depending on the country in which the loss occurs.

The cover includes a "direct damage" component and a "business interruption" component, with the compensation period for the latter limited to either 12, 24 or 36 months, depending on the site. These policies may include sub-limits, particularly for machinery breakdowns, natural disasters and terrorism. Deductibles vary depending on the risk exposure and the size of the site concerned. In 2021, the maximum total retention in the event of a claim was €20 million. It is now €40 million as of 1 January 2022.

The combined cover limit of the policies in place for direct damage and business interruption, over and above the total retention, is €500 million.

Transportation

The Group is insured against the risk of damage to its manufacturing assets, equipment, finished or semi-finished products and raw materials during transportation or storage by third parties up to a limit of €12 million per shipment. The policy includes a deductible and several exclusions that are standard for this kind of agreement.

Environmental risks

Arkema has taken out an environmental liability insurance program with leading insurance companies. For production sites located in the United States, the limit is US$75 million. For production sites outside the United States, the limit is €80 million.

These programs cover, under certain conditions, environmental liabilities linked to the Group's production sites. They include, in particular, damage sustained by third parties as a result of pollution generated either on Group production sites or as a result of transporting Group products.

Cyber risks

Arkema has taken out a cyber insurance program covering all subsidiaries worldwide. The coverage ceiling is €30 million with effect from 1 March 2022 to 31 March 2023, with a deductible of €5 million per claim.

CORPORATE GOVERNANCE

3

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

The present chapter constitutes the Board of Directors' report on corporate governance as required under article L. 225-37 paragraph 6 of the French Commercial Code (*Code de commerce*). This report was prepared by a working group comprising, in particular, the Secretary of the Company's Board of Directors and the Company's Investor Relations and Human Resources & Communication departments, having taken into consideration:

- the AFEP-MEDEF Corporate Governance Code for listed companies, last revised in January 2020 (the "AFEP-MEDEF Code"), and its January 2020 Application Guide, available on the AFEP and MEDEF websites (www.afep.com and www.medef.com);
- the French financial markets authority (*Autorité des marchés financiers* – AMF) recommendation no. 2012-02 on corporate governance and executive compensation in listed companies referring to the AFEP-MEDEF Code, and revised most recently on 5 January 2022, and the recommendations contained in the AMF annual report for 2021 on corporate governance and executive compensation in listed companies published on 2 December 2021;
- the recommendations of the AFEP-MEDEF *Haut Comité du Gouvernement d'Entreprise* set out in its annual report published on 10 November 2021; and
- the AMF position-recommendation no. 2021-02 – "Guide to preparing Universal Registration Documents" of 8 January 2021, updated on 29 April 2021.

It was then reviewed by the Nominating, Compensation and Corporate Governance Committee prior to approval by the Company's Board of Directors.

The other information required under articles L. 225-37, L. 225-37-4, L. 22-10-10 and L. 22-10-11 of the French Commercial Code, namely, the table of delegations of authority currently in force that have been granted by the shareholders in relation to capital increases, the conditions of shareholder participation at annual general meetings, information concerning the structure of the Company's share capital and factors likely to have an impact in the event of a takeover bid, are set out in sections 6.2.5, 6.5.1, 6.2.1, 6.3.1, 6.3.2 and 6.3.3, respectively, of this document.

At the date of this document, with the exception of an amendment to the syndicated credit facility of 29 July 2020 to refinance the existing credit facility dated 7 July 2021, mentioned in the statutory auditors' report in section 7.1 of this document and in respect of which information was published on the Company's website, there are no other agreements between any of the directors of the Company or any of its shareholders holding more than 10% of the voting rights and a company of which the Company owns more than half of the share capital. For further details on this commitment, see section 3.2.1.1 of this chapter.

3.1 Compliance with the corporate governance system

With regard to corporate governance, the Company refers to the recommendations of the AFEP-MEDEF Code and its Application Guide, available on the AFEP and MEDEF websites (www.afep.com and www.medef.com).

In accordance with the "comply or explain" rule provided under article L. 22-10-10 4° of the French Commercial Code and section 27.1 of the AFEP-MEDEF Code, the Company considers, at the date of this document, that it fully complies with the corporate governance system in force in France.

3.2 Composition of administrative and management bodies

3.2.1 Board of Directors

3.2.1.1 Principles for the composition of the Board of Directors

The composition and operating procedures of the Company's Board of Directors are determined by current laws and regulations, by the Company's Articles of Association and by the Board of Directors' Internal Rules.

The Company is run by a Board of Directors comprising fourteen members, eight of whom are independent. The Board includes seven women, two members representing employees and one member representing shareholder employees.

The conditions for the appointment of directors and the length of their term of office are described in the following table.

Type of director	Method of appointment	Term of office	Number of directors	Reference text
Director	Annual general meeting	4 years	11	Article L. 225-18 of the French Commercial Code
Director representing shareholder employees	Annual general meeting on a proposal by the company mutual funds' (*Fonds Commun de Placement d'Entreprise*) Supervisory Boards	4 years	1	Articles L. 225-23 and L. 22-10-5 of the French Commercial Code
Director representing employees	Appointment by the French delegation of the European Group Works Council, undertaking the responsibilities of the Group Works Council and the European Works Council	4 years	2	Article L. 225-27-1 of the French Commercial Code

Policy on diversity within the Board of Directors

In accordance with the provisions of article L. 22-10-10, 2° of the French Commercial Code, the AFEP-MEDEF Code and the AMF recommendations on the composition of Boards of Directors, the Nominating, Compensation and Corporate Governance Committee regularly reviews the objectives relating to the diversification of the Board of Directors' membership, in terms of directors' independence, gender balance, age, nationality, and profiles, as well as complementarity of skills and international experience. Consequently, the committee, if need be with the help of recruitment specialists, aims to select and propose candidates with recognized and independent personalities, including current and former executives, for Board approval, with skills in diverse and complementary areas such as industry, finance, acquisitions and integration of acquired entities, sustainable development, research/innovation and information technology in view of the increasingly digitized business environment. Moreover, a representative from Arkema's downstream sectors may be considered. Lastly, 45% of the members of the Board of Directors were women at the date of this document (see the *Gender balance on the Board of Directors* section below).

In terms of internationalization, the Board of Directors is committed to bringing in candidates with significant international experience in one or more countries that are key for the Group, although it still prefers its members to be physically present at meetings (outside the specific context of a pandemic) and for discussions to be held in French for the sake of fluidity. At the same time, the Board has in recent years stepped up the inclusion of international profiles and persons living abroad. Between 2019 and 2021, the following new members were appointed to the Board: Ian Hudson, a British and Swiss national, Susan Rimmer, a British national, Ilse Henne, a Belgian national, and Thierry Pilenko, a French national who has lived in the United States for over 15 years and spent most of his working life abroad, especially in the United States. As a result, the Board of Directors includes seven members who have spent a large part of their careers abroad, of whom three are foreign nationals (*i.e.*, 21%) and one lives in the United States. For further details on these directors' profiles, see section 3.2.1.2 of this chapter.

At the date of this document, the Board of Directors considers that its members' origins, skills, experience and career paths, as well as their recognized and independent personalities, are diverse enough to allow it to carry out its duties with the necessary skills, independence and objectivity.

The professional expertise of each member of the Board of Directors, at the date of this document, is set out in sections 3.2.1.2 and 3.2.1.3 of this chapter.

Independence of directors

As part of its process to assess its members' independence and to prevent risks of conflicts of interest between directors and management, the Company or the Group, the Board of Directors takes into account all the criteria of the AFEP-MEDEF Code, which are laid down in its Internal Rules. Accordingly, an independent director is one who, other than his or her position on the Board, has no relationship whatsoever with the Company, the Group or its management. In particular, the director must not:

1. be, or have been within the last five years:
   - an employee or executive director of the Company,
   - an employee, executive director or director of a company consolidated by the Company;
2. be an executive director of a company in which the Company holds a directorship, directly or indirectly, or in which one of its employees (designated as such) or executive director (currently or in the last five years) holds a directorship;
3. be, or have been, directly or indirectly linked to a major customer, supplier, consultant, corporate or investment banker of the Company or its group, or for which the Company or its group represents a significant portion of the business;
4. have close family ties with an executive officer of the Company;
5. have been a statutory auditor of the Company in the previous five years;
6. have been a director of the Company for more than twelve years; or
7. be or represent a significant shareholder of the Company owning over 10% of the Company's share capital or voting rights.

The annual review of the independence of each member of the Board of Directors, in accordance with the AFEP-MEDEF Code and the Board of Directors' Internal Rules, took place at the Nominating, Compensation and Corporate Governance Committee meeting of 27 January 2022 and at the Board of Directors' meeting of 23 February 2022.

At these meetings, the Nominating, Compensation and Corporate Governance Committee, and subsequently the Board of Directors, reviewed in particular the business relationships in place with companies to which one or several directors are connected and, in that respect, performed materiality tests to establish whether those relationships are significant. To that end, a summary of the transactions carried out between the Group and these companies was submitted in order to assess the volume of business between the Group and each of these companies, individually.

The Board of Directors thus reviewed the situation of Laurent Mignon, Chairman of the Executive Board of BPCE and Chairman of the Board of Natixis and, as part of this, performed materiality tests to compare the fees received by all of BPCE Group's banks and determine the share of the Group's credit commitments held by each one. These tests enabled the Board to establish that the business relationships between Arkema and Natixis were not material for Arkema and insignificant for Natixis in relation to the two companies' revenues. Consequently, the Board of Directors concluded that no dependency relationship exists between the two companies. However, as Laurent Mignon has been a director of the Company since 2006, *i.e.*, more than twelve years, he does not qualify as an independent director.

In line with the Board of Directors' Internal Rules and with the AMF recommendations, when potential conflict of interest situations arise, the director in question does not participate in any discussions or votes on the topic in question. For further details on the management of conflicts of interest, see section 3.2.3.3 of this chapter.

In light of the foregoing and as summarized below, the Board of Directors approved the proposal made by the Nominating, Compensation and Corporate Governance Committee to qualify as independent directors Marie-Ange Debon, Ilse Henne, Victoire de Margerie and Hélène Moreau-Leroy as well as Ian Hudson, Philippe Sauquet, Sébastien Moynot and Thierry Pilenko.

In accordance with the AFEP-MEDEF Code, which provides that the director representing shareholder employees, Jean-Marc Bertrand, and the directors representing employees, Nathalie Muracciole and Susan Rimmer, should not be included when calculating the percentage of independent directors, the rate of independence of the Board of Directors consequently stands at 73% (eight directors out of eleven). This proportion complies with the AFEP-MEDEF Code recommendation that at least half the Board members of companies with diversified capital and no controlling shareholders be independent.

SITUATION OF DIRECTORS WITH REGARD TO THE INDEPENDENCE CRITERIA SET OUT IN THE AFEP-MEDEF CODE (AND REPRODUCED IN FULL IN THE BOARD OF DIRECTORS' INTERNAL RULES)

	Company employee or executive	Cross directorships	Business relationships	Family ties	Statutory auditor	Director for more than 12 years	Significant shareholder	Independent
Thierry Le Hénaff	√	X	X	X	X	X	X	NO
Jean-Marc Bertrand	√	X	X	X	X	X	X	NO
Bpifrance Investissement	X	X	X	X	X	X	X	**YES**
Marie-Ange Debon	X	X	X	X	X	X	X	**YES**
Fonds Stratégique de Participations	X	X	X	X	X	X	√	NO
Ilse Henne	X	X	X	X	X	X	X	**YES**
Ian Hudson	X	X	X	X	X	X	X	**YES**
Victoire de Margerie	X	X	X	X	X	X	X	**YES**
Laurent Mignon	X	X	X	X	X	√	X	NO
Hélène Moreau-Leroy	X	X	X	X	X	X	X	**YES**
Nathalie Muracciole	√	X	X	X	X	X	X	NO
Thierry Pilenko	X	X	X	X	X	X	X	**YES**
Susan Rimmer	√	X	X	X	X	X	X	NO
Philippe Sauquet	X	X	X	X	X	X	X	**YES**

X *The criterion is not applicable.*
√ *The criterion is applicable.*

Subject to the Shareholders' approval at the annual general meeting of 19 May 2022 of the proposed reappointments and appointment of directors as referred to in section 3.2.1.2 of this document, the independence rate of the Board of Directors will continue to be 73% at the close of said general meeting.

Gender balance on the Board of Directors

In accordance with article L. 225-17 paragraph 2 of the French Commercial Code, the Board of Directors ensures that the principle of gender balance among its members is applied, particularly when renewing each director's term of office. In order to do this, whilst seeking to ensure that the Board has at least 40% of members of each gender, the Nominating, Compensation and Corporate Governance Committee systematically reviews applications from men and women before making recommendations to the Board as to how to change its composition.

At the date of this document, the Company's Board of Directors includes seven women among its fourteen members, *i.e.*, 45% (five out of eleven members), given that the directors representing employees, Nathalie Muracciole and Susan Rimmer, and the director representing shareholder employees, Jean-Marc Bertrand, are not taken into account when calculating the gender balance, in accordance with articles L. 225-23, L 22-10-5 and L. 225-27-1 of the French Commercial Code.

At the close of the annual general meeting of 19 May 2022, subject to the Shareholders approving the proposed reappointments and appointment, women will continue to comprise 45% of the Board.

Representation of employees and shareholder employees

In accordance with the applicable regulations, the Board of Directors includes a member representing shareholder employees, Jean-Marc Bertrand, who was appointed at the annual general meeting of 18 May 2018. Like all directors, and in accordance with the provisions of articles L. 225-23 and L. 22-10-5 of the French Commercial Code, he receives the training required to perform his duties. The training time is at least 40 hours per year, with the content determined by the Board of Directors in agreement with the director. As Jean-Marc Bertrand's term of office as director will expire at the close of the next annual general meeting, the Board of Directors would like to thank him warmly for his active contribution to the work of the Board since the beginning of his term of office and to the Innovation and Sustainable Growth Committee since its creation. The Board of Directors has decided to support the candidacy of Nicolas Patalano, a member of the Supervisory Board of the Arkema Actionnariat France company mutual fund (FCPE) and the candidate designated by said fund. For further details on this proposal, see section 7.3 of this document.

In addition, in accordance with article L. 225-27-1 of the French Commercial Code and the Company's Articles of Association as amended by the combined annual general meeting of 19 May 2020:

- on 3 July 2020, the term of office of Nathalie Muracciole as director representing employees was renewed by the French Group Works Council (the responsibilities of which are determined by the French delegation of the European Group Works Council); and
- on 3 July 2020, Susan Rimmer was appointed second director representing employees by the European Group Works Council.

Like all directors and pursuant to the provisions of article L. 225-30-2 of the French Commercial Code, Nathalie Muracciole and Susan Rimmer receive the training required to perform their duties. The training time is at least 40 hours per year, with the content determined by the Board of Directors in agreement with the directors.

Other characteristics

According to the provisions of the Company's Articles of Association and/or the Board of Directors' Internal Rules:

- subject to the laws applicable to provisional appointments made by the Board of Directors, the directors shall serve a four-year term of office. In accordance with the recommendations of the AFEP-MEDEF Code, the directors' terms of office are staggered in order to avoid reappointment of the Board en masse, and ensure that the directors' reappointment process runs smoothly. As the terms of office of all directors are staggered, the annual general meeting is called upon every year to decide on the renewal of one or more terms of office;
- each director must hold at least 450 of the Company's shares throughout their term of office, except for the director representing shareholder employees, who must hold, individually or through a company mutual fund (*Fonds Commun de Placement d'Entreprise* – FCPE) governed by article L. 214-165 of the French Monetary and Financial Code (*Code monétaire et financier*), at least one share in the Company, or a number of units of the said fund equivalent to at least one share in the Company, and the directors representing employees who do not have to be shareholders;
- the age limit for directors set in the Company's Articles of Association is 70 years old, and serving directors who reach this age limit are automatically considered as having resigned unless the Board decides that they may complete their term;
- a director may not hold more than four other directorships in listed companies, including foreign companies, outside the Group. The Chairman and Chief Executive Officer may not hold more than two other directorships in listed companies outside the Group and must seek the opinion of the Board of Directors prior to accepting any new directorship in a listed company; and
- each director is subject to an obligation to report any potential direct or indirect conflicts of interest to the Company (see section 3.2.3.3 below).

Summary of changes in the composition of the Board of Directors

For many years, the Board of Directors has paid special attention to its composition, taking account of remarks made by investors and proxy advisors, notably during governance roadshows organized by the Company. The aim is to constantly improve the Board's composition in line with best governance practices. The changes described below have enabled Arkema to be in full compliance with the recommendations of the AFEP-MEDEF Code and rank among companies with the best governance practices.

Independence	• Appointment of Thierry Pilenko, independent director, Chairman of the Nominating, Compensation and Corporate Governance Committee (2021), to replace Thierry Morin • Appointment of Victoire de Margerie, independent director, Chairman of the Innovation and Sustainable Growth Committee (2021) • Overall independence rate of the Board of Directors: 73%
Diversity	***Women on the Board*** • Appointment of Susan Rimmer (2020) • Appointment of Ilse Henne (2021) to replace Yannick Assouad AFEP-MEDEF rate: 45% Overall rate: 50% ***International experience*** • Appointment of Ian Hudson, UK and Switzerland (2019) • Appointment of Susan Rimmer, UK (2020) • Appointment of Ilse Henne, Belgium (2021) • Appointment of Thierry Pilenko, US resident (2021)
Seniority	• Balanced: 5.5 years on average
Senior independent director	• Appointment of senior independent director, Hélène Moreau-Leroy, as member of the Nominating, Compensation and Corporate Governance Committee (2021)
Director representing employees	• Appointment of Nathalie Muracciole as member of the Nominating, Compensation and Corporate Governance Committee for compensation-related committee duties (2021)
Board of Directors' committees	• Set-up of the Innovation and Sustainable Growth Committee tasked with assessing the contribution of Arkema's strategy and innovation to environmental challenges and sustainable growth. The new committee will further enhance the mechanism for reviewing ESG matters and complement the related duties already performed by the two other committees (2021)

3.2.1.2 Composition of the Board of Directors

At 31 December 2021, the composition of the Board of Directors was as follows:

	Nationality	Age	Independent director	Year of first appoint-ment	Year current term expires	Other director-ships in listed compa-nies	Audit and Accounts Committee	Nominating, Compen-sation and Corporate Governance Committee	Innovation and Sustai-nable Growth Committee	Expertise
Thierry Le Hénaff Chairman and CEO	French	58		2006	2024	1				Chairman and Chief Executive Officer
Jean-Marc Bertrand representing shareholder employees	French	63		2018	2022	None			●	IT, CSR and knowledge of the Group
Bpifrance Investissement represented by **Sébastien Moynot**	French	49	♦	2021	2025	4 (1)			●	Credit, guarantees, innovation and M&A
Marie-Ange Debon	French	56	♦	2018	2022	1	Chairman			Executive management, accounting, finance and M&A
Fonds Stratégique de Participations represented by **Isabelle Boccon-Gibod**	French	53		2014	2022	3 (1)	●		●	Industry, finance, innovation and sustainable development
Ilse Henne	Belgian	49	♦	2021	2025	None	●			Industry, finance and transformation
Ian Hudson	British and Swiss	64	♦	2019	2023	1	●		●	Executive management, chemicals, finance, innovation and sustainable development

	Nationality	Age	Independent director	Year of first appointment	Year current term expires	Other directorships in listed companies	Audit and Accounts Committee	Nominating, Compensation and Corporate Governance Committee	Innovation and Sustainable Growth Committee	Expertise
Victoire de Margerie	French	58	♦	2012	2023	1			Chairman	Chemicals, industry, innovation and sustainable development
Laurent Mignon	French	58		2006	2023	2				Executive management, banking, finance and M&A
Hélène Moreau-Leroy	French	57	♦	2015	2023	None		●		Industry, finance, M&A and governance
Nathalie Muracciole representing employees	French	57		2016	2024	None		●(2)		Human resources and knowledge of the Group
Thierry Pilenko	French	64	♦	2021	2025	None		Chairman		Executive management, industry, M&A and governance
Susan Rimmer representing employees	British and French	46		2020	2024	None				Chemicals and knowledge of the Group
Philippe Sauquet	French	64	♦	2021	2021	None		●		Industry, sustainable development and M&A

♦ *Independence in accordance with the AFEP-MEDEF Code criteria set out in the Board of Directors' Internal Rules and as assessed by the Board of Directors.*
● *Member.*
(1) *Concerns only directorships held by the permanent representative.*
(2) *For compensation matters.*

The following changes to the composition of the Board of Directors took place in 2021:

Departures	• Yannick Assouad, independent director • Alexandre de Juniac, independent director and member of Nominating, Compensation and Corporate Governance Committee • Thierry Morin, chairman of the Nominating, Compensation and Corporate Governance Committee • Marc Pandrau, independant director
Appointments	• Ilse Henne, independent director and member of the Audit and Accounts Committee • Bpifrance Investissement, represented by Sébastien Moynot, independent director and member of the Innovation and Sustainable Growth Committee • Thierry Pilenko, independent director and chairman of the Nominating, Compensation and Corporate Governance Committee
Co-optation	• Philippe Sauquet, independent director and member of the Nominating, Compensation and Corporate Governance Committee

At its meeting on 23 February 2022, the Board of Directors noted that the terms of office of Marie-Ange Debon, the Fonds Stratégique de Participations, represented by Isabelle Boccon-Gibod as well as Philippe Sauquet and Jean-Marc Bertrand were due to expire at the close of the annual general meeting of 19 May 2022. The Board of Directors also recalled its decision to co-opt Philippe Sauquet, on a provisional basis, to replace Alexandre de Juniac, who resigned.

Consequently, on the proposal of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors decided to ask shareholders at the annual general meeting to be held on 19 May 2022 to:

- ratify the appointment of Philippe Sauquet as independent director and reappoint him for a four-year term expiring at the close of the annual general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025; and
- reappoint Marie-Ange Debon and the Fonds Stratégique de Participations, whose permanent representative will continue to be Isabelle Boccon-Gibod, as directors for four-year terms expiring at the close of the annual general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

The Board of Directors also decided to support the candidacy of Nicolas Patalano, member of the Supervisory Board of the Arkema Actionnariat France company mutual fund (FCPE) and candidate designated by said fund for the election at the annual general meeting of a director representing shareholder employees.

These changes are summarized in the following table:

Annual general meeting of 19 May 2022	
Departures	• Jean-Marc Bertrand, director representing shareholder employees
Ratifications	• Philippe Sauquet, independent director and member of the Nominating, Compensation and Corporate Governance Committee
Appointments	• Nicolas Patalano, director representing shareholder employees* • Uwe Michael Jakobs, director representing shareholder employees*
Reappointments	• Marie-Ange Debon, independant directo and Chairman of the Audit and Accounts Committee • Fonds Stratégique de Participations, represented by Isabelle Boccon-Gibod, director and member of the Audit and Accounts Committee and the Innovation and Sustainable Growth Committee • Philippe Sauquet, independant director and member of the Nominating, Compensation and CorporateGovernance Committee

* *Pursuant to article 10.2 of the Company's Articles of Association, as there is only one position of director representing shareholder employees to be filled, only the candidate having obtained the greatest number and at least the majority of votes shall be appointed. The Board of Directors has approved the candidacy of Nicolas Patalano.*

At the close of the annual general meeting, subject to the Shareholders approving the aforementioned proposals, the Board of Directors' independence rate will continue to be 73%.

Provided that shareholders approve the proposed reappointments at the annual general meeting, Marie-Ange Debon will remain Chairman of the Audit and Accounts Committee; Fonds Stratégique de Participations, represented by Isabelle Boccon-Gibod, will remain a member of the Audit and Accounts Committee and of the Innovation and Sustainable Growth Committee; and Philippe Sauquet will remain a member of the Nominating, Compensation and Corporate Governance Committee. Susan Rimmer will join the Innovation and Sustainable Growth Committee, where she will replace Jean-Marc Bertrand.

The following table summarizes the principles underlying the composition of the Board of Directors.

SUMMARY OF THE COMPOSITION OF THE BOARD OF DIRECTORS

Composition of the Board of Directors	Objectives/priorities	Status at the close of the 2022 annual general meeting*
Balance of powers	Appointment of a senior independent director in the event that the positions of Chairman and Chief Executive Officer are combined. A large majority of independent directors (at least 50%).	**Senior independent director**: Hélène Moreau-Leroy **Independence rate**: 73%
Complementarity of skills	Profiles of current or former executives and combination of skills contributing to the Group's transformation strategy.	• **Chemicals**: 6 • **Industry**: 8 • **Finance**: 7 • **Information/digital technologies**: 2 • **Innovation and sustainable development**: 7
Gender balance on the Board of Directors	At least 40% of women Board members.	**Women Board members**: 45%
Diversity – international profiles	Appointment, between 2019 and 2021, of at least one director, either a foreign national or someone with significant international experience in one or more countries that are strategic for the Group.	**International experience**: 50% **Foreign nationals**: 3 including a director representing employees. One director has been living in the United States for over 15 years.
Representation of employees and shareholder employees	Director representing shareholder employees (holding over 3% of share capital). 2 directors representing employees.	1 director representing shareholder employees. 2 directors representing employees.
Age of directors and seniority	Maximum age of 70. Balance in years of seniority on the Board.	No director is over 70 years of age. **Average age**: 57 years. **Average seniority** on the Board: 5.5 years.

* *Subject to the annual general meeting approving the 5th to 9th resolutions.*

3.2.1.3 Information on the members of the Board of Directors at 31 December 2021

Thierry Le Hénaff
Chairman and Chief Executive Officer

Date of first appointment: 6 March 2006

Date of last renewal: 19 May 2020

Date appointment expires: AGM held to approve financial statements for 2023 financial year

Nationality: French

Number of shares held at 31 December 2021: 337,366

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Born in 1963, Thierry Le Hénaff is a graduate of France's École polytechnique and École Nationale des Ponts et Chaussées and holds a Master's degree in Industrial Management from Stanford University in the United States. He is a *Chevalier de l'Ordre National du Mérite*, as well as a *Chevalier de l'Ordre National de la Légion d'Honneur* (French order of merit awards). He is lead independent member of the Supervisory Board and a member of the Compensation and Appointments committee of Michelin. He has also been a member of the Board of Directors of the École polytechnique Foundation since 2016, and of France Industrie since 2021.

After starting his career with Peat Marwick Consultants, in 1992 he joined Bostik, Total's Adhesives division, where he held a number of operational positions in France and worldwide.

In July 2001, he was appointed Chairman and Chief Executive Officer of Bostik Findley, the new entity resulting from the merger of Total's and Elf Atochem's Adhesives divisions.

In January 2003, he joined Atofina's Executive Committee and then Total's management committee in 2004.

He has been Chairman and Chief Executive Officer of Arkema since the Company's stock market listing in 2006.

Other offices currently held

France

Within the Group

- Chairman of the Board of Directors, Arkema France

Outside the Group

- Lead independent member of the Supervisory Board and member of the Compensation and Appointments committee of Michelin*

International

- None

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- None

Jean-Marc Bertrand
Director representing shareholder employees and member of the Innovation and Sustainable Growth Committee

Date of first appointment: 18 May 2018

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Nationality: French

Number of FCPE units held at 31 December 2021: 714

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Jean-Marc Bertrand was born in 1958 and is a graduate engineer from CESI (Centre des Etudes Supérieures Industrielles). He is currently a project manager within the IT Infrastructures unit of Arkema's IT department.

Jean-Marc Bertrand joined the Group in 1989 *via* Pennwalt France where he held various IT positions, and in 2006 he joined Arkema as Head of the FO department (team in charge of user tool architecture) within the IT division. Since then, he has held a number of positions in the IT division.

He has also served in several roles on employee representative bodies, namely as representative of the CFE-CGC labor union and secretary of the Arkema France Central Works Council.

Other offices currently held

France

Within the Group

- Member of the Supervisory Board, FCPE Arkema Actionnariat France
- Secretary of the CETIA Social and Economic Committee

International

- None

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- None

** Listed company.*

*** Outside the Arkema Group.*

Marie-Ange Debon

Independent director and Chairman of the Audit and Accounts Committee

Date of first appointment: 18 May 2018

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Nationality: French

Number of shares held at 31 December 2021: 550

Business address: Keolis, 20 rue Le Peletier, 75009 Paris, France

PROFESSIONAL EXPERIENCE

Born in 1965, Marie-Ange Debon is a graduate of France's École des hautes études commerciales (HEC) and École nationale de l'administration (ENA), and holds a Master's degree in law. She serves as independent director of Technip Energies and as Chairman of its Audit committee.

She has been Chairman and Chief Executive Officer of Keolis, a public transportation operator, since August 2020.

Before joining Keolis in 2008, Marie-Ange Debon held several positions in both the public and private sectors: as auditor and then as magistrate at the Cour des Comptes (national audit office) from 1990 to 1994. She served as Deputy Chief Executive Officer at France 3 from 1994 to 1998. In 1998, she began working with the Thomson Group as Deputy Chief Financial Officer, and in July 2003 became General Secretary. In 2008, she joined Suez as General Secretary and member of the Executive Committee. In 2013, she was appointed Head of the international division (North America, Asia, Pacific, Africa, India) and between March 2018 and December 2019 served as Deputy CEO in charge of France, Italy, Central and Eastern Europe.

She is Vice-President of Medef International.

Other offices currently held**

France

- Chairwoman and Chief Executive Officer, Keolis

International

- Technip Energies*

Other offices held in the past five years but now expired**

Expired in 2021

- Member of the Board of Directors and Chairman of the Audit committee, Technip-FMC*

Expired from 2017 to 2020

- Senior Executive VP Group, Suez in charge of France, Italy, Central and Eastern Europe
- Member of the Board of Directors, GRDF (Engie Group)
- Member of the Board of Directors and Chairwoman of the CSR and Responsible Gaming committee, Française des Jeux (FDJ)*
- Member of the Board of Directors of a Suez Group company, Lydec* in Morocco

Ilse Henne

Independent director and member of the Audit and Accounts Committee

Date of first appointment: 20 May 2021

Date appointment expires: AGM held to approve financial statements for 2024 financial year

Nationality: Belgian

Number of shares held at 31 December 2021: 450

Business address: ThyssenKrupp, Allee 1/Q8, 45143 Essen, Germany

PROFESSIONAL EXPERIENCE

Ilse Henne, born in 1972 in Ghent, Belgium, holds several advanced business management degrees from the Universities of Ghent and Leuven, Belgium, as well as a master's degree in linguistics and literature, also from the University of Ghent. She is currently a member of the Executive Board of the thyssenkrupp Materials Services segment as Chief Transformation Officer. She has been responsible for the Group's operating result and strategic transformation since 2019. She speaks five languages fluently, including French, and has been living in Germany since 2012.

Ilse Henne began her career in 1995 at Sadel NV, a Belgian group specializing in stainless steel products, where she worked in various positions in business development, sales and supply chain management until 2002. She then joined the Materials division of thyssenkrupp Group, which is specialized in the distribution of steel and non-ferrous metals in Belgium. Between 2012 and 2018, she held various management positions in Germany. First as head of the Materials Western Europe/Asia-Pacific operating unit, and between 2016 and 2018 as the CEO of thyssenkrupp Schulte.

Other offices currently held**

France

- None

International

- Member of the Executive Board of the thyssenkrupp Materials Services segment as Chief Transformation Officer

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- CEO of thyssenkrupp Schulte
- Member of the Executive Board of thyssenkrupp's Materials Services Western Europe/Asia Pacific operating unit as Chief Operating Officer

** Listed company.*
*** Outside the Arkema Group.*

Ian Hudson

Independent director, member of the Audit and Accounts Committee and the Innovation and Sustainable Growth Committee

Date of first appointment: 21 May 2019

Date appointment expires:
AGM held to approve financial statements for 2022 financial year

Nationalities: British and Swiss

Number of shares held at 31 December 2021: 450

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Born in 1957, Ian Hudson graduated from Oxford University with a Master's degree in French and German.

He started his career with ICI, a former UK-based multinational specialized in chemicals and related industries. In 1998, he joined DuPont de Nemours, where he held a number of management roles over 17 years. He retired in 2016 after serving as President of DuPont Europe, Middle East & Africa for ten years. He was a member of the Executive Committee and Board of the European Chemical Industry Association (CEFIC) and EuropaBio, as well as a member of the Foundation Board of the International Institute for Management Development (IMD) and a member of the Board of the Swiss-American Chamber of Commerce. Ian Hudson has been Chairman of the Board of Directors of Carbios since 2019.

Other offices currently held**

France

- Chairman of the Board of Directors, Carbios*

International

- Member of the Management Advisory Board, Towerbrook Capital Partners LP
- Member of the Board of Directors, Gamma Fiber Holdings

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- None

Victoire de Margerie

Independent director and Chairman of the Innovation and Sustainable Growth Committee

Date of first appointment: 7 November 2012

Date of last renewal: 21 May 2019

Date appointment expires: AGM held to approve financial statements for 2022 financial year

Nationality: French

Number of shares held at 31 December 2021: 800

Business address: Rondol Industrie, 2 allée André Guinier, 54000 Nancy, France

PROFESSIONAL EXPERIENCE

Born in 1963, Victoire de Margerie is a graduate of France's École des hautes études commerciales (HEC) and Institut d'Études Politiques (IEP), holds a DESS in Private Law from the Université de Paris 1 – Panthéon-Sorbonne, and a Ph.D. in Management Science from the Université de Paris 2 – Panthéon-Assas.

She has been Chairman and principal shareholder of Rondol Industrie, a micromechanics SME, since 2012. She is also the Founder of the World Materials Forum and its Vice-Chairman since 2015, as well as a member of the Supervisory Board and the Finance Committee of Eurazeo since 2012. Since 2020, she has been a member of the French Academy of Technologies and of the Supervisory Board of Ixellion (Luxembourg).

She previously held operational positions in industry in Germany, France and the United States at Elf Atochem, CarnaudMetalbox and Pechiney. Between 2002 and 2011, Victoire de Margerie also taught strategy and technology management at the Grenoble École de Management business school.

Other offices currently held**

France

- Chairman, Rondol Industrie
- Member of the Supervisory Board and Finance committee, Eurazeo*

International

- Chairman of the Supervisory Board, Ixellion (Luxembourg)

Other offices held in the past five years but now expired**

Expired in 2021

- Director, member of the Nominations and Remuneration committee and member of the Audit and Risk committee of Babcock International Group Plc.*

Expired from 2017 to 2020

- Chairman of the Board of Directors, Soitec*
- Director, Morgan Advanced Materials* (United Kingdom)
- Member of the Supervisory Board, Banque Transatlantique

** Listed company.*
*** Outside the Arkema Group.*

Laurent Mignon

Director

Date of first appointment: 10 May 2006

Date of last renewal: 21 May 2019

Date appointment expires: AGM held to approve financial statements for 2022 financial year

Nationality: French

Number of shares held at 31 December 2021: 300

Business address: Groupe BPCE, 50 avenue Pierre Mendès France, 75201 Paris Cedex 13, France

PROFESSIONAL EXPERIENCE

Born in 1963, Laurent Mignon is a graduate of France's École des hautes études commerciales (HEC) and the Stanford Executive Program. He has been Chief Executive Officer of BPCE since 1 June 2018.

For over ten years, Laurent Mignon held a number of positions in the banking sector at Banque Indosuez, from trading to investment banking. In 1996, he joined Schroders in London, followed by AGF in 1997 as Finance director, and was appointed member of the Executive Committee in 1998. In 2002, he was given responsibility for investments at AGF Asset Management and AGF Real Estate successively, and, in 2003, of the Life and Financial Services as well as Credit Insurance departments. From September 2007 to May 2009, he was Managing Partner, alongside Philippe Oddo, of Oddo & Cie. He then served as Chief Executive Officer of Natixis S.A. until 31 May 2018.

Other offices currently held**

France

Within the BPCE Group

- Chief Executive Officer, BPCE
- Chairman of the Board of Directors, Natixis S.A.*
- Chairman of CE Holding Participations

Outside the BPCE Group

- Director, Compagnie Nationale de Prévoyance (CNP)*
- Non-voting director, ODDO
- Non-voting director, Fimalac
- Member of the Executive Committee of the French Banking Federation
- Trustee, The Friends of the Paris Opera (AROP)

International

- None

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- Director, Sopassure
- Chairman of the Board of Directors, Crédit Foncier de France
- Chief Executive Officer, Natixis S.A.*
- Chairman of the Board of Directors, Natixis Global Asset Management
- Chairman of the Board of Directors, Coface S.A.*
- Member of the Board of Directors, Natixis Assurance
- Member of the Board of Directors, Peter J. Solomon Company LLC
- Director, Lazard Ltd*

Hélène Moreau-Leroy

Independent director, senior independent director and member of the Nominating, Compensation and Corporate Governance Committee

Date of first appointment: 2 June 2015

Date of last renewal: 21 May 2019

Date appointment expires: AGM held to approve financial statements for 2022 financial year

Nationality: French

Number of shares held at 31 December 2021: 450

Business address: Hutchinson, 2 rue Balzac, 75008 Paris, France

PROFESSIONAL EXPERIENCE

Born in 1964, Hélène Moreau-Leroy is a graduate of the Institut national des sciences appliquées (INSA) based in Lyon, France, and holds a Master's in International Business Administration from Australia's University of New England. She is an APICS-certified Supply Chain Professional. She has been Chairman and CEO of Hutchinson since 1 April 2021 and Chairman of the Executive Committee of French rubber industry body Fondation du Caoutchouc (FDCA) since November 2021.

Hélène Moreau-Leroy has held various executive and management positions in the areas of research and development, project and program management, procurement, production and supply chain with different industrial groups and spent 14 years in international positions outside France. She joined the Safran Group in 2003, as a member of the Snecma S.A. Group Purchasing department. She was subsequently given responsibility for organizing the supply chain of Messier-Bugatti Dowty (Safran) in emerging markets, before becoming Executive Vice-President of Programs and a member of its management committee. She held the position of Chairman of Safran Transmission Systems from 2013 to 2017, and then headed up the integration of Zodiac Aerospace when it was taken over by Safran between 1 December 2017 and 31 October 2020. She joined Hutchinson on 1 November 2020 as Deputy CEO before becoming Chairman and CEO in April 2021.

She was also a member of the management committee of the French association of aerospace and military equipment manufacturers (*Groupement des Équipementiers de l'Aéronautique et de la Défense*) within GIFAS, and is currently a member of various networks and associations set up to promote workplace diversity.

Other offices currently held**

France

- Chairman and CEO, Hutchinson

International

- None

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- Director, SEM-MB
- Chairman, Safran Transmission Systems

** Listed company.*

*** Outside the Arkema Group.*

Nathalie Muracciole

Director representing employees and member of the Nominating, Compensation and Corporate Governance Committee

Date of last renewal: 3 July 2020

Date appointment expires: meeting of the European Group Works Council (whose functions are performed by the Council's French delegation) following the AGM held to approve financial statements for 2023 financial year

Nationality: French

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Born in 1964, Nathalie Muracciole holds a degree in Law from the Université de Créteil in France. Since 15 January 2018, she has been responsible for skills and social development within the Corporate Talent department.

She began her career in 1983 in the Total group as an executive assistant with CDF Chimie (which later became Orkem). She then became career manager for the Professional Markets division at Sigma Kalon. After several years as recruitment/employment and training/communication manager with Mapa Spontex, she joined Atofina in 2003. She was appointed corporate training manager with Arkema in 2004, served as human resources and employee relations manager for the headquarters between 2006 and 2012 and was in charge of change management as part of the Ambition project between 2012 and 2017.

In 2018, she joined the Human Resources Development department as head of job transformation and quality of work life.

Other offices currently held**	Other offices held in the past five years but now expired**
France ▶ None **International** ▶ None	**Expired in 2021** ▶ None **Expired from 2017 to 2020** ▶ None

Thierry Pilenko

Independent director and Chairman of the Nominating, Compensation and Corporate Governance Committee

Date of first appointment: 20 May 2021

Date appointment expires: AGM held to approve financial statements for 2024 financial year

Nationality: French

Number of shares held at 31 December 2021: 500

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Thierry Pilenko, born in 1957, is a graduate of the École Nationale Supérieure de Géologie in Nancy, France, and of the Institut Français du Pétrole (IFPEN). He is a management consultant and holds several directorships in international energy companies.

Thierry Pilenko began his career in 1984 as a geological engineer with Schlumberger. During the 20 years he spent with this company, he held various management positions, including in Italy, Gabon, Nigeria, Dubai, Indonesia and the United States. In 2004, he was appointed Chief Executive Officer of Veritas DGC, a geophysical services company based in Houston (which subsequently became CGG Veritas), before becoming Chairman and CEO of Technip SA in 2007, and Executive Chairman of TechnipFMC plc between 2017 and 2019. He was a member of the Supervisory Board of Peugeot (PSA) between 2012 and 2014, a director of CGG between 2007 and 2010, of Hercules Offshore between 2006 and 2015, and of Valaris between 2017 and 2021. He has been a US resident, based in Houston, for over 15 years.

Other offices currently held**	Other offices held in the past five years but now expired**
France ▶ None **International** ▶ Non-Executive Chairman, Ensign Natural Resources ▶ Director, Trident Energy	**Expired in 2021** ▶ Member of the Board of Directors, Valaris **Expired from 2017 to 2020** ▶ Executive Chairman, TechnipFMC plc* ▶ Chairman and Chief Executive Officer, Technip SA

** Listed company.*
*** Outside the Arkema Group.*

Susan Rimmer
Director representing employees

Date of first appointment: 3 July 2020

Date appointment expires: meeting of the European Group Works Council (performing the functions of the European Works Council) following the AGM held to approve financial statements for 2023 financial year

Nationalities: British and French

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Born in 1975 of British and French nationality, Susan Rimmer holds an honors degree from the University of York in the United Kingdom and is a graduate of the Ecole Centrale de Marseille in France. She started her career at Cray Valley Ltd in Wales as a Technical Service Chemist then became Demand Manager.

Expatriated to Cray Valley S.A. in 1999, first at the Villers-Saint-Paul site then at the Centre de Recherche de l'Oise R&D Centre, she held several positions in technical services, sales and product regulation. She joined Arkema in 2011.

In 2013, she became EMEA Product Stewardship and Sales Administration Manager for the Fluorochemicals Business Unit, before taking on the position of Global Product Stewardship Manager within Arkema Coating Resins in 2019.

Since April 2021, she has been the Product Stewardship Manager for Sartomer and Crayvallac activities within the new Coating Additives business line.

Other offices currently held**

France
- None

International
- None

Other offices held in the past five years but now expired**

Expired in 2021
- None

Expired from 2017 to 2020
- None

Philippe Sauquet
Independent director and member of the Nominating, Compensation and Corporate Governance Committee

Date of first appointment: 9 November 2021

Date appointment expires: AGM held to approve financial statements for 2021 financial year

Nationality: French

Number of shares held at 31 January 2022: 320

Business address: 14 bis, rue Raynouard, 75016 Paris, France

PROFESSIONAL EXPERIENCE

Born in 1957, Philippe Sauquet is a graduate of France's École polytechnique and École Nationale des Ponts et Chaussées and holds a Master's degree in Industrial Management from the University of California, Berkeley in the United States. He has served as President of KréVal since 2021.

Philippe Sauquet held a number of senior management positions within the TotalEnergies Group over more than 30 years, including member of the Executive Committee between 2014 and 2021, President of Gas, Renewables & Power and Executive Vice President of Strategy & Innovation between 2016 and 2021, as well as President of Refining & Chemicals between 2014 and 2016.

In the last decade, Philippe Sauquet was also a key figure in TotalEnergies' strategy to diversify into renewable energies and low-carbon solutions.

Other offices currently held**

France
- Member of the Board of Directors, Axens

International
- None

Other offices held in the past five years but now expired**

Expired in 2021
- President of Gas, Renewables & Power and Executive Vice President of Strategy & Innovation, TotalEnergies
- Member of the Executive Committee, TotalEnergies

Expired from 2017 to 2020
- None

* *Listed company.*
** *Outside the Arkema Group.*

Bpifrance Investissement

Independent director

Date of first appointment: 20 May 2021

Date appointment expires: AGM held to approve financial statements for 2024 financial year

Number of shares held at 31 December 2021: 5,379,000

Business address: 8, boulevard Haussmann, 75009 Paris, France

PROFESSIONAL EXPERIENCE

Bpifrance assists businesses – at every stage of their development – providing loans, guarantees and equity. Bpifrance supports them in their innovation and international expansion projects. Bpifrance now also provides export insurance services with a wide range of products. In addition, consulting, academic, networking and acceleration programs for start-ups, SMEs and mid-caps are also part of its services to entrepreneurs. Thanks to Bpifrance and its 50 regional offices, entrepreneurs benefit from a local, single and efficient point of contact to help them meet their challenges effectively.

Lac1 acquires long-term stakes in French listed multinationals and plays an active role in their governance. The Lac1 fund has an investment capacity of €4.2 billion after its first round of funding alongside Bpifrance, involving around 30 subscribers, amongst which French and international institutional investors, large corporations and family offices. Lac1 is managed by Bpifrance Investissement, and draws on Bpifrance's position within its ecosystem, its knowledge of technological and environmental transitions, as well as its expertise in the governance of listed companies. Bpifrance Investissement is Bpifrance's equity financing arm.

REPRESENTED BY:

Sébastien Moynot

Permanent representative of Bpifrance Investissement and member of the Innovation and Sustainable Growth Committee

Date appointed: 20 May 2021

Nationality: French

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France

PROFESSIONAL EXPERIENCE

Born in 1972, Sébastien Moynot is a former student of Ecole Normale Supérieure de Paris, holds a Master of Advanced Studies in probability from Université Pierre et Marie Curie, and is a graduate of Ecole Nationale de la Statistique et de l'Administration Economique with an agrégation in mathematics. He started his career in the economic forecasting department of the French Ministry of Finance. From 2000 to 2004, he was responsible for the strategy and then the debt issuance operations of Agence France Trésor, managing the French government's debt. He was then in charge of companies in the transportation sector on behalf of the French State Holdings Agency and, in this role, oversaw the IPO of several investees. He joined the Fonds Stratégique d'Investissement at its creation in 2009, and then Bpifrance where, since 2013, he has been a member of the management team of the Development Capital business, for which he has made a large number of equity investments in companies across all sectors.

Over the last 15 years, Sébastien Moynot served on the Board of Directors of about 20 companies in various industrial sectors and in particular in the field of renewable energies.

Other offices currently held**

France

- Director, Albioma*
- Director, Beneteau SA*
- Director, Altrad Investment Authority SAS
- Chairman of the Board of Directors, Cosmeur SAS
- Member of the Supervisory Committee, Green Yellow SAS
- Observer of the Supervisory Board and member of the Audit committee, Vivescia Industries SCA*
- Observer of the Supervisory Board, Nexteam Group
- Director, Verallia*

International

- None

Other offices held in the past five years but now expired**

Expired in 2021

- None

Expired from 2017 to 2020

- Director, NTL Holding SAS
- Director, Horizon Holding SAS
- Director, Farinia SA
- Director, AD Industries SAS

** Listed company.*
*** Outside the Arkema Group.*

Fonds Stratégique de Participations (FSP) Director	**PROFESSIONAL EXPERIENCE**
Date of first appointment: 15 May 2014 **Date of last renewal**: 18 May 2018 **Date appointment expires**: AGM held to approve financial statements for 2021 financial year **Number of shares held at 31 December 2021**: 5,946,391 **Business address**: ISALT, 93, bd Haussmann, 75008 Paris, France	Fonds Stratégique de Participations (FSP) is a long-term investment vehicle aimed at supporting French businesses over the long term with their growth and transition projects. It acquires large stakes in companies and plays a role in their governance through membership on their Board of Directors or Supervisory Board. It is owned by seven French insurance companies, namely BNP Paribas Cardif, CNP Assurances, Crédit Agricole Assurances, Groupama, Natixis Assurances, Société Générale Assurances and Suravenir. FSP currently holds stakes in eight French companies, all of which are leaders in their respective fields: Seb, Arkema, Safran, Eutelsat Communications, Tikehau Capital, Elior, Néoen and Valeo. The fund is managed by ISALT, which is the French acronym for "Strategic Investments in Long-Term Equity". FSP appointed Isabelle Boccon-Gibod as its permanent representative on the Company's Board of Directors.
REPRESENTED BY: **Isabelle Boccon-Gibod** Permanent representative of the FSP, member of the Audit and Accounts Committee and the Innovation and Sustainable Growth Committee	Professional experience Born in 1968, Isabelle Boccon-Gibod is a graduate of the École Centrale de Paris in France and the University of Columbia in the United States. She is notably a member of the National Investment Strategy Board (*Conseil national d'orientation*) of Bpifrance, and was Vice-President of the MEDEF Economic Commission, director of the Paprec Group, and director of Legrand. She was Executive Vice-President of Arjowiggins and an Executive Director of Sequana and also chaired Copacel, the French Association of Paper Industries, until the end of 2013. Isabelle Boccon-Gibod is also a photographer and author.
Date appointed: 15 May 2014 **Nationality**: French **Number of shares held at** 31 December 2021: 250 **Business address**: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes, France	

Other offices currently held**	**Other offices held in the past five years but now expired****
France ▶ Director, Legrand* ▶ Director, GTT* ▶ Director, CONSTELLIUM* ▶ Director, Paprec ▶ Director, Arc Holdings ▶ Chairman, Observatoire Conseil ▶ Chairman, DEMETER **International** ▶ None	**Expired in 2021** ▶ Director, SilMach **Expired from 2017 to 2020** ▶ Director, Sequana* ▶ Permanent representative of Fonds Stratégique de Participations, a director of Zodiac Aerospace* ▶ Vice-President of the Economic Commission, MEDEF ▶ Director, Centre Technique du Papier

* *Listed company.*
** *Outside the Arkema Group.*

3.2.2 Executive management

3.2.2.1 Chairman and Chief Executive Officer

When Thierry Le Hénaff's term of office as director was renewed by the annual general meeting of 19 May 2020, the Board of Directors unanimously confirmed its decision not to separate the duties of Chairman of the Board of Directors and Chief Executive Officer in order to ensure the continuity of the simple, reactive and responsible decision-making process in place since 2006. Having thus decided that this governance structure is still the most appropriate for Arkema, the Board of Directors unanimously decided to reappoint Thierry Le Hénaff as Chairman and Chief Executive Officer at the close of the annual general meeting of 19 May 2020.

This choice of governance structure, along with a large number of checks and balances implemented since its inception and constantly enhanced ever since, most notably a significant majority of independent members on the Board and committees and a senior independent director with specific, effective powers, has, in the presence of Thierry Le Hénaff as Chairman and Chief Executive Officer, proven to be a perfect fit for the Company's organization, operation and activity. This can be seen from the Group's results and performance since 2006, and notably since Thierry Le Hénaff's reappointment, with major milestones reached in the implementation of the new strategy announced at the Capital Markets Day on 2 April 2020, in a context shaped by the Covid-19 pandemic and shifts in the Group's macro-economic and societal environment. Indeed, Arkema demonstrated good resilience and delivered a robust financial performance in 2020, and had an excellent year in 2021, both in terms of financial achievements and of ongoing efforts to transform the Group's profile and strengthen its Specialty Materials platform. The Group achieved record results, generated significant cash and completed strategic M&A deals, including the finalization of the divestment of the PMMA activity and the signing of the acquisition of Ashland's performance adhesives business. Furthermore, the Group accelerated its new innovation-driven developments in line with sustainable megatrends and moved forward on attractive industrial projects. In terms of CSR, in addition to consolidating its achievements, Arkema made headway on its carbon trajectory, with a 10% reduction in greenhouse gas emissions (excluding PMMA), in line with its long-term objectives, and made significant progress overall, as reflected in its third place in the Chemicals category of the DJSI (up from sixth place in 2020) and its inclusion in the new CAC 40® ESG index. At the same time, Arkema continued to enhance its governance as detailed in section 3.2.1.1 of this document.

The relevance of Arkema's governance system was further validated by the Spencer Stuart assessment of its governance practices in early 2022 (for further details, see section 3.3.2.4 of this document).

The Board of Directors considers that this simplified governance structure, with Thierry Le Hénaff, has served the interests of Arkema and its shareholders perfectly as:

- combining the positions ensures that the Board of Directors functions correctly and facilitates the strategic operation of the Company, thanks to rapid decision-making and better communication between the Board of Directors and the management teams;
- the structure is more streamlined and responsive; and
- governance is more clear, both internally and externally, with a company representative who speaks with a single voice with all the stakeholders.

The Board of Directors moreover considers that Arkema's governance structures operate fluidly and efficiently in strict respect of the balance of powers between the Board and management thanks to robust checks and balances – strengthened in 2021 – such as:

- limitations of the powers of the Chairman and Chief Executive Officer, who is notably required to submit the most significant operations to the Board of Directors for prior approval, such as any industrial investment for an amount greater than €80 million and any proposed acquisition or disposal with an enterprise value of more than €130 million. These limitations are described in detail in section 3.3.1 of this chapter;
- the appointment in March 2016 of a senior independent director, who joined the Nominating, Compensation and Corporate Governance Committee in 2021 and whose primary role is to oversee the efficient running of the Company's governance structure and to assist the Chairman and Chief Executive Officer as needed, in particular in his relations with shareholders on governance issues. The senior independent director's role and responsibilities are described in detail in the Board of Directors' Internal Rules available on the Company's website, www.arkema.com. They are set out in section 3.3.3 of this chapter;
- Board members who have a range of diverse and complementary skills, as well as recognized, independent and committed personalities, allowing for open, adversarial and constructive discussions;
- the presence of a large majority of independent members on the Board of Directors (73% at the date of this document) and its committees (3/4 of the Audit and Accounts Committee, 100% of the Nominating, Compensation and Corporate Governance Committee and 3/5 of the Innovation and Sustainable Growth Committee), which are higher rates than the AFEP-MEDEF recommendations, and the fact that the chairmen of all of the committees are also independent;
- the close involvement of all members of the Board of Directors in the Group's strategy and the implementation thereof (notably in consideration of the aforementioned limitations) at each Board meeting and in particular during the annual strategy seminar and the annual on-site meeting in France or abroad;
- the 2021 set-up of the Innovation and Sustainable Growth Committee tasked with assessing the contribution of Arkema's strategy and innovation to environmental challenges and sustainable growth and contributing, together with the Audit and Accounts Committee and the Nominating, Compensation and Corporate Governance Committee, to a full review of the Group's ESG and non-financial challenges;
- the appointment of Nathalie Muracciole, director representing employees, to the Nominating, Compensation and Corporate Governance Committee for matters relating to compensation;
- a more direct link to Arkema's management teams thanks to their considerable involvement in various meetings and events; and
- a Chairman and Chief Executive Officer who is not a member of any of the Board's specialized committees and who does not attend any debate dealing with his reappointment, the assessment of his performance and the setting of his compensation.

When reviewing Thierry Le Hénaff's reappointment in 2020, the Board of Directors found that the combination of the positions of Chairman of the Board of Directors and Chief Executive Officer, which it decided to maintain, applies specifically to him in view of his capacity as "Arkema founder", his individual and collective performance and approach, and the relevance of his proposed strategy for his new term of office. However, the vast majority of the Board members do not consider the combination of the positions of Chairman of the Board of Directors and Chief Executive Officer as compulsory and believe that a two-tier governance structure could be prioritized in the future, notably in the context of Thierry Le Hénaff's succession at a given time. Arkema's governance structure, including the combination of positions, continues to be reviewed by the Board of Directors each time its operating procedures are assessed.

3.2.2.2 Executive Committee

The Chairman and Chief Executive Officer has put in place an Executive Committee.

The Executive Committee supervises the Group's operational management and coordinates and monitors the implementation of the Group's strategy. It is a decision-making body that focuses on strategic matters and performance monitoring, and reviews significant organizational matters and large projects. It also ensures the effective implementation of internal control. The Executive Committee meets twice a month.

COMPOSITION OF THE EXECUTIVE COMMITTEE AT 31 DECEMBER 2021

Name	Position	Area of responsibility
Thierry Le Hénaff	**Chairman and Chief Executive Officer**	Arkema
Operational Executive Vice-Presidents		
Vincent Legros	Chairman and Chief Executive Officer, Bostik	Adhesive Solutions
Marc Schuller	Chief Operating Officer	Advanced Materials, Coating Solutions, Intermediates, North America, raw materials and energy procurement and commercial excellence
and reporting to Marc Schuller:		
Marie-Pierre Chevallier	Senior Vice-President, Performance Additives	Performance Additives
Erwoan Pezron	Senior Vice-President, High Performance Polymers	High Performance Polymers
Richard Jenkins	Senior Vice-President, Coating Solutions	Coating Solutions
Functional Executive Vice-Presidents		
Luc Benoit-Cattin	Executive Vice-President, Industry and CSR	Industrial safety, environment and sustainable development, technique and construction, supply chain, quality and goods and services procurement, processes and operational excellence
Bernard Boyer	Executive Vice-President, Strategy	Planning, economic studies, acquisitions/divestitures, internal audit and internal control, insurance and risk management, and legal affairs
Marie-José Donsion	Chief Financial Officer	Accounting, management control, treasury management, financing, taxation, investor relations, IT and digital transformation
Thierry Parmentier	Executive Vice-President, Human Resources and Communication	Human resources and communication

The R&D department, headed by Armand Ajdari as of 1 January 2022, reports directly to the Chairman and Chief Executive Officer given its strategic importance for the Group. For further details on this department, see section 1.3 of this document.

At 31 December 2021, the Executive Committee comprises two women, representing 20% of the committee's members.

Biographies of the Executive Committee members can be found on the Company's website (www.arkema.com) in the Investors/CSR and Governance section.

3.2.2.3 The Group management committee

Since 1 September 2016, the Chairman and Chief Executive Officer has put in place a management committee, whose duties notably entail the review of the Group's operating activity (HSE, business, finance and operations) and monitoring of the Group's major projects, priorities and challenges. This committee also discusses Arkema's medium- and long-term orientations. It meets several times a year.

At 1 January 2022, the Group management committee was made up of twenty-six members, including the ten Executive Committee members and certain heads of businesses, support functions, regions and countries. Six members, or 24%, were women.

The policy to increase the percentage of women on the Group management committee is one of the Group's objectives and policies to enhance the gender balance within the Group's governance bodies (see section 4.6.1.6 of this document). As such, the figure will continue to rise as the number of women senior managers in the company grows.

3.2.3 Additional information concerning members of the Board of Directors and executive management

3.2.3.1 Absence of family ties

To the best of the Company's knowledge, and at the date of this document, there are no family ties between (i) the members of the Board of Directors, (ii) the members of the Executive Committee, and (iii) the members of the Board of Directors and those of the Executive Committee.

3.2.3.2 Absence of any conviction for fraud, involvement in a business failure, or public incrimination and/or sanction

To the best of the Company's knowledge, and at the date of this document, no member of the Board of Directors or the Executive Committee has been:

- convicted of fraud during the past five years;
- implicated in a bankruptcy, receivership, liquidation or administration as a member of an administrative, management or supervisory body during the past five years; or
- charged with any offense, accused, or had any official public sanction imposed on them by statutory or regulatory authorities (including designated professional bodies) during the past five years.

To the best of the Company's knowledge, during the past five years, no director has been prohibited by a court from serving as a member of the administrative, management or supervisory body of an issuer, or from participating in the management or governance of an issuer's business.

3.2.3.3 Absence of conflicts of interest

The Company has put in place measures to prevent potential conflicts of interest between the directors and the Company.

In accordance with corporate governance best practices and the recommendations of the AFEP-MEDEF Code in particular, the Board of Directors' Internal Rules provide that:

- each director must undertake to maintain under all circumstances their independence of analysis, judgment, decision-making and action and, to this end, must not seek or accept any advantages likely to be considered as compromising their independence from the Company or any associated company, either directly or indirectly. Each director undertakes to notify the Board of Directors of any agreement between them and the Company, entered into directly, indirectly or *via* an intermediary, prior to entering into such agreement. Furthermore, each director must undertake not to exercise any responsibilities in companies or business activities that are in competition with the Company without previously notifying the Board of Directors and the Chairman of the Nominating, Compensation and Corporate Governance Committee; and
- in the event of a conflict of interest, the director in question must abstain from voting on any resolution submitted to the Board and from participating in the discussion preceding the vote. The Chairman may ask such director not to attend while the topic is addressed.

Directors must confirm the absence of any conflicts of interest (even potential) when they take up office, each year when so requested for the preparation of the Universal Registration Document, and at any time, upon request by the Chairman and Chief Executive Officer.

To the best of the Company's knowledge, there are no potential cases of conflicts of interest between the duties of members of the Board of Directors or of executive management vis-à-vis the Company and their private interests. To the best of the Company's knowledge, no arrangements or agreements resulting in the selection of a member of the Board of Directors or of executive management have been made with the Company's main shareholders, customers or suppliers.

To the best of the Company's knowledge, there are no restrictions accepted by the members of the Board of Directors or of executive management concerning the transfer of their holding in the Company's share capital, other than those set out in sections 3.4.2.1 and 3.4.3.1 of this chapter.

3.2.3.4 Information regarding service contracts

To the best of the Company's knowledge, there are no service contracts between the members of the Board of Directors or the Executive Committee and the Company or any of its subsidiaries providing for the granting of benefits under the terms of such a contract. The members of the Executive Committee, however, are all employees of the Company except for Thierry Le Hénaff.

3.2.3.5 Procedure for assessing agreements relating to ordinary operations entered into under normal conditions

In 2020, in accordance with article L. 22-10-12 of the French Commercial Code, the Board of Directors implemented a procedure for assessing agreements relating to ordinary operations entered into under normal conditions. The procedure includes an assessment committee comprising the head of Compliance, the Financing and Treasury Vice-President and the Internal Audit and Internal Control Vice-President, which meets twice a year in an ordinary session, and on an extraordinary basis if necessary, to ensure that the agreements relating to ordinary operations entered into by the Company under normal conditions comply with the criteria defined in the procedure.

Once a year, and more often if necessary, the committee for assessing agreements relating to ordinary operations draws up a report, which it submits to the Audit and Accounts Committee. In accordance with this report, the Board of Directors reassesses the procedure on an annual basis, with a view to updating it if necessary. The report submitted to the Audit and Accounts Committee in early 2022 confirmed the ordinary nature and normal conditions of the agreements entered into by the Company and described in this report.

3.3 Operating procedures of administrative and management bodies

The duties and operating rules of the Company's administrative and management bodies are defined by law, by the Company's Articles of Association and by the Board of Directors' Internal Rules. The latter documents can be found on the Company's website (www.arkema.com) in the Investors/CSR and Governance section.

3.3.1 Management and limitation of powers of the Chairman and Chief Executive Officer

3.3.1.1 Powers of the Chairman and Chief Executive Officer

The Chairman and Chief Executive Officer is vested with the most extensive powers to act in the Company's name in all circumstances. He exercises these powers within the limits of the Company's corporate purpose and subject to those powers expressly vested by law in shareholders' meetings and the Board of Directors. He represents the Company in its relations with third parties.

The Board of Directors may set limits on the powers of the Chairman and Chief Executive Officer. In 2006, the Board of Directors introduced a right of prior approval or post review by the Board of Directors. The Chairman and Chief Executive Officer must therefore inform the Board of the most significant operations or submit them to the Board for prior approval, as follows:

Prior approval by the Board of Directors	Post review by the Board of Directors
• Overall capital expenditure budget • Any industrial investment in excess of €80 million • Any acquisition or divestment project with an enterprise value in excess of €130 million • Any annual capital expenditure budget overrun in excess of 10%	• Any industrial investment in excess of €30 million • Any acquisition or divestment project with an enterprise value in excess of €50 million

The general powers of the Chairman and Chief Executive Officer were confirmed by the Board of Directors when his term of office was renewed in 2020.

3.3.1.2 Deposits, commitments and guarantees

Every year, the Board of Directors authorizes the Chairman and Chief Executive Officer, or any person duly authorized to act on his behalf, to issue deposits, commitments and guarantees to third parties in the Company's name, for one year.

At its meeting on 26 January 2021, the Board of Directors granted said authorization to issue new deposits, commitments and guarantees up to a limit of €90 million, and to continue the deposits, commitments and guarantees previously made.

In accordance with article L. 225-35 of the French Commercial Code, the Board of Directors also authorized the Chairman and Chief Executive Officer to guarantee, for one year and for unlimited amounts, the commitments made by the Company with respect to companies controlled by it, within the meaning of article L. 233-16, II of the French Commercial Code.

At its meeting of 24 January 2022, the Board of Directors renewed its authorization under the same conditions.

3.3.2 Duties and operating procedures of the Board of Directors

3.3.2.1 Duties

The Board of Directors is a collegiate body that takes decisions collectively. It is mandated by and accountable to all of the shareholders.

The Company's Board of Directors exercises the powers assigned by law in order to act in the Company's best interests in all circumstances. It decides the Company's overall business strategy and oversees its implementation. Subject to those powers expressly conferred upon it at shareholders' meetings and within the limits of the Company's corporate purpose, the Board of Directors considers any issue involving the proper operation of the Company and decides on any issue concerning the Company. Lastly, it strives to create value over the long term by factoring social and environmental challenges into the Group's business plans.

To this end, it must in particular monitor and review the Group's strategic developments, appoint the executive directors responsible for managing the Company in line with the corporate strategy, monitor the implementation of this strategy, take decisions regarding major operations, ensure the quality of information supplied to shareholders and the markets, particularly in the financial statements, and guarantee the quality of its operations. It analyzes opportunities and risks – especially financial, legal, operational, social and environmental risks – on a regular basis in line with the Group's strategy and the related measures taken.

The Board of Directors can decide to set up one or more specialized committees. It defines the composition and remit of these committees, which operate under the responsibility of the Board of Directors.

In accordance with the Internal Rules of the Board of Directors and each of its committees, some matters are therefore subject to prior review by the appropriate committee before being submitted to the Board of Directors for approval.

In accordance with the AFEP-MEDEF Code recommendations, the Board of Directors reviews the diversity objectives within the Group's governance bodies, how such objectives are implemented and the actions taken to achieve them, as presented to it by executive management twice a year as part of its overall human resources review and, more specifically, its review of the career management plan. Information on these objectives, the implementation thereof and the results achieved is provided in sections 3.2.2 and 4.6.1.6 of this document.

3.3.2.2 Operating procedures

The operating procedures of the Board of Directors are determined by current laws and regulations, the Company's Articles of Association and its own internal rules as updated most recently on 24 February 2021.

The Board of Directors meets at least four times a year and whenever the interests of the Company so require. Meetings are convened by its Chairman. The convening notice may be delivered by any means, even verbally, eight days before the date of the meeting and, in urgent cases, without notice. It specifies where the meeting will take place. The convening notice and meeting support documents are made available *via* a digital platform that enables the secure exchange of data. In principle, meetings take place at the Group's head office but may in certain cases be held by videoconference or conference call in accordance with the law, the Company's Articles of Association and the Board of Directors' Internal Rules.

The Board of Directors' meetings are chaired by the Chairman of the Board or, in his absence, by the oldest director in attendance.

The Board of Directors may legitimately deliberate even in the absence of a convening notice if all members are present or represented. In accordance with its internal rules, in all cases permitted by law and if specified in the convening notice, directors attending the meeting by means of videoconferencing or any other telecommunication method that meets the requisite technical specifications set by current laws and regulations, are deemed present for the purpose of quorum and majority requirements.

Decisions are taken by majority vote of the members present, deemed present or represented. In the case of a split vote, the Chairman has the casting vote.

In accordance with corporate governance best practices and the recommendations of the AFEP-MEDEF Code in particular, the Board of Directors' Internal Rules also set out the rights and obligations of the directors and notably impose that:

- before accepting their duties as director of the Company, the directors must ensure that they are familiar with the Company's Articles of Association, the Board of Directors' Internal Rules, and the legal and regulatory provisions governing the functions of a director of a French joint stock corporation (*société anonyme*), and in particular the rules relating to the definition of the powers of the Board of Directors, multiple directorships, the agreements falling within the scope of article L. 225-38 of the French Commercial Code, the holding and use of insider information, the declarations of trading in the Company's shares and the black-out periods during which directors may not trade in those shares;
- the directors are elected by all the shareholders and must act in all circumstances in the Company's best interests, whilst also taking the social and environmental challenges of its business into consideration;
- the directors must devote the necessary time and attention to their duties. Consequently, the directors may not hold more than four other directorships in listed companies, including foreign companies, outside the Group. Accordingly, the directors undertake to inform the Chairman of the Nominating, Compensation and Corporate Governance Committee of any new non-executive or executive directorship that they might accept in a company outside the Group or outside the Group of which they are a member, including their participation in the committees of these companies' Boards of Directors; executive directors may not hold more than two other directorships in listed companies outside the Group and must seek the opinion of the Board of Directors prior to accepting any new directorship in a listed company;
- the directors must be committed and, where possible, take part in all meetings of the Board of Directors and of the committees to which they have been appointed, as well as shareholders' meetings;
- prior to each Board of Directors' meeting, except in the event of an emergency justified by exceptional circumstances, the agenda and information on items on the agenda that require special analysis and prior consideration are sent to each director with the convening notice or at least in sufficient time before the meeting, whenever this can be accomplished without any breach of confidentiality. The directors may also request from the Chairman and Chief Executive Officer any additional information they may consider necessary to properly fulfill their duties, particularly in the light of the meeting agenda;
- if they deem it necessary, the directors may also request additional training on the Group's specific features, businesses, and sector of activity, at the time of their appointment or during their term of office. This training is organized by the Company, which pays the related costs;
- all documents provided for Board of Directors' meetings and all information collected during or outside Board of Directors' meetings are confidential, without exception, whether or not the information collected is presented as being confidential. In this regard, the directors must consider themselves bound by strict professional confidentiality beyond the simple duty of discretion provided for by the law. Furthermore, the directors undertake not to express their individual views outside the Boardroom on matters discussed during Board of Directors' meetings, or on the opinions expressed by individual directors; and
- as required by law and regulations, the directors must refrain from trading in the Company's securities (including derivative financial instruments) insofar as, by virtue of their duties, they have access to insider information. They are therefore added, as soon as they take up their duties, to the list of people subject to the black-out periods implemented by the Company. Furthermore, the directors must disclose any transactions they have entered into in respect of the Company's securities.

The Board of Directors' Internal Rules also provide that, when the positions of Chairman and Chief Executive Officer are held by the same person, the Board of Directors shall appoint one of the independent directors to serve as senior independent director, based on the proposal of the Nominating, Compensation and Corporate Governance Committee. For further details, see section 3.3.3 of this chapter.

In accordance with the AFEP-MEDEF Code and with best governance practices, the Chairman and Chief Executive Officer does not take part in any discussions concerning his term of office and compensation. The Board members therefore discuss these topics without his presence. Following the report on the annual assessment of the Board of Directors' operating procedures, the senior independent director shall hold an executive session from which the executive director and directors who are employees of the Group are excluded.

3.3.2.3 Activities of the Board of Directors

The Board of Directors met eleven times in 2021. There was a high attendance rate at these meetings of 92% (*versus* 95% in 2020). Regularly scheduled meetings lasted slightly longer than four hours, the same as in 2020, and the more exceptional, context-related meetings (notably about the pandemic and M&A activity) varied in length depending on the topic at hand.

The following table summarizes the individual attendance rates of directors at the meetings of the Board of Directors and its committees in 2021.

	Board of Directors		Audit and Accounts Committee		Nominating, Compensation and Corporate Governance Committee		Innovation and Sustainable Growth Committee	
Director	Attendance rate	Number of meetings	Attendance rate	Number of meetings	Attendance rate	Number of meetings	Attendance rate	Number of Meetings
Thierry Le Hénaff	100%	11/11	-	-	-	-	-	-
Yannick Assouad (1)	75%	3/4	-	-	-	-	-	-
Jean-Marc Bertrand	100%	11/11	-	-	-	-	100%	1/1
Bpifrance Investissement represented by Sébastien Moynot (2)	100%	7/7	-	-	-	-	100%	1/1
Marie-Ange Debon	100%	11/11	91%	5/6	-	-	-	-
Fonds Stratégique de Participations represented by Isabelle Boccon-Gibod	91%	10/11	100%	6/6	-	-	100%	1/1
Ilse Henne (2)	100%	7/7	100%	4/4	-	-	-	-
Ian Hudson	91%	10/11	100%	6/6	-	-	100%	1/1
Alexandre de Juniac	60%	6/10 (3)	-	-	100%	3/3	-	-
Victoire de Margerie (4)	91%	10/11	-	-	100%	2/2	100%	1/1
Laurent Mignon	64%	7/11	-	-	-	-	-	-
Hélène Moreau-Leroy (5)	100%	11/11	100%	2/2	100%	1/1	-	-
Nathalie Muracciole	100%	11/11	-	-	100%	1/1	-	-
Thierry Pilenko (2)	100%	7/7	-	-	100%	1/1	-	-
Susan Rimmer	100%	11/11	-	-	-	-	-	-
Philippe Sauquet (6)	100%	1/1	-	-	-	-	-	-
TOTAL	**92%**	**11**	**96%**	**6**	**100%**	**4**	**100%**	**1**

(1) Term of office expired on 20 May 2021.
(2) Appointed on 20 May 2021.
(3) Did not attend meetings on subjects that put him in a conflict of interest due to his duties at Morgan Stanley.
(4) Left the Nominating, Compensation and Corporate Governance Committee and became Chairman of the Innovation and Sustainable Growth Committee on 20 May 2021.
(5) Left the Audit and Accounts Committee and joined the Nominating, Compensation and Corporate Governance Committee on 20 May 2021.
(6) Co-opted since 9 November 2021.

The agendas of the Board of Directors' meetings included recurring annual topics as well as more specific topics, as follows:

Operations, strategy and risk management	**Recurring annual topics** ● review and approval of the strategy and main operational priorities presented during the annual seminar ● monitoring of the implementation of the bolt-on acquisitions and major capital expenditure programs ● review and, where necessary, update of the risk map ● presentation and approval of the insurance program ● changes in the competitive environment ● review of the Group's strategy (actions and results) for cybersecurity ● progress report on the Group digital transformation program ● business presentation by the industrial division, including major projects ● presentation and review of the business of each division **Specific topics in 2021** ● various strategic projects: monitoring of the partnership with Nutrien Ltd. for the supply of hydrofluoric acid, and of the construction of a bio-based polymer manufacturing plant in Singapore ● consequences of extreme cold weather in the United States on energy supply, impacts of higher raw materials costs and supply chain disruptions, and the emergence of new Covid variants ● the Group's brand identity and positioning ● various M&A transactions: divestment of the PMMA activity and acquisition of Poliplas, Ashland's adhesives business, Agiplast and Permoseal ● risk review within the context of the Covid-19 crisis
Accounting and financial situation	**Recurring annual topics** approval of the annual budget approval of the annual consolidated and Company financial statements, proposed allocation of profit and distribution of dividends approval of the annual financial report, the management report and, more generally, the Universal Registration Document preparation of the annual general meeting including approval of the draft resolutions approval of management forecast documents approval of the half-yearly financial statements and review of quarterly financial information review of reports on the work carried out by the Audit and Accounts Committee approval of draft results press releases review of the Company's needs in terms of financial resources and therefore of the Euro Medium Term Notes (EMTN) program and definition of the maximum issue amount feedback from roadshows **Specific topics in 2021** authorization to renew the Euro Medium Term Notes (EMTN) program for a maximum amount of €5 billion publication of the financial statements in European Single Electronic Format (ESEF) launch of a €300 million share buyback program signing of an amendment to the syndicated credit facility agreement
Corporate governance and compensation	**Recurring annual topics** ● assessment of the Board of Directors' operating procedures ● assessment of the independence of Directors ● review of Directors' terms of office and proposal of renewals/appointments ● review of reports on the work carried out by the Nominating, Compensation and Corporate Governance Committee ● review of related-party agreements and agreements entered into and authorized during previous years which were implemented during the year ● policy on the non-executive directors' compensation ● policy on the Chairman and Chief Executive Officer's compensation ● compensation due or awarded to the Chairman and Chief Executive Officer for the prior year ● compensation for Executive Committee members (fixed compensation, variable compensation for the prior year and criteria used to determine variable compensation) ● definition of share-based compensation for Group employees (performance share plan, capital increase reserved for employees, etc.) ● changes in the Executive Committee and its succession plan, including for the Chairman and Chief Executive Officer, as well as career management policy for executives ● definition of the Chairman and Chief Executive Officer's powers to issue deposits, commitments and guarantees ● activity report of the senior independent director ● approval of the report on corporate governance **Specific topics in 2021** ● self-assessment of the Board of Directors' operating procedures ● decision to hold the annual general meeting of 19 May 2021 behind closed doors ● appointment of Thierry Pilenko, Bpifrance Investissement, represented by Sébastien Moynot, and Ilse Henne, as directors ● appointment of Thierry Pilenko as Chairman of the Nominating, Compensation and Corporate Governance Committee, Hélène Moreau-Leroy and Nathalie Muracciole (for compensation matters) as members of the Nominating, Compensation and Corporate Governance Committee, and Ilse Henne as a member of the Audit and Accounts Committee ● creation of the Innovation and Sustainable Growth Committee and appointment of Victoire de Margerie as its Chairman and Bpifrance Investissement, represented by Sébastien Moynot, the Fonds Stratégique de Participations, represented by Isabelle Boccon-Gibod, Ian Hudson and Jean-Marc Bertrand, as members ● acknowledgment of the fulfillment of the performance conditions applicable to the 2018 performance share plan ● 2021 performance share plan
Corporate social responsibility	**Recurring annual topics** ● Group's situation in terms of safety and the environment (particularly the climate) ● Group human resources policy, especially its diversity and talent management policy ● Group ESG approach and roadmap ● non-financial information statement and duty of care **Specific topics in 2021** ● detailed review of ESG aspects, in particular climate-related ones, within the scope of recent acquisitions and investments

In 2021, the Board of Directors continued to be responsive and adaptable in the context of the ongoing Covid-19 pandemic, meeting regularly (11 meetings) in person when possible or remotely thanks to well-functioning videoconferencing systems.

At each meeting, the Chairman updates the Board on the operations concluded since the previous meeting and seeks the authorization of the Board of Directors for the main projects underway that are likely to be completed before the next Board meeting.

Once a year, the Board of Directors also dedicates a day to reviewing Arkema's strategy in the presence of the Executive Committee members and the head of R&D (CTO). During this meeting, the directors are given detailed presentations on key components of the Group's strategy, including R&D, with a demonstration of the recent innovations in various areas, the acquisition strategy, safety and sustainable development, the digital strategy, the competitive landscape, and specific operational risks. This is also an opportunity for the Board to analyze the main challenges of the coming years and changes in the Group's profile. At the end of the seminar, the directors typically meet with around 20 of the Group's senior executives and high potentials.

The Board of Directors oversees the Company's quest for gender balance within the Executive Committee and its senior executives, and among senior management in general. Each year, it reviews the policy established by executive management in this regard, including the objectives, actions implemented and results achieved. For further details on the human resources diversity policy, see section 4.4.1.6 of this document.

Lastly, the Board of Directors, based on the preparatory work of the Nominating, Compensation and Corporate Governance Committee, and in complete cooperation with the Chairman and Chief Executive Officer, reviews every year with careful attention the succession planning for the Chairman and Chief Executive Officer and the members of the Executive Committee, as well as the career management policy for Group executives. This work is used in particular to prepare for reappointments and replacements in view of the different term of office renewal dates and to handle long-term succession planning scenarios or for dealing with crisis situations. Within this context, it has set out the conditions for replacing the Chairman and Chief Executive Officer, notably in the event of an emergency (so-called "tramway" scenario), and the key principles for his long-term succession.

Since the beginning of 2022, the Board of Directors has met twice, with an attendance rate of 96%. Beyond the recurring topics such as the approval of the 2022 annual budget, the approval of the annual consolidated and Company financial statements for 2021, the proposed allocation of profit and, more generally, the preparation of the annual general meeting including approval of the proposed resolutions, these meetings focused in particular on:

- the review of achievements and strategy in terms of human resources and talent management;
- the distribution of a dividend of €3 per share in respect of 2021;
- the examination and review of the financial performance and achievements of the High Performance Polymers Business Line;
- the Chairman and Chief Executive Officer's 2022 compensation policy;
- directors' compensation in accordance with the compensation policy applicable in 2020, as well as the compensation paid or awarded to the Chairman and Chief Executive Officer in 2021;
- the Executive Committee members' compensation for 2021 and their compensation policy for 2022;
- the review of the Group's social and environmental challenges as part of the non-financial information statement pursuant to articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code and the report on the effective deployment of the *plan de vigilance* (duty of care plan);
- the review of the Group's 2022 insurance policy;
- the share-based compensation policy, in support of the proposal submitted to the annual general meeting to renew the authorization to grant performance shares;
- the annual assessment of the operating procedures of the Board of Directors and its committees carried out in 2021 by an independent advisory firm;
- the proposed reappointments of directors whose terms of office were due to expire at the annual general meeting of 19 May 2022, and the proposed appointment of Nicolas Patalano, as director representing shareholder employees; and
- the Board of Directors' annual on-site meeting, which took place at the Genay Coatex and Pierre-Bénite Arkema France sites in the Lyon area. As part of this event, directors visited both sites' plants and research centers, including the new Christian Collette Center of Excellence for Batteries. They were also given demonstrations of product applications and presentations of new developments in the Coating Solutions segment and the High Performance Polymers Business Line.

Lastly, an executive session was held at the end of the 23 February 2022 meeting, as provided for in the internal rules. Senior independent director Hélène Moreau-Leroy conducted the session, during which the non-executive and non-employee directors were able to discuss matters in the absence of the executive director and directors bound to the Group by an employment contract.

3.3.2.4 Assessment of the operating procedures of the Board of Directors

In accordance with the AFEP-MEDEF Code and its internal rules, the Board of Directors conducts an annual assessment of its operating procedures by means of a questionnaire. Every three years in principle, a formal assessment is conducted by an external consultant. The form and terms of the Board's assessment are discussed by the Nominating, Compensation and Corporate Governance Committee every year. The Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors are involved in the full assessment process (drafting/updating the questionnaire, setting the schedule, reviewing the answers to the questionnaire, preparing the feedback, attending preparatory and feedback meetings with the consulting firm).

At the beginning of 2022, the Board of Directors' 2021 operating procedures were assessed by consulting firm Spencer Stuart. In this context, individual interviews of each director were conducted based on a guide that was drawn up in advance and specifically tailored to Arkema and to the objectives set for the performance of this external assessment. The guide was approved by the Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors. Prior to the interviews, each director was invited to complete an online questionnaire.

The findings from this assessment process were detailed in a report that was first presented to the Nominating, Compensation and Corporate Governance Committee on 17 February 2022 and then to the Board of Directors on 23 February 2022.

In general, this assessment shows that, again this year, Arkema's governance practices are among the best in the industry. On average, more than 90% of the directors said they considered the dynamics of the Board's operating procedures and its performance to be very satisfactory, despite the significant changes in its composition in recent years due to the expiry of the terms of office of several directors present in 2006. The directors unanimously agreed that they genuinely enjoyed working together in the professional and friendly atmosphere.

The assessment highlighted the following strengths:

- the leadership of the Chairman, who facilitates discussions and leaves room for debate and questions. The directors commended the way in which the Board is run and unanimously expressed their pleasure in contributing to and participating in this Board;
- the dynamics and commitment of the Board thanks to its high level of cohesiveness, collegiality and diversity and the deep respect that all members have for each other, allowing for lively discussions and the free expression of opinions. The Board of Directors was found to be very balanced, well-paced and highly constructive;
- strategic discussions with a good balance between governance matters and strategic issues, as well as transparency and consistency in strategic thinking. The Board found the management team working alongside the Chairman and Chief Executive Officer to be effective and committed in their dealings with the Board;
- the composition of the Board, with prompt induction of new directors and experienced, diversified and complementary director profiles that are well aligned with Arkema's needs;
- the role of the senior independent director, which was recognized as positive and well positioned, particularly in terms of dealings with external stakeholders and the good relationships developed with all directors and the Chairman and Chief Executive Officer;
- the role of the committees, whose work was unanimously praised as being well coordinated with that of the Board. The recent creation of the Innovation and Sustainable Growth Committee was deemed positive, and reporting by the committee chairmen met the expectations of directors;
- the quality of the Board's documents, which met directors' expectations in terms of both format, with very concise presentations of the subjects, and content, with a clear understanding of priorities; and
- The Board secretary, who was found to be professional and efficient, attentive to the needs of directors, and responsive and available.

Following this assessment, the Board identified the following subjects for further improvement:

- the Nominating, Compensation and Corporate Governance Committee's involvement in succession plans, especially that of the Chairman and Chief Executive Officer;
- formalization of the induction program for new directors;
- the possible addition of another, more international profile – without this being an imperative – in line with the desire to strengthen certain skills such as customer businesses and financial expertise; and
- systematic post-mortem analyses of Board decisions to assess their effects.

3.3.3 Senior independent director

In accordance with best practices, the Board of Directors created the position of senior independent director in 2016. The primary role of the senior independent director is to oversee the efficient running of the Company's governance structures and the absence of conflicts of interest, and to ensure that shareholders' concerns on corporate governance matters are taken into consideration.

In accordance with the Board of Directors' Internal Rules, a senior independent director is appointed when the Chairman of the Board of Directors also serves as Chief Executive Officer. The senior independent director is selected from among the independent members of the Board, on the proposal of the Nominating, Compensation and Corporate Governance Committee, and is appointed for his or her term as a director. He or she may be reappointed.

The senior independent director performs the following duties and has the following prerogatives:

1. Operating procedures of the Board of Directors

- he or she may propose the inclusion of additional items on the agenda of Board meetings, if necessary;
- he or she asks the Chairman of the Board of Directors to call a Board meeting with a specific agenda in exceptional circumstances;
- he or she oversees the application of the internal rules for the preparation of Board meetings as well as during the meetings;
- following the annual assessment of the Board of Directors' operating procedures led by the Nominating, Compensation and Corporate Governance Committee, he or she chairs a meeting of non-executive directors, without the presence of executive directors, to discuss the operating procedures of the Company's governance structures; he or she reports the meeting's conclusions to the Chairman and Chief Executive Officer;
- he or she holds discussions with the Chairman of the Nominating, Compensation and Corporate Governance Committee on all matters connected with the Board of Directors' operating procedures;
- he or she may, on request, participate in committee meetings without the right to vote;
- in the event that a governance issue arises, he or she is the directors' main point of contact and holds discussions with the Chairman and Chief Executive Officer; and
- he or she reports on his or her activities to the Board of Directors at least once a year and at any time if he or she considers it necessary.

2. Conflicts of interest

He or she advises his or her fellow directors on the related risks. He or she reviews with the Chairman of the Board of Directors and the Nominating, Compensation and Corporate Governance Committee any potential conflicts of interest that he or she has identified or been informed of, and informs the Board of Directors of his or her thoughts on the matter as well as those of the Chairman.

3. Shareholder relations

He or she is informed of comments and suggestions received from significant shareholders not represented on the Board of Directors about corporate governance matters. He or she ensures that they receive answers to their questions and, after consulting the Chairman and Chief Executive Officer, makes himself or herself available to communicate with them if necessary. The Board of Directors is informed about these contacts.

Upon recommendation of the Nominating, Compensation and Corporate Governance Committee and by decision of the Board of Directors at its meeting of 24 February 2021, the senior independent director became a member of the Nominating, Compensation and Corporate Governance Committee at the close of the annual general meeting of 20 May 2021.

Activity report of the senior independent director for the year

Hélène Moreau-Leroy reported to the Board of Directors about her 2020 activities and, in particular, about the governance roadshows held in early 2021, where she notably met the governance teams of Arkema shareholders that had requested such meetings, together representing nearly 20% of the share capital. These meetings gave them the opportunity to continue the already well-established dialogue and to closely follow the workings of Arkema's governance bodies. Among the topics contained in the report to the Board of Directors, the investors' growing interest in ESG issues and the inclusion thereof in the Company's strategy was highlighted even if no significant reservations were issued. In early 2022, Hélène Moreau-Leroy also conducted the annual executive session during which the Group's non-executive and non-employee directors were able to discuss matters in the absence of the executive director and directors bound to the Group by an employment contract.

3.3.4 Committees of the Board of Directors

The Board of Directors has three permanent, specialized committees: the Audit and Accounts Committee, the Nominating, Compensation and Corporate Governance Committee and, since 20 May 2021, the Innovation and Sustainable Growth Committee. The committees play a role in reviewing and preparing certain Board decisions and submit their opinions, proposals and recommendations to the Board.

Each committee's role, organization and operating procedures are set out in their respective internal rules, as defined and approved by the Board of Directors. The internal rules of each committee state that:

- the term of office of committee members corresponds to their term of office as directors, although the Board of Directors may modify the composition of the committees at any time;
- at least two members must be present for a meeting of the committees to be valid;
- no committee member may be represented by another person; and
- each committee reports on its work to the Board of Directors and presents an annual assessment of its operating procedures drawn up on the basis of the requirements of its internal rules, as well as any suggestions for improving its operating procedures.

With the exception of the directors who are paid a salary for the duties they perform within the Company or one of its subsidiaries, the committee members may only receive compensation from the Company in respect of their term of office as directors and members of a committee.

3.3.4.1 The Audit and Accounts Committee

Composition and operating procedures

At 31 December 2021, the Audit and Accounts Committee was made up of four directors: Marie-Ange Debon (Chairman), Isabelle Boccon-Gibod (permanent representative of Fonds Stratégique de Participations – FSP), Ilse Henne and Ian Hudson.

All the members of this committee were qualified as independent by the Board of Directors except for Isabelle Boccon-Gibod, permanent representative of FSP, representing an independence rate of 75%.

In accordance with the AFEP-MEDEF Code, none of the members of the Audit and Accounts Committee holds an executive position within the Company. All of the members of the Audit and Accounts Committee have financial or accounting expertise and have also benefited from a presentation focusing on the Group's accounting, financial and operational specifics. For further details, see the biographies of the committee members in section 3.2.1.3 of this chapter.

The Audit and Accounts Committee generally meets six times a year, in particular to review the consolidated financial statements. Two of these meetings are primarily devoted to discussing internal control matters. The committee meets at the request of its Chairman, two of its members, or the Chairman of the Board of Directors. The annual schedule of Audit and Accounts Committee meetings is set by its Chairman during the prior year.

The Chief Financial Officer and the head of the Accounting and Consolidation department attend all meetings. The statutory auditors are invited to every meeting and subsequently give their conclusions in the absence of the Company's representatives. The committee also meets privately with the Internal Audit and Internal Control Vice-President after the meetings that he or she attends.

The Chairman and Chief Executive Officer does not take part in the meetings of the Audit and Accounts Committee.

Unless there is a reasoned decision to the contrary by the Board of Directors, no Audit and Accounts Committee member may be a member of the Audit and Accounts Committees of more than two other listed companies in France or abroad. The Board also ensures that it does not appoint to this committee a director from a company that has appointed one of the Company's directors to its own Audit and Accounts Committee.

Duties and activity of the Audit and Accounts Committee

In order to enable the Company's Board of Directors to ensure the quality of internal control and the reliability of information provided to shareholders and to the financial markets, the Audit and Accounts Committee exercises the prerogatives of a specialized committee as defined under article L. 823-19 of the French Commercial Code.

The Audit and Accounts Committee met six times in 2021, with an attendance rate of 96%.

As part of the duties set out in its internal rules, the Audit and Accounts Committee was in charge of the following in 2021 in particular:

Duties	Activity of the Audit and Accounts Committee
Monitoring the financial information preparation process	**Recurring topics** ● review of the annual consolidated financial statements, the half-yearly and quarterly financial information and the annual Company financial statements and forecasts prior to their consideration by the Board of Directors ● assessment of the suitability and consistency of accounting principles and policies ● review of the options and assumptions used in the preparation of the financial statements ● review of provisions ● review of draft results press releases, particularly the accounting content ● review of the Company's management forecast documents ● review of the impact of major transactions planned by the Group ● review of liabilities related to pensions and similar benefits, off-balance sheet commitments (particularly the most significant new contracts) and derivative instruments ● preparation and submission of reports as set out in the Internal Rules of the Board of Directors, including the draft management report and draft Universal Registration Document ● review of the non-financial information statement and the extra-financial indicators contained therein, as part of certification by the independent third party ● review of the Group's cash and debt positions ● review of the Group's tax situation and tax strategy **Specific topics in 2021** ● review of the financial impacts of the disposal of the PMMA business ● review of the financial impact of the Ashland adhesives, Agiplast and Permoseal acquisitions ● monitoring of the main claims and disputes ● reappointment of the independent third party ● 2021 share buyback program ● monitoring of inflation in raw materials and energy prices and its impacts ● review and analysis of Arkema's situation with regard to the new EU taxonomy regulation
Overseeing the efficiency of internal control and risk management systems	**Recurring topics** ● review of the Group's financial and extra-financial risks and of the risk map ● review of internal control procedures ● review of internal auditor work programs and their conclusions ● assessment of the organization of delegations of authority ● regular updates on developments of significant claims and disputes ● preparation and submission of the section of the management report on internal control and risk management ● review of the Group's compliance situation (particularly in terms of anti-trust, embargoes, anti-corruption and duty of care) **Specific topics in 2021** ● monitoring of cybersecurity and IT systems access security projects ● monitoring of the supply chain data management project
Monitoring relations with statutory auditors and their independence	**Recurring topics** ● oversight of the audit of the annual consolidated and Company financial statements by the statutory auditors ● review of external auditor work programs and their conclusions ● submission of recommendations on the appointment of the statutory auditors and their fees, in compliance with independence requirements ● review of compliance with all applicable laws and regulations when statutory auditors are commissioned to perform work other than auditing the financial statements ● review of statutory auditors' fees and declaration of independence and approval of permitted non-audit services

Since the beginning of 2022, the Audit and Accounts Committee has met twice with an attendance rate of 100%. In addition to recurring topics such as the review of the annual consolidated and Company financial statements for 2021, the meeting focused, among other things, on the review of the allocation of profit and distribution of dividends for 2021 as well as the statutory auditors' additional report to the Audit and Accounts Committee for the year ended 31 December 2021, the non-financial information statement, the taxonomy and the report on the effective deployment of the *plan de vigilance* (duty of care plan).

In accordance with the AFEP-MEDEF Code and the internal rules, the assessment of the Audit and Accounts Committee's work in 2021 was included in the Spencer Stuart assessment of the Group's overall governance practices. The 2021 assessment showed that the committee members were very satisfied with meeting preparation and proceedings. For further details concerning the assessment of the operating procedures of the Board of Directors and its committees in 2021, see section 3.3.2.4 of this chapter.

3.3.4.2 The Nominating, Compensation and Corporate Governance Committee

Composition and operating procedures

As at 31 December 2021, the Nominating, Compensation and Corporate Governance Committee is made up of four directors: Thierry Pilenko (Chairman), Hélène Moreau-Leroy, Philippe Sauquet and Nathalie Muracciole, a director representing employees who only participates in the committee for compensation matters.

In accordance with the AFEP-MEDEF Code, none of its members hold an executive position in the Company. Apart from Nathalie Muracciole, who is an employee of a Group company and therefore cannot be considered independent, all the other members of this committee were qualified as independent by the Board of Directors, representing an independence rate of 75%.

At its meeting on 9 November 2021, the Board of Directors unanimously decided to co-opt Philippe Sauquet as an independent director to replace Alexandre de Juniac, who had resigned, and to appoint him as a member of the Nominating, Compensation and Corporate Governance Committee. The Board thanked Alexandre de Juniac for his contribution to the work of the Nominating, Compensation and Corporate Governance Committee, helping to develop and maintain governance standards on a par with best practices.

The Nominating, Compensation and Corporate Governance Committee generally meets three times a year. It meets at the request of its Chairman, two of its members, or the Chairman of the Board of Directors. The annual schedule of these meetings is set by the committee Chairman during the prior year.

The Chairman and Chief Executive Officer attends the committee's meetings and is closely involved in its discussions on appointments, governance issues and the compensation policy for Executive Committee members. He also actively participates in the preparation of succession plans, although this subject may be discussed in his absence at the executive session of the Board of Directors. He does not take part in the committee's discussions relating to him.

Duties and activity of the Nominating, Compensation and Corporate Governance Committee

The Nominating, Compensation and Corporate Governance Committee met three times in 2021, with an attendance rate of 100%.

As part of its duties, the Nominating, Compensation and Corporate Governance Committee was in charge of the following in 2021 in particular:

Duties	Activity of the Nominating, Compensation and Corporate Governance Committee
Appointments	**Recurring topics** • submission to the Board of Directors of recommendations on the composition of the Board of Directors and its committees • annual review and submission to the Board of Directors of the list of directors who can be considered independent • annual review of the appointment process and succession plan for Executive Committee members, including monitoring of talent management and the progress of the Group's managers within the management bodies and submission of recommendations in this regard; preparation of the succession plan for the Chairman and Chief Executive Officer, notably in crisis situations • annual review of the Group's policy regarding diversity (of gender, nationality and skills) within the Board of Directors, management bodies and senior management, and validation of targets in this respect **Specific topics in 2021** • proposed appointment of Philippe Sauquet, independent director, to replace Alexandre de Juniac and fill his position as a member of the Nominating, Compensation and Corporate Governance Committee • proposed appointment of Ilse Henne, Thierry Pilenko and Bpifrance Investissement, represented by Sébastien Moynot, as directors and, respectively, a member of the Audit and Accounts Committee, Chairman of the Nominating, Compensation and Corporate Governance Committee, and a member of the Innovation and Sustainable Growth Committee • proposed appointment of Victoire de Margerie as Chairman of the Innovation and Sustainable Growth Committee and of Ian Hudson, FSP, represented by Isabelle Boccon-Gibod, Bpifrance Investissement, represented by Sébastien Moynot, and Jean-Marc Bertrand as committee members • proposed appointment of Hélène Moreau-Leroy, senior independent director, and Nathalie Muracciole, director representing employees, as members of the Nominating, Compensation and Corporate Governance Committee, with Nathalie Muracciole contributing to compensation matters only
Compensation	**Recurring topics** • review of the compensation of the Company's Executive Committee members, including any executive directors, as well as their pension schemes, death/disability insurance and benefits in kind • recommendations and proposals to the Board of Directors on the Group's policies on compensation, pension schemes and death/disability insurance, benefits in kind, and allocations of performance shares • definition of the criteria, characteristics and beneficiaries of performance share plans, and acknowledgment of the fulfillment of criteria • review of the principles for allocating compensation among members of the Board of Directors and the rules governing their expense reimbursements • preparation and submission to the Board of Directors of the reports provided for in the internal rules and, more generally, any documents required under the applicable regulations

Duties	Activity of the Nominating, Compensation and Corporate Governance Committee
Corporate governance	**Recurring topics** • review and analysis of the main changes to corporate governance principles and review of best practices • reparation of the annual assessment of the work of the Board of Directors and its committees • review of any conflicts of interest • review of any corporate governance or ethical issues referred by the Board of Directors or its Chairman for review • review of the Business Conduct and Ethics Code and proposal of modifications when necessary • review of the draft Board of Directors' report on corporate governance • review of feedback from governance roadshows • analysis of the annual reports of the AMF and the *Haut Comité de Gouvernement d'Entreprise* and of any new laws and regulations relating to corporate governance • updating of the Board's Internal Rules to reflect changes in the AFEP-MEDEF Code **Specific topics in 2021** • proposal to create the Innovation and Sustainable Growth Committee and set out its duties • proposal to have consulting firm Spencer Stuart perform an external assessment of the operating procedures of the Board and the committees

Since the beginning of 2022, the Nominating, Compensation and Corporate Governance Committee has met twice, with an attendance rate of 100%.

In addition to recurring topics such as the compensation of the Chairman and Chief Executive Officer, non-executive directors and the Executive Committee members, meetings also focused on:

- the planned share capital increase reserved for employees;
- the proposed share-based compensation policy as part of plans to ask the annual general meeting of 19 May 2022 to renew the Board of Director's authorization to grant performance shares for the period 2022-2024;
- the proposed reappointments of Philippe Sauquet, Fonds Stratégique de Participations, represented by Isabelle Boccon-Gibod, and Marie-Ange Debon; and
- the proposed candidacy of Nicolas Patalano, member of the Supervisory Board of the Arkema Actionnariat France FCPE, for the office of director representing shareholder employees.

In accordance with the AFEP-MEDEF Code and its internal rules, the Nominating, Compensation and Corporate Governance Committee conducts an annual self-assessment of its work or commissions an external consultant to perform this assessment, every three years as a rule. The assessment for 2021, which was carried out by Spencer Stuart as part of the overall assessment of Arkema's governance practices, showed that the committee members were very satisfied with meeting preparation and proceedings. For further details concerning the assessment of the operating procedures of the Board of Directors and its committees in 2021, see section 3.3.2.4 of this chapter.

3.3.4.3 The Innovation and Sustainable Growth Committee

At its meeting of 24 February 2021, the Board of Directors, on the proposal of the Nominating, Compensation and Corporate Governance Committee, decided to set up a new committee tasked with assessing the contribution of Arkema's strategy and innovation to environmental challenges and sustainable growth. This new committee will be effective from 20 May 2021.

Composition and operating procedures

The Innovation and Sustainable Growth Committee is made up of five directors: Victoire de Margerie (Chairman), Fonds Stratégique de Participations represented by Isabelle Boccon-Gibod, Ian Hudson, Bpifrance Investissement represented by Sébastien Moynot, and Jean-Marc Bertrand.

When deciding on the composition of this new committee, the Board of Directors took care to select from its members those directors with considerable experience in innovation and sustainable development. Key information on members can be found in section 3.3.4.3 of the 2020 Universal Registration Document.

The Innovation and Sustainable Growth Committee meets at least twice a year. It meets at the request of its Chairman, two of its members, or the Chairman of the Board of Directors. The annual schedule of these meetings is set by the committee Chairman during the prior year with one meeting in advance of the Board of Directors' meeting on innovation and the impact of the sustainable growth strategy, and another in the fourth quarter with a greater focus on environmental issues.

Its main points of contact in the Group are the head of R&D and the Sustainable Development Vice-President, as well as any manager within the Company who may have useful information or opinions. The Chairman and Chief Executive Officer may take part in the committee meetings as an invited member.

The Secretary of the committee is the Strategy Executive Vice-President.

Duties of the Innovation and Sustainable Growth Committee

As part of its duties, the Innovation and Sustainable Growth Committee was in charge of the following in 2021 in particular:

Duties	Activity of the Innovation and Sustainable Growth Committee
Innovation	**Recurring topics** • review and assessment of the strategic policies and options implemented by the Group in terms of R&D, and product-, process- and service-related innovation and, as the case may be, acquisitions of additional technologies • review of the competition's positioning with respect to these matters and assessment of the Group's ability to meet the needs of customers and application markets • review of changes in the law, regulatory requirements and societal expectations liable to have an impact on the Group's business portfolio
Sustainable growth	**Recurring topics** • assistance performing a full review of the Group's ESG and non-financial challenges, together with the Audit and Accounts Committee and the Nominating, Compensation and Corporate Governance Committee • analysis of how proposed programs contribute to (i) the Group's objectives in terms of environmental footprint reduction and climate action, (ii) more effective and responsible use of natural resources, and (iii) the circular economy • review of the Company's commitments and, more generally, the risks and opportunities connected with climate change **Specific topics in 2021** • presentation of five flagship projects and the prospects for Arkema's innovation portfolio

The Innovation and Sustainable Growth Committee has met once since it was set up, with a member attendance rate of 100%. During the meeting, the committee received a presentation on five flagship projects that illustrate Arkema's ambition to promote innovation as a way to continuously improve the Group's environmental footprint across the value chain, be it with customers, suppliers or partners. The committee also discussed focus areas in line with the duties assigned to it by the Board.

3.4 Compensation and benefits awarded to executives and directors

The following information is disclosed in application of articles L. 22-10-8 and L. 22-10-9 of the French Commercial Code, the recommendations of the AFEP-MEDEF Code, the recommendations of the *Haut Comité de Gouvernement d'Entreprise* in its activity report of November 2021, and AMF recommendation no. 2012-02 on corporate governance and executive compensation in listed companies referring to the AFEP-MEDEF Code – consolidated presentation of the recommendations contained in the AMF annual reports, as published on 2 December 2021.

The compensation policy described in this section – for non-executive directors (*i.e.*, excluding the Chairman and Chief Executive Officer) in section 3.4.1, and for the executive director in section 3.4.2 – will be submitted to the Shareholders' vote at the annual general meeting of 19 May 2022, under the 10th and 11th resolutions, respectively, in accordance with articles L. 225-98 and L. 22-10-32 of the French Commercial Code. For further details on the corresponding resolutions, see section 7.2.2 of this document. The policy will be published along with the results of the vote of the annual general meeting of 19 May 2022 on the Company's website at www.arkema.com.

Moreover, in accordance with the provisions of article L. 22-10-34, I and II of the French Commercial Code, the information disclosed in sections 3.4.1.2 and 3.4.2.2 together on one hand, and in section 3.4.2.2 of this chapter on the other hand, will be submitted to the shareholders' vote at the annual general meeting of 19 May 2022, under the 13th and 14th resolutions, respectively. For further details on the corresponding resolutions, see section 7.2.2 of this document.

The principles and rules for determining the compensation and benefits awarded to directors and the executive officer, whether they are directors or not, of the Company are set out by the Board of Directors based on recommendations of the Nominating, Compensation and Corporate Governance Committee.

As such, the compensation policy takes account of the best interests of the Company and its subsidiaries, the expectations of the shareholders, as well as the compensation and employment conditions of the employees of the Company and its subsidiaries, and contributes to the commercial strategy and sustainability of the Company and of the Group.

3.4.1 Compensation policy for non-executive directors

3.4.1.1 Compensation principles

The compensation of non-executive directors is reviewed every four years, at the end of the Company's Chairman and Chief Executive Officer's term of office as a director. It was last reviewed and adopted at the annual general meeting of 19 May 2020. This meeting also set the maximum annual amount of compensation that the Board of Directors may allocate between its members and those of the specialized committees at €800,000.

As announced in the press release published by the Company on 14 April 2020, the amount and the conditions of the allocation of the compensation applicable from 1 January 2021 is as follows, in line with the policy voted at the annual general meeting on 19 May 2020, for a four-year period and consequently unchanged for 2022:

- an annual fixed amount of €25,000 per director paid on a *pro rata* basis in the event of a change during the year; and
- a predominant variable amount based on directors' attendance, as follows:
  - €3,500 per director present at a Board of Directors' meeting, except for exceptional meetings held by conference call and of a shorter duration for which the variable amount is set at €1,750,
  - €2,500 per director present at a specialized committee meeting (excluding the chairman), except for exceptional meetings held by conference call and of a shorter duration for which the variable amount is set at €1,250, and
  - €5,000 per committee chairman present at a specialized committee meeting, except for exceptional meetings held by conference call and of a shorter duration for which the variable amount is set at €2,500.

The senior independent director receives additional annual fixed compensation of €10,000.

If this exceeds the maximum amount awarded for the year, the Board of Directors will scale back the compensation to comply with the overall limit.

In accordance with the recommendations of the AFEP-MEDEF Code, these allocation rules take account of the directors' membership of the Board of Directors and/or its committees, and their effective participation in meetings, by making the variable portion of their compensation predominant. The amounts allocated are adapted in accordance with the level of responsibility entrusted to directors and the time they must devote to their duties. The compensation and employment conditions of the Company's employees are also an integral part of the process for determining and revising the compensation policy and are taken into account when analyzing the consistency of the compensation structure in place. Compensation is also designed to comply with Group policy on preventing potential conflicts of interest between the directors and the Company.

The Chairman and Chief Executive Officer and directors exercising functions within a Group company do not receive any compensation for their duties as directors or committee members.

Pursuant to articles L. 225-18, L. 225-23 and L. 22-10-5 of the French Commercial Code, the term of office of directors appointed by the general meeting of the Company is four years and expires at the end of the ordinary general meeting called to approve the financial statements for the previous financial year and held in the year during which the term of office expires. Directors may be dismissed at any time by a general meeting of shareholders. The term of office of the director representing shareholder employees ends automatically and the director is assumed to have resigned if he or she is no longer an employee of the Company (or a Group company) or a shareholder of the Company (or member of a mutual fund that owns shares in the Company). The term of office of directors representing employees appointed in accordance with the provisions of article L. 225-27-1 of the French Commercial Code and the Company's Articles of Association, is also four years, expiring at the end of the first ordinary European Group Works Council meeting held after the ordinary annual general meeting of the year in which the term of office expires. A director representing employees is also assumed to have automatically resigned if he or she is no longer an employee of the Company or of one of its subsidiaries with its registered office in France.

Given the increasing number of Board and committee meetings over the past two years (see section 3.4.1.2 below), and to take into account the creation of the Innovation and Sustainable Growth Committee in 2021 and the growing number of ESG topics that may require this committee to meet more often than planned (currently at least twice per year), as well as the Group's M&A activity and all other exceptional events or circumstances that may give rise to more additional in-person or virtual Board meetings, the Board of Directors, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, has decided to ask shareholders to increase the current maximum annual compensation from €800,000 to €900,000. This proposal will be submitted to the annual general meeting to be held on 19 May 2022 (12th resolution). For further details on the corresponding resolution, see section 7.2.2 of this document.

3.4.1.2 Implementation of compensation policy for 2021

In accordance with the compensation policy set out in section 3.4.1.1 above, compensation awarded to non-executive directors for 2021 amounted to €683,750 (compared with €606,500 for 2020), allocated as indicated in the following table based on the attendance rates provided in section 3.3.2.3 of this document.

COMPENSATIONS RECEIVED BY NON-EXECUTIVE DIRECTORS (TABLE 3 OF AMF RECOMMENDATIONS)

	2021		2020	
(In euros)	Amounts awarded	Amounts paid [1]	Amounts awarded	Amounts paid
Yannick Assouad, director	23,000 [2]	36,750 [2]	50,500	47,250
Jean-Marc Bertrand, director representing shareholder employees [3]	None	None	None	None
Isabelle Boccon-Gibod, permanent representative of FSP, director	70,500	72,500	64,000	59,500
Marie-Ange Debon, director	79,750	88,250	76,000	71,500
Ilse Henne, director	52,500 [4]	31,500 [4]	-	-
Ian Hudson, director	70,500	72,500	64,000	59,500
Alexandre de Juniac, director	55,250 [5]	60,250 [5]	58,500	56,000
Victoire de Margerie, director	63,000	65,500	58,500	49,500
Laurent Mignon, director	47,750 [6]	85,500 [6]	47,500	41,500
Hélène Moreau-Leroy, senior independent director	72,250	79,250	74,000	69,500
Thierry Morin, director	34,750 [7]	54,000 [7]	66,000	65,500
Sébastien Moynot, permanent representative of Bpifrance Investissement, director	38,750 [8]	0 [8]	-	-
Nathalie Muracciole, director representing employees [3]	None	None	None	None
Marc Pandraud, director	24,750 [9]	47,500 [9]	47,500	43,000
Thierry Pilenko, director	41,250 [10]	0 [10]	-	-
Susan Rimmer, director representing employees [3]	None	None	None	None
Philippe Sauquet, director	9,750 [11]	-	-	-
TOTAL	**683,750**	**693,500**	**606,500** [12]	**563,000** [12]

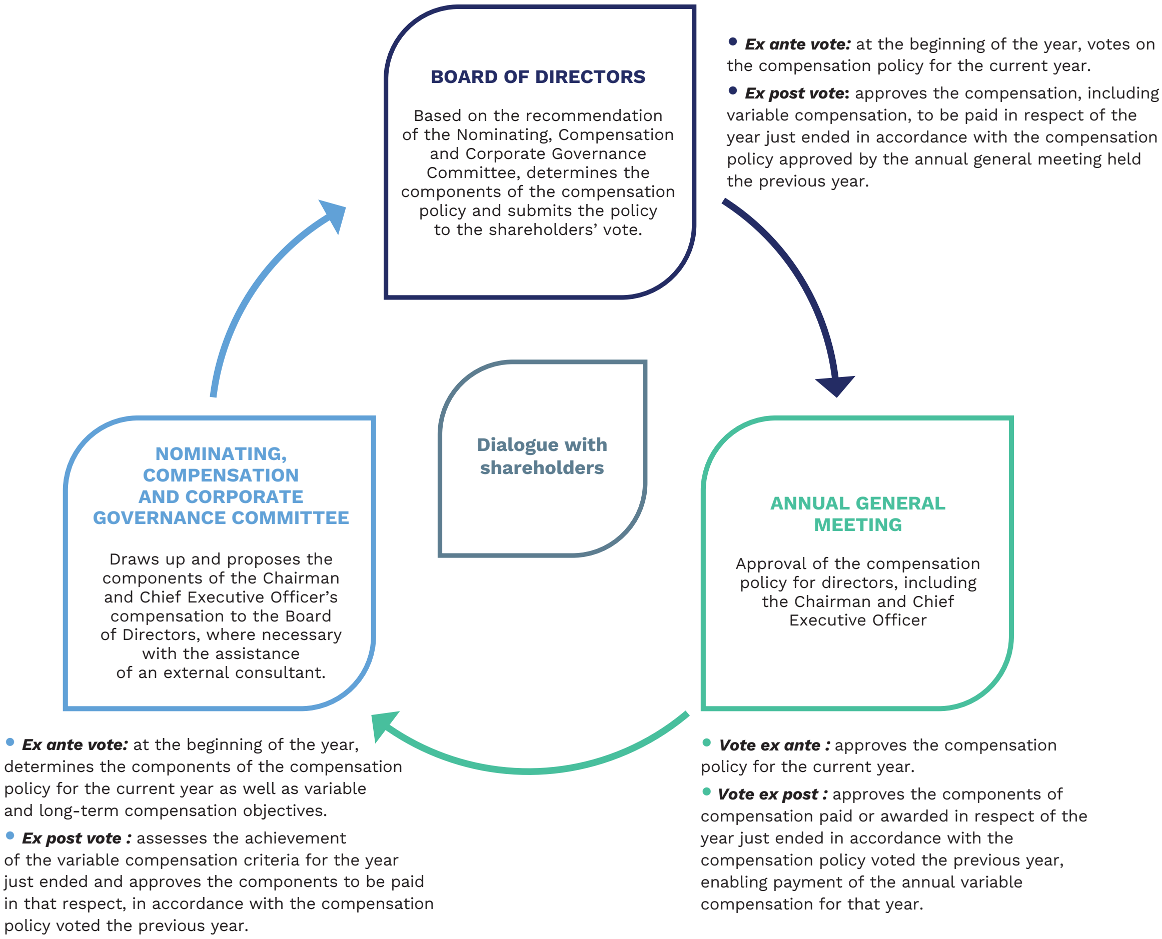
(1) Amounts paid in 2021 based on the payment arrangements for each of the directors.
(2) Yannick Assouad's term of office expired at the close of the annual general meeting of 20 May 2021.
(3) Jean-Marc Bertrand, Nathalie Muracciole and Susan Rimmer are on the payroll of Arkema France. They do not receive any compensation for their duties as director representing shareholder employees or directors representing employees.
(4) Ilse Henne has been a director of the Company since 20 May 2021.
(5) Alexandre de Juniac's term of office ended on 9 November 2021.
(6) Laurent Mignon received his full compensation for 2020 in the first quarter of 2021. He has opted to be paid by the quarter since April 2021.
(7) Thierry Morin's term of office expired at the close of the annual general meeting of 20 May 2021.
(8) Bpifrance Investissement, represented by Sébastien Moynot, has been a director of the Company since 20 May 2021.
(9) Marc Pandraud's term of office expired at the close of the annual general meeting of 20 May 2021. Marc Pandraud declined all amounts due to him in return for his work as a director of Arkema and requested that the Company donate his compensation to charity.
(10) Thierry Pilenko has been a director of the Company since 20 May 2021.
(11) Philippe Sauquet has been a director of the Company since 9 November 2021.
(12) This amount includes compensation paid to directors whose terms of office expired in 2020.

With the exception of Jean-Marc Bertrand, director representing shareholder employees, and Nathalie Muracciole and Susan Rimmer, directors representing employees, who are paid a salary by Arkema France, the non-executive directors received no other compensation or benefits in 2021 from the Company. Furthermore, no compensation other than that mentioned above and paid by the Company was paid to non-executive directors by other Group companies during the year.

3.4.2 Compensation policy for executive directors

At the date of this document, the Chairman and Chief Executive Officer is the Company's sole executive director.

The following diagram illustrates the discussion and decision process in order to determine and approve the compensation policy for the executive director and its implementation.



3.4.2.1 Compensation principles

The policy and principles governing the compensation of the Chairman and Chief Executive Officer are globally defined by the Board of Directors at each renewal of his term of office, *i.e.*, every four years, and for the duration of his term of office, on the proposal of the Nominating, Compensation and Corporate Governance Committee, if necessary with the assistance of external consultants whose objectivity has been verified. The Board of Directors conducts an overall assessment of the Chairman and Chief Executive Officer's compensation package, as well as a detailed review of its components, to ensure that the compensation package remains simple, easy to understand, balanced and consistent. In particular, it ensures that the compensation policy is aligned with the Group's medium- and long-term strategic priorities and that it reflects both the Group's financial performance and the Chairman and Chief Executive Officer's individual performance and responsibilities.

The Chairman and Chief Executive Officer does not take part in the discussions of the Nominating, Compensation and Corporate Governance Committee or those of the Board of Directors concerning his compensation.

The compensation policy takes account of the social interests of the Company and its subsidiaries, and contributes to the strategy of the Group in its commercial, industrial and R&D aspects and to the sustainability of Arkema, by allocating variable compensation, determined based on criteria that reflect in a significant manner: (i) the contribution to the Group's earnings of new developments, which promote innovation, the development of new products and the launch of new applications as well as the completion of major investment projects in line with the Group's targeted growth strategy, and (ii) the implementation of the Group's medium- and long-term strategy by the Chairman and Chief Executive Officer, in particular the evolution of the Group's profile, CSR issues and operational management.

The compensation policy for the Chairman and Chief Executive Officer aims to provide incentives and to secure loyalty, in accordance with market practice for equivalent positions in similar French and international chemical companies and in French companies with similar market capitalizations, and to align the compensation structure with those of such companies. The Board of Directors also takes into account the compensation and employment conditions of the employees of the Company, and in particular the equity ratios and the Group's earnings over the same period, as disclosed in section 3.4.2.2 of this document. It also ensures that this compensation policy is consistent with the policy applicable to all executives of the Group.

The compensation policy for the Chairman and Chief Executive Officer, which was amended upon Thierry Le Hénaff's reappointment as director in accordance with the principles summarized above, was thus approved at the annual general meeting of 19 May 2020. In accordance with the applicable laws, this unchanged policy will be submitted to the Shareholders' vote again at the annual general meeting to be held on 19 May 2022 (11th resolution). For further details on the corresponding resolution, see section 7.2.2 of this document.

Note that the policy and principles set out in this section have been defined for the position of Chairman and Chief Executive Officer, as exercised at the date of this document and based on the current business scope of the Group. Were the Chairman and Chief Executive Officer to be replaced during the year, for any reason whatsoever, the components and general principles of this policy would continue to be applicable. They may, however, be adjusted, in accordance with legal requirements, to reflect the duties and responsibilities of the new executive officer, as well as the circumstances in which he took up office.

SUMMARY OF THE COMPENSATION PRINCIPLES FOR THE EXECUTIVE DIRECTOR

Components of compensation	Objective	Components excluded from compensation and limits
Annual fixed compensation	Recognize and reward the responsibilities inherent in the position of Chairman and Chief Executive Officer and the exercise of his functions, taking into account the scope of the Group. It is determined based on the Group's profile, trends in employee compensation and benchmarking against the compensation paid to corporate executive officers of comparable industrial companies.	
Annual variable compensation	Incentivize, recognize and reward the achievement of financial and non-financial objectives in accordance with the Group's strategy and results.	Ceilings (1): • Target bonus: 120% of annual fixed compensation. • Maximum bonus: 180% of annual fixed compensation. No deferral of the allocation of variable compensation in the form of shares. No claw-back clause. No exceptional compensation.
Long-term compensation: performance shares	Incentivize and retain the executive director by aligning his interests to those of the Group and its shareholders.	Ceiling: 30,000 shares per year (36,000 in the event of outperformance).
Pension benefits	Enables to build up a supplementary pension as a replacement of the supplementary pension eliminated since 2016.	20% of total annual compensation (fixed and variable).
Severance payment	In the event of forced departure, grant a severance payment subject to performance conditions assessed over the three years preceding departure.	Capped at twice the annual fixed and variable compensation (2). Gradual reduction of the severance payment between the ages of 60 and 65. No severance payment due after the age of 65 or in the event of retirement at the same time as departure.
Non-compete benefit	In the event of departure, prevent the executive director from engaging in an activity that competes with Arkema's businesses, either on his own behalf or on behalf of another company, for a period of one year.	Monthly benefit for a maximum period of one year, corresponding to 100% of monthly compensation calculated by reference to fixed compensation in the year of departure and the average of the last two years of variable compensation paid prior to departure. If simultaneously applied with the severance payment, the cumulative amount may not exceed two years of fixed and variable compensation.
Other benefits • Company car • Executive officer unemployment insurance	Provide social protection.	

(1) Ceilings approved at the annual general meeting of 19 May 2020 for the executive director's new term of office. Due to the pandemic, the effective date was deferred until 1 January 2021 by decision of the Board of Directors and the Chairman and Chief Executive Officer.

(2) Capped at twice the annual fixed and variable compensation if combined with the non-compete benefit.

The Chairman and Chief Executive Officer's compensation is structured into clearly established components, each with a specific objective.

The compensation policy for the Chairman and Chief Executive Officer does not contain any claw-back clause.

Should the compensation policy referred to in this section not be approved by the annual general meeting, the compensation policy approved by the annual general meeting of 20 May 2021 (9th resolution) will continue to apply to the Chairman and Chief Executive Officer. For further details on the corresponding items, see section 7.2.2 of the 2020 Universal Registration Document.

Annual fixed compensation

In accordance with the AFEP-MEDEF Code, the annual fixed compensation is reviewed each time the Chairman and Chief Executive Officer's term of office is renewed, *i.e.*, once every four years. It is determined by taking into account the duties and responsibilities of the Chairman and Chief Executive Officer and changes in the Group's size and profile. In addition, it is benchmarked against the compensation level of chief executive officers of comparable industrial companies.

This compensation was last modified when the Chairman and Chief Executive Officer's term of office as director was renewed by the annual general meeting of 19 May 2020. It has amounted to one million euros (€1,000,000) per year since 1 January 2021, as the effective date of the increase in compensation was deferred in the context of the Covid-19 pandemic.

Annual variable compensation

Annual variable compensation is determined taking into account the achievement of specific, precise and demanding quantitative and qualitative targets aligned with the Group's strategy and priorities. These targets are set on an annual basis by the Board of Directors on a proposal of the Nominating, Compensation and Corporate Governance Committee. They are consistent with those defined for Executive Committee members and the Group's other executives. The amount of variable compensation is determined by the Board of Directors, on recommendations of the Nominating, Compensation and Corporate Governance Committee, after the closing of the year to which the compensation applies. For the quantitative targets, this assessment is based on pre-defined financial indicators and other figures at 31 December. Qualitative targets – which are also pre-defined – are assessed on the basis of the concrete achievements of the Chairman and Chief Executive Officer. The achievement rate for these targets is communicated, criterion by criterion, at the end of the Board of Directors' meeting held to review the performance of the Chairman and Chief Executive Officer. Outperformance on one criterion may not compensate for underperformance on another.

When the Chairman and Chief Executive Officer's term of office as director was renewed at the annual general meeting of 19 May 2020, the maximum amount of his annual variable compensation was increased to 180% of his annual fixed compensation in accordance with the compensation policy approved at that meeting.

The criteria adopted are as follows:

- three quantitative criteria for an overall target weighting of 90% and up to a maximum of 135% of annual fixed compensation (representing 75% of the criteria used to determine the variable compensation):
  - EBITDA, for an overall target weighting of 30% and up to a maximum of 45% of annual fixed compensation, which aligns the compensation of the Chairman and Chief Executive Officer with the annual financial performance of the Group and in particular rewards the success of the actions undertaken, the ability to adapt to changing market conditions and, more generally, the good management of the Group by the Chairman and Chief Executive Officer;
  - recurring cash flow, for an overall target weighting of 30% and up to a maximum of 45% of annual fixed compensation, which rewards the Group's ability to generate the necessary cash flow to finance its strategic ambitions and in particular its capital expenditure plans, acquisition program and dividend policy while maintaining a solid balance sheet; and
  - contribution of new developments to the Group's results, for an overall target weighting of 30% and up to a maximum of 45% of annual fixed compensation, which promotes innovation, the development of new customers and the launch of new applications, as well as the completion of major investment projects in line with the Group's targeted growth strategy.

  It should be noted that although the targets to be met are set out in detail and quantified on an annual basis, the amounts involved are not disclosed for confidentiality purposes, in particular with regard to competitors. However, the Group does disclose the achievement rates for each criterion every year; and
- qualitative criteria for an overall target weighting of 30% and up to a maximum of 45% of annual fixed compensation (representing 25% of the criteria used to determine the variable compensation). These criteria are defined precisely each year and are linked to the Group's priority areas, which involve the implementation of the Group's long-term strategy and its main priorities by the Chairman and Chief Executive Officer for one half, and the operational management of the Group for the other half, with one-third being quantifiable items for which precise targets have been set. They include non-financial criteria, some of which are quantitative, set in accordance with the Group's non-financial strategy as described in the non-financial information statement in section 4.1.4 of this document.

  The various indicators used to measure fulfillment of the performance criteria will be based on the annual consolidated financial statements published by Arkema in accordance with the international financial reporting standards (IFRS) applicable at the date on which the Board of Directors approved and defined the performance criteria.

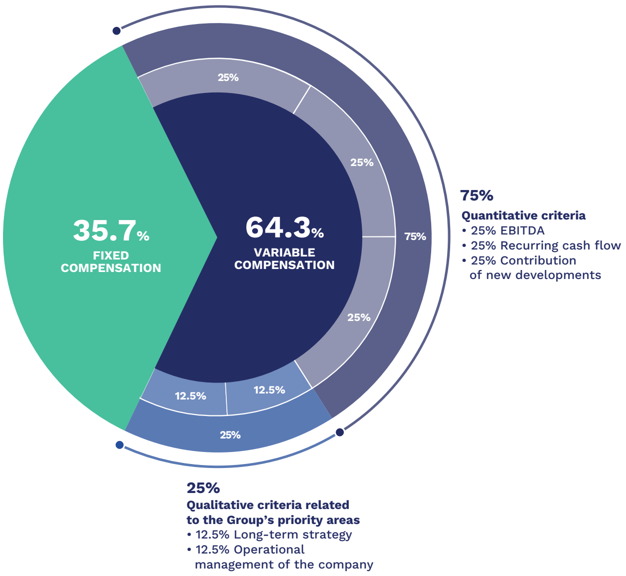
  With regard to the qualitative criteria used to determine variable compensation for 2022, the Board will pay particular attention to:

  - in terms of long-term strategy: the continued transformation of the Group's profile in accordance with the 2024 strategy published in April 2020 with a focus on short- and medium-term innovation in major areas of sustainable development in line with the announcement of €1.5 billion in additional sales from the five platforms in 2030 compared with 2019, as well as with the announcement of €1 billion in sales in batteries in 2030, a continued focus on small bolt-on acquisition operations (at least three per year), as well as progress on the strategic review of fluorogases, the launch, on time and on budget, of major industrial projects such as PA 11 in Singapore and hydrofluoric acid with Nutrien, as well as progress in other major industrial and commercial focus areas not yet shared publicly; and
  - in terms of operational management of the company: the consolidation of workstation safety performance and cybersecurity at the current very high levels (TRIR = 1), as well as continued progress on process safety events with a PSER of 2.8 in 2022, continued deployment of the CSR roadmap, particularly on carbon performance and the circular economy (product portfolio assessment and life cycle analysis), as well as continued inclusion in the DJSI

index, tight control over costs, capex and working capital in an environment that remains volatile, and stronger talent management worldwide in line with 2030 targets for international experience and representation of women and the development of a talent pool to address future successions.

In accordance with the provisions of article L. 22-10-8 of the French Commercial Code, the payment of this annual variable compensation is subject to the approval by the annual general meeting of the Chairman and Chief Executive Officer's compensation components in accordance with the conditions provided for under articles L. 225-100 and L. 22-10-34 of said code.

The allocation of fixed and variable compensation (based on the maximum variable compensation) for 2022 is as follows:



Long-term compensation: performance shares

Like a number of Group employees, the Chairman and Chief Executive Officer receives an annual award of performance shares that directly links a significant portion of his compensation to the long-term performance of the Company and the Group and helps to align his interests with the best interests of the Company and its subsidiaries and the interests of shareholders.

The number of shares allocated each year is reviewed every time the Chairman and Chief Executive Officer's term of office is renewed, *i.e.*, once every four years, as part of the overall review of his compensation structure. The award comprises a fixed number of shares per performance share plan set for the duration of his term of office, taking into account, as for the annual fixed compensation, the grantee's duties and responsibilities and changes in the Group's size and profile and its proportion of the total compensation of the Chairman and Chief Executive Officer.

At its meeting of 26 February 2020, in the context of the renewal of his term of office as a director, the Board of Directors confirmed that 30,000 performance shares were to be awarded to the Chairman and Chief Executive Officer by virtue of each performance plan, which, based on fair value at the date of renewal of his term of office and a maximum allocation of 120% (*i.e.* 36,000 shares), represents approximately 70% of the new base salary (fixed compensation plus maximum variable compensation) and approximately 45% of his total compensation package. The maintaining of a fixed number of shares each year enables to avoid the deadweight effect related to stock volatility and the reward of sustainable value creation.

In accordance with the law, the AFEP-MEDEF Code and market recommendations:

- performance shares awarded to the Chairman and Chief Executive Officer only vest subject to a condition of presence and to performance conditions assessed over a period of three years, which is followed by a two-year holding period, *i.e.*, a total vesting-holding period of five years;
- since 2016, the shares awarded to the Chairman and Chief Executive Officer as part of annual performance share plans may not exceed 10% of all shares awarded in any one year;
- the Chairman and Chief Executive Officer is required to retain a number of Arkema shares – either granted or otherwise acquired – equivalent to 250% of his gross annual fixed compensation; and
- in the event of forced departure, and excluding cases of dismissal for serious or gross misconduct or resignation, the Chairman and Chief Executive Officer will continue to be entitled to the shares awarded at the date of termination of his duties and which have not vested on that date – in principle on a *pro rata* basis – based on a reasoned decision of the Board of Directors. The vesting rate will be subject to fulfillment of the performance conditions set out in the plans concerned. Under no circumstances may the Board decide to accelerate the vesting of the said shares.

In line with the Group's long-term objectives for 2024, which were published at the time of the Capital Markets Day on 2 April 2020, and with Arkema's ambition to become a pure player in Specialty Materials, the Board of Directors decided to maintain the same performance criteria for the 2021 plan as those applied in 2020, with the same weighting of 20% of the total award per criterion, as follows:

- EBITDA margin for the Specialty Materials platform;
- EBITDA to cash conversion rate;
- comparative Total shareholder Return (TSR), which helps benchmark the Arkema share performance against a peer Group by factoring in both changes in share price and dividends. This criterion helps align even more closely the interests of beneficiaries with those of shareholders. The composition of the peer Group is verified each year by the Board of Directors and may evolve to take account of changes in the competitive landscape;
- return on average capital employed for the Specialty Materials platform, which helps assess the profitability of investments made in the platform and therefore the Group's discipline in selecting its investments and using its resources, as well as its ability to create value over the long term; and

- CSR performance, which confirms the importance given by the Group to its social commitments, particularly in terms of: (i) environment, measured by two indicators – reduction in the environmental footprint (climate) and non-renewable resources management (water withdrawals) as a proportion of the Group's sales, (ii) safety (TRIR) and (iii) diversity (percentage of women in senior management and executive positions).

The performance criteria for the vesting of the performance shares awarded to the Chairman and Chief Executive Officer are thus aligned with the Group's long-term objectives announced for 2024.

Taking into account all five criteria and the reward for outperformance if the Group significantly exceeds its targets, the overall vesting rate may represent up to a maximum of 120% of the initial award in order to reward outperformance more effectively. However, the Board of Directors has decided that, starting with the 2021 plan, the vesting rate for each criterion will be capped at 100% when the achievement rate for two or more criteria is strictly below 50%.

The targets set for these criteria are fully consistent with the medium and long-term targets announced to the financial market and are similar to the internal targets.

The details of these criteria as defined for the 2021 performance share plan are presented by way of example in section 3.5.1 of this chapter.

In accordance with the recommendations of the AFEP-MEDEF Code, each year the Chairman and Chief Executive Officer formally undertakes not to use any financial instruments to hedge the risk of losses on the performance shares that he has been awarded by the Company during his term of office as Chairman and Chief Executive Officer and as long as he remains in office. Furthermore, in accordance with the law and the AFEP-MEDEF Code, the Chairman and Chief Executive Officer is subject to an additional requirement to retain the shares awarded.

Pension benefits

Since June 2016, when the supplementary defined benefit pension scheme governed by article L. 137-11 of the French Social Security Code (*Code de la sécurité sociale*), from which the Chairman and Chief Executive Officer had benefited since 2006, was terminated, Thierry Le Hénaff has received an additional monthly payment corresponding to 20% of his total fixed and variable compensation for the year concerned, to enable him to build up his supplementary retirement benefits year after year.

Thierry Le Hénaff has committed to invest this amount, net of any contributions and tax, in savings vehicles dedicated to financing his supplementary retirement benefits.

Severance payment

The Chairman and Chief Executive Officer is entitled to a severance payment, the terms of which were changed when he was re-elected at the annual general meeting of 19 May 2020 for the duration of his term of office. A severance payment will be due in the event of his forced departure, regardless of the form this departure takes and notably in the event of removal before the end of his term of office due to a change in control or strategy. It is not due in the event of non-renewal of his term of office, serious misconduct (*i.e.*, willful wrongdoing that prevents him from continuing as a corporate officer) or gross misconduct (*i.e.*, willful wrongdoing committed with intent to harm the Company) nor in the event of resignation.

The severance payment shall not exceed twice his total annual gross fixed and variable compensation. The calculation base would correspond to the fixed annual compensation for the year in which he was forced to step down and the average of the last two years of variable compensation paid prior to his departure.

The amount of this severance payment would be calculated based on the achievement of three demanding conditions and applicable for the duration of the term of office. Each condition accounts for one-third of the amount of the payment:

- TRIR: average TRIR (total recordable injury rate) for the three years preceding departure would have to be less than or equal to 1.4, making Arkema a leader for the industry as a whole;
- annual variable compensation: on average, the annual variable compensation paid during the three years preceding departure would have to be at least 75% of the target variable amount; and
- EBITDA to cash conversion rate (defined as free cash flow excluding exceptional capital expenditure divided by EBITDA): the EBITDA to cash conversion rate must be greater than or equal to 35%. The achievement rate will be determined using the average conversion rate for the three years preceding departure.

In accordance with the AFEP-MEDEF Code's recommendations concerning the accumulation of the severance payment and supplementary pension benefits, the severance payment that would be payable beyond the age of 60 will be reduced as follows:

- 18 months of total annual gross compensation (fixed and variable) in the event of departure beyond the age of 60; and
- 12 months of total annual gross compensation (fixed and variable) in the event of departure beyond the age of 62 years and 6 months.

No compensation would be paid in the event of departure beyond the age of 65.

Non-compete clause

In the context of the re-election of Thierry Le Hénaff as director, the Board of Directors considered that, due to his extensive knowledge of the chemicals industry and new corporate social responsibility issues, it was in the interests of Arkema and its shareholders to subject Thierry Le Hénaff to a non-compete clause, in accordance with the legal provisions and recommendations of the AFEP-MEDEF Code. As a result, in the event of termination of office as Chairman and Chief Executive Officer, for whatever reason, he will be bound by a non-compete obligation, limited to a period of one year from the effective date of termination of office.

The purpose of this non-compete clause which was approved by the annual general meeting dated 19 May 2020, is to prohibit Thierry Le Hénaff, in consideration of an indemnity to be paid to him under the conditions set out below, for a period of one year from the effective date of termination of office, from engaging, directly or indirectly, in an activity that competes with Arkema's businesses, either on his own behalf or on behalf of another company. An activity that competes with Arkema's businesses means any specialty chemicals activity carried on in the same geographic regions and sectors as those of the Arkema Group when the term of office ends.

In consideration of the non-compete undertaking, and throughout the term of the agreement, Thierry Le Hénaff will receive a monthly indemnity equal to 100% of his monthly compensation calculated based on the sum of his fixed compensation for the year in which his term of office ended and the average of his annual variable compensation paid for the last two years prior to the effective termination date. A monthly payment will be made throughout the period of this non-compete agreement.

Any breach of this non-compete obligation will require Thierry Le Hénaff to repay the monthly indemnities he has already received and the Company will no longer be liable to pay the remaining indemnities through to the end of the one-year period.

The Board of Directors may decide to waive this non-compete clause up to the effective date of termination of Thierry Le Hénaff's office at the latest. In such an event, he would no longer be bound by the constraints of the non-compete clause referred to above and the Company would be released from any commitment to pay him a non-compete compensation.

It should be noted that Thierry Le Hénaff will only be entitled to this indemnity if his departure is not concomitant with his retirement. Moreover, Thierry Le Hénaff will not be entitled to the indemnity once he reaches the age of 65. In these two cases, Thierry Le Hénaff will be released from his obligations.

Lastly, in accordance with the recommendations of the AFEP-MEDEF Code, in the event of the simultaneous application of the severance payment and the non-compete compensation, the cumulative amount of these indemnities will not exceed two years of fixed and variable compensation (as defined above).

Other benefits

The Chairman and Chief Executive Officer has the use of a company car and is covered by corporate officer unemployment insurance.

He is also covered by the same Group personal risk and health insurance plan as all Company employees.

Exceptional compensation

Should a new executive director be appointed following an external recruitment process, the Board of Directors may, if necessary, in accordance with the provisions of the AFEP-MEDEF Code and on recommendations of the Nominating, Compensation and Corporate Governance Committee, decide to grant him/her exceptional compensation, mainly in the form of long-term compensation subject to performance conditions and arrangements that guarantee his/her attachment to the Company, in order to compensate him/her for any compensation lost as a result of accepting this new position. If this were to happen, the Company would disclose precise information concerning the amount and form of this compensation.

The Boards' discretionary powers in case of exceptional circumstances

On recommendation of the Nominating, Compensation and Corporate Governance Committee, for 2021, the Board of Directors decided that it shall have the possibility to modify some performance criteria attached to the annual variable compensation or long-term compensation (performance shares) of the Chairman and Chief Executive Officer and/or modify, upward or downward, one or several parameters attached to these criteria (weighting, triggering threshold, objectives, targets, etc.). In this respect, it is specified that the qualitative criteria must always remain linked to the implementation of the Group's long-term strategy and main priorities by the Chairman and Chief Executive Officer for one half, and to the operational management of the Group for the other half, with non-financial performance included in these criteria.

This possibility may be used by the Board of Directors only in exceptional circumstances external to Arkema, not taken into account by the criteria or parameters initially determined in the present compensation policy for the annual variable compensation and long-term compensation in performance shares, that would have a significant impact on the Company's performance, and could not be foreseen at the time when the Board determined the present compensation policy to be submitted to the annual general meeting (including any new development in the Covid-19 crisis that might be described as such).

In any event, these adjustments or modifications shall not have the effect of modifying the maximum weighting of the quantitative criterion or qualitative criterion of the annual variable compensation, nor of increasing the maximum number of shares that may be definitely acquired at the end of the annual performance share plans.

The purpose of these adjustments or modifications must be to better reflect the actual performance of the Chairman and Chief Executive Officer, taking into account the circumstances that led to the use of this possibility, in the application of the compensation policy. In this context, the Board of Directors will be particularly vigilant to ensure that any changes made are fully correlated to the Group's performance given the circumstances, the benefits received by shareholders, and the situation of stakeholders.

The Board of Directors will take its decision on the recommendation of the Nominating, Compensation and Corporate Governance Committee and will have to justify it in light of the circumstances that led to the use of this possibility and in light of the alignment with the interests of shareholders. Any use of this possibility, which does not constitute a departure from the compensation policy within the meaning of article L. 22-10-8 III, paragraph 2 of the French Commercial Code, will be made public by the Board of Directors.

3.4.2.2 Implementation of the compensation policy for 2021

The Chairman and Chief Executive Officer's total compensation for 2021 was determined in accordance with the compensation policy approved at the annual general meeting of 19 May 2020. Its effective date was then deferred to 1 January 2021 and confirmed at the annual general meeting of 20 May 2021 (9th resolution). A significant portion of the Chairman and Chief Executive Officer's total compensation is subject to the achievement of quantitative, quantifiable and qualitative targets in line with the Company's strategy, thereby contributing to the Company's long-term performance. The achievement of these targets was duly noted by the Board of Directors at its meeting of 23 February 2022. The performance criteria are applied in accordance with the methodology described in section 3.4.2.1.

The Chairman and Chief Executive Officer does not receive compensation from any company included in Arkema's scope of consolidation within the meaning of article L. 233-16 of the French Commercial Code.

Equity ratios between the compensation of the Chairman and Chief Executive Officer and the average and median compensation of the Company's employees

Equity ratios were calculated based on the compensation multiples guidelines updated by AFEP in February 2021, and based on the following elements:

- employees' compensation consists of the sum of gross compensation, employer's contributions, employee savings schemes (profit-sharing and matching contributions) and performance shares. It concerns all compensation paid or awarded during the year;

- the Chairman and Chief Executive Officer's compensation consists of the sum [(1)] of his fixed compensation, variable compensation paid during the year (due in respect of the previous year), employer's contributions, all exceptional compensation, and any benefits in kind and performance shares. It includes all components of compensation paid or awarded during the year; and
- insofar as the Company does not have a significant number of employees, the scope of comparison used comprises the Company, Arkema France and Bostik SA – which together accounted for 92% of the Group's French workforce at end-2021 – for 2017 to 2021.

The following table presents the results of calculations for the scope of comparison, as well as for the Company, which in principle is the only Group entity covered by the legal requirement. These ratios cannot be monitored at global Group level due to structural pay differences between countries where the Group operates and has employees.

TABLE OF RATIOS REQUIRED BY ARTICLE L. 22-10-9 OF THE FRENCH COMMERCIAL CODE

	2021	2020	2019	2018	2017
% change in the compensation of Thierry Le Hénaff, Chairman and Chief Executive Officer	+17%	-9%	-3%	+6%	+22%
Information based on the scope of the listed company					
% change in the **average compensation** of employees	+4%	+6%	-3%	-5%	+23%
Ratio compared with the average compensation of employees	3	3	4	4	3
% change in the ratio compared with previous year	0%	-25%	0%	+33%	0%
Ratio compared with the **median compensation** of employees	3	3	3	3	3
% change in the ratio compared with previous year	0%	0%	0%	0%	0%
Information based on the enlarged scope*					
% change in the **average compensation** of employees	+1.9%	+1.9%	+0.3%	+2.7%	+1.4%
Ratio compared with the average compensation of employees	56	49	54	56	54
% change in the ratio compared with previous year	+14%	-9%	-4%	+4%	+20%
Ratio compared with the **median compensation** of employees	67	58	64	66	64
% change in the ratio compared with previous year	+16%	-9%	-3%	+3%	+21%
Performance of the Company					
Free cash flow *(in €m)*	479	651	667	499	565
% change compared with previous year	-26.4%	-2.4%	+33.7%	-11.7%	+32.6%
Net income – Group share *(in €m)*	1,309	332	543	707	576
% change compared with previous year	294.4%	-38.9%	-23.2%	+22.7%	+34.9%
Net dividend per share paid in respect of year N *(in €)*	3.00**	2.50	2.20	2.50	2.30
% change compared with previous year	+20%	+13.6%	-12.0%	+8.7%	+12.2%

* *2021, 2020, 2019, 2018 and 2017: Arkema, Arkema France and Bostik SA.*
** *Dividend subject to approval at the annual general meeting of the Company's shareholders (3rd resolution). For further details, see section 7.3 of this document.*

Performance shares – which only vest upon achievement of demanding performance criteria – have a material impact on the value of multiples. By way of illustration, excluding performance shares at "fair value" in accordance with IFRS 2, the 2021 multiples would come to 37 (median) and 32 (average), very close to the 2020 figures, despite the new compensation policy for the Chairman and Chief Executive Officer taking effect as of 1 January 2021.

Between 2017 and 2021, the compensation of the Chairman and Chief Executive Officer, comprising the fixed portion, the variable portion and performance shares, increased by 6% a year on average.

Over the same period, at Arkema France – which represents 78% of the Group's French workforce – annual salary measures (both general and individual increases) corresponded to an increase of almost 11%.

In accordance with articles L. 22-10-34, II and L. 22-10-9, I of the French Commercial Code, the information provided in this section and in section 3.4.1.2 above is subject to the approval of the Company's shareholders at the annual general meeting of 19 May 2022 (13th resolution). For further details on the corresponding resolution, see section 7.2.2 of this document.

Components of the compensation due or awarded to the Chairman and Chief Executive Officer for 2021 submitted to a shareholder vote

In accordance with the provisions of article L. 22-10-34, II of the French Commercial Code, the following presentation of the components of compensation due or awarded to Thierry Le Hénaff, Chairman and Chief Executive Officer of the Company, for the year ended 31 December 2021, is submitted to the Shareholders' vote at the annual general meeting of 19 May 2022 (14th resolution).

(1) *For further details about the amounts of the various components of compensation paid or awarded, see sections 3.4.2.2 of this document and the 2020 Universal Registration Document and sections 3.4.2.2.2 of the 2017, 2018 and 2019 Reference Documents.*

In 2021, annual fixed compensation amounted to €1,000,000 and, for the first time this year after being deferred due to the Covid-19 pandemic, the maximum achievable amount of annual variable compensation was 180% of annual fixed compensation, in compliance with the compensation policy approved by the annual general meeting of 19 May 2020 and confirmed by the annual general meeting of 20 May 2021.

Components of compensation submitted to a shareholder vote	Amounts paid during 2021	Amounts awarded for the 2021 financial year or accounting valuation	Presentation
Fixed compensation	€1,000,000	€1,000,000	In the context of the reappointment of Thierry Le Hénaff as director, approved at the annual general meeting of 19 May 2020, his annual fixed compensation was set at €1,000,000 per year as of 1 January 2021 for the duration of his term of office.
Annual variable compensation	€992,456	€1,800,000	The maximum achievable amount of variable compensation due in respect of 2021 was 180% of annual fixed compensation. The Board of Directors set the amount of variable compensation due in respect of 2021 based on the achievement of specific, precise and demanding quantitative and qualitative targets approved by the Board of Directors at its meeting on 24 February 2021, as follows: • **concerning the three quantitative criteria** linked to the Group's financial performance, the achievement rates in relation to the maximum of each sub-criterion were as follows: • 100% for EBITDA, whose average maximum weighting represents 45%, and which reached €1,727 million in 2021, a historic high, in a complex and demanding operating environment throughout a year marked by logistics disruptions, difficulties sourcing certain raw materials and high inflation in raw materials, energy and transportation costs. This very good performance, well above the guidance issued at the start of the year, was driven by a significant 7.3% growth in volumes and a marked increase in selling prices to offset high inflation. It also reflects an improvement in the product mix and a tight acrylics market. Specialty Materials delivered an excellent performance with strong growth in each segment and EBITDA of €1,503 million, up by 47.6% compared with 2020 (€1,018 million) and by 29.8% compared with 2019, the baseline year, • 100% for recurring cash flow, whose average maximum weighting represents 45%. Recurring cash flow in 2021 amounted to a particularly high €756 million (free cash flow adjusted for exceptional capex and non-recurring items), leading to an EBITDA to cash conversion rate of 43.8%, in line with the long-term target of 40%. This achievement reflects the Group's excellent operating performance and the increase in working capital, which nevertheless remains tightly controlled at 12.7% of sales, despite a context of strong growth in business and significant raw materials inflation. In addition, the increase in taxes paid is in line with the Group's improved operating performance, and recurring capital expenditure, at 5.3% of sales, is above the target of maintaining this metric at around 5.5%. This cash generation helped reduce the Group's net debt to around €1,177 million (including hybrid bonds), representing 0.7 x annual EBITDA, • 100% for the criterion of new developments, whose average maximum weighting represents 45%. As it does every year, the Board of Directors took into account the commercial success of the main innovation platforms, assessed using a reporting table that tracks the evolution of the margin on variable costs of various pre-defined products, the development of (also pre-defined) new customers, growth in emerging geographies, and the introduction of new applications over the year. For 2021, the Board noted the following more significant developments in particular: batteries, for which sales are up sharply, as well as 3D printing, additives for the solar industry, resins for paints, high performance adhesive powders for solar power, developments in sports including bio-based Pebax for sports shoes, and electronic applications. The variable compensation due in respect of the quantifiable criteria thus amounted to 135% of the annual fixed compensation; and

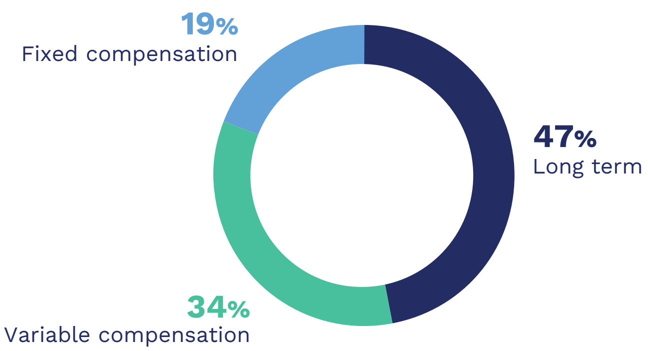
Components of compensation submitted to a shareholder vote	Amounts paid during 2021	Amounts awarded for the 2021 financial year or accounting valuation	Presentation
			• **concerning the qualitative criteria**, whose average maximum weighting represents 45% and which involved the implementation of the Group's strategy and main operational priorities for one half and operational management components for the other half, the notable achievements include: • regarding the implementation of the Group's strategy and main operational priorities: 2021 saw the continued transformation of the Group's profile in accordance with the 2024 strategy published in April 2020 with a focus on short- and medium-term innovation in major areas of sustainable development with significant success and progress and the announcement of a sales target of €1 billion in batteries by 2030, a continued focus on M&A operations, in particular with the finalization of the PMMA divestment, the signing of the acquisition of Ashland's performance adhesives business and the continuation of small bolt-on acquisitions (Permoseal and Agiplast), progress in major industrial projects such as PA 11 in Singapore and hydrofluoric acid with Nutrien, on schedule and on budget despite a complicated health context, as well as the continuation of the strategic review of fluorogases and fluorospecialties. At end-2021, based on pro forma figures, the Specialty Materials platform accounted for 88% of Group sales compared with 82% at end-2020, • regarding operational management components, one-third of which were quantifiable: the consolidation of workstation safety performance at the excellent 2020 level with a TRIR of 1 accident per million hours worked and a particular focus on process safety with a sharp drop in the PSER from 4 to 3.1 as well as on cybersecurity with no notable incidents, the continuation of Bostik's integrated organization and administrative process reliability drive and the ramp-up of cross-functional initiatives (commercial excellence, cybersecurity, digitization and data management). The Board also acknowledged the continued deployment of the CSR roadmap, with Arkema's rise in the DJSI index to third place in the "Chemicals" category (*vs.* sixth in 2020) and inclusion in the new CAC 40® ESG index, once again representing major recognition of the progress achieved by Arkema, the advances made in systematically evaluating its portfolio in light of sustainability criteria, as well as the progress recorded in several non-financial performance indicators in line with its long-term targets, such as the sustainable solutions offering as well as the reduction in greenhouse gas emissions, which have decreased by 10% (scope excluding PMMA) ahead of the WB 2 degrees trajectory, and emissions to water. Lastly, the Board noted Arkema's dynamic corporate governance with, in particular, changes to the composition of the Board of Directors and its committees and the creation and initial work of the new Innovation and Sustainable Growth Committee, as well as progress in talent management initiatives, with greater diversity within the Group management committee and the development of mobility processes and succession plans. In light of all of these achievements, and the manner in which the Group was able to adapt to the challenging and volatile circumstances of 2021, marked by very high inflation in raw materials, energy and logistics costs as well as supply chain disruptions and the health crisis, the achievement rate of these criteria was set at 100%. Consequently, the average variable compensation due in respect of qualitative criteria was set at 45% of the annual fixed compensation. In total, the variable compensation for 2021 amounts to €1,800,000, *i.e.*, 100% of the maximum. It represents 180% of the 2021 annual fixed compensation. The payment of this annual variable compensation is subject to the approval by the annual general meeting of 19 May 2022 of the Chairman and Chief Executive Officer's compensation components, in accordance with the conditions provided for under article L. 22-10-34, II of the French Commercial Code (14th resolution). The compensation would only be paid after this date. As a reminder, variable compensation for 2020 amounted to €992,456, i.e., 73% of the maximum.

Components of compensation submitted to a shareholder vote	Amounts paid during 2021	Amounts awarded for the 2021 financial year or accounting valuation	Presentation
Deferred variable compensation	N/A	N/A	Thierry Le Hénaff receives no deferred variable compensation.
Exceptional compensation	N/A	N/A	Thierry Le Hénaff receives no exceptional compensation.
Compensation for serving as a director	N/A	N/A	Thierry Le Hénaff receives no compensation from Arkema for serving as a director.
Stock options	N/A	N/A	Thierry Le Hénaff does not receive any stock options.
Performance shares	N/A	€2,457,300	Making use of the authorization granted by the annual general meeting of 21 May 2019 (13th resolution), at its meeting of 9 November 2021, the Board of Directors awarded 30,000 performance shares (representing 0.04% of share capital) to Thierry Le Hénaff (out of a total of 364,288 shares granted to 1,532 grantees, representing less than 10% of the performance share grant taking into account the eventual outperformance). The shares will vest at the end of a three-year period subject to a presence condition and if the following five performance targets are met: EBITDA margin for the Specialty Materials platform, EBITDA to cash conversion rate, comparative Total Shareholder Return, return on average capital employed for the Specialty Materials platform and Arkema's CSR performance (comprising four indicators: Climate and non-renewable resources management (40%), TRIR (30%) and percentage of women in senior management and executive positions (30%). Each criterion is applied to 20% of the awarded rights. The vesting period is followed by a two-year mandatory holding period. Further details on the criteria may be found in section 3.5.1 of this chapter. In the event of outperformance, and pursuant to the aforementioned performance conditions set out in section 3.5.1 of this chapter, this award could rise to 36,000 shares, or 120% of the maximum awarded.
Pension	€378,491	€560,000	Since 7 June 2016, when the supplementary defined benefit pension scheme (governed by article L. 137-11 of the French Social Security Code) from which he benefited was terminated, Thierry Le Hénaff benefits from an additional annual payment corresponding to 20% of his total fixed and variable compensation for the year concerned, to enable him to build up his supplementary retirement benefits, year after year. Thierry Le Hénaff has committed to invest this entire amount, net of any contributions and tax, in savings vehicles dedicated to financing his supplementary retirement benefits.
Benefits in kind	N/A	€6,720	Thierry Le Hénaff has the use of a company car.
Components of compensation paid or awarded for 2021 already approved by the annual general meeting			
Severance payment	*No payment* (1)		*Thierry Le Hénaff is entitled to severance payment in the event of his forced departure. The amount is calculated by reference to the achievement of three demanding conditions set by the Board of Directors and approved by the annual general meeting (TRIR – total recordable injury rate, annual variable compensation, and EBITDA to cash conversion rate) and cannot exceed twice his total annual gross fixed and variable compensation. The calculation base is the fixed annual compensation for the year in which the forced departure occurs and the average of the last two years of variable compensation paid prior to departure.* *The amount of the payment is calculated based on three demanding conditions, each accounting for one-third of the total:* • *TRIR: average TRIR (total recordable injury rate) for the three years preceding departure would have to be less than or equal to 1.4, making Arkema a leader for the industry as a whole;* • *annual variable compensation: on average, the annual variable compensation paid during the three years preceding departure would have to be at least 75% of the target variable amount;* • *EBITDA to cash conversion rate (defined as free cash flow excluding exceptional capital expenditure divided by EBITDA) the EBITDA to cash conversion rate must be greater than or equal to 35%. The achievement rate will be determined using the average conversion rate for the three years preceding departure.*

(1) *Estimate of the amounts payable at 31 December 2021, in a theoretical case of forced departure, in accordance with the provisions of article L. 22-10-9, I, 4° of the French Commercial Code: €4,792,456.*

Components of compensation submitted to a shareholder vote	Amounts paid during 2021	Amounts awarded for the 2021 financial year or accounting valuation	Presentation
			In addition, the Board of Directors has decided to gradually reduce the maximum termination indemnity that would be payable to 18 months of total annual gross compensation (fixed and variable) in case of a departure beyond 60 years of age, and 12 months of total annual gross compensation (fixed and variable) beyond 62-and-a-half years of age. No compensation would be paid in the event of departure beyond the age of 65.
Non-compete compensation	*N/A*		*Thierry Le Hénaff is subject to a non-compete clause, in accordance with the legal provisions and recommendations of the AFEP-MEDEF Code, whereby, in the event of termination of his office as Chairman and Chief Executive Officer, for whatever reason, he will be bound by a non-compete obligation, limited to a period of one year from the effective date of termination.* *The purpose of this non-compete clause is to prohibit Thierry Le Hénaff, in consideration of an indemnity to be paid to him under the conditions set out below, for a period of one year from the effective date of termination of office, from engaging, directly or indirectly, in an activity that competes with Arkema's businesses, either on his own behalf or on behalf of another company. An activity that competes with Arkema's businesses means any specialty chemicals activity carried on in the same geographic regions and sectors as those of the Arkema Group when the term of office ends.* *In consideration of the non-compete undertaking, and throughout the term of the agreement, Thierry Le Hénaff will receive a monthly indemnity equal to 100% of his monthly compensation calculated based on the sum of his fixed compensation for the year in which his term of office ended and the average of his annual variable compensation paid for the last two years prior to the effective termination date. A monthly payment will be made throughout the period of this non-compete agreement.* *Any breach of this non-compete obligation will require Thierry Le Hénaff to repay the monthly indemnities he has already received and the Company will no longer be liable to pay the remaining indemnities through to the end of the one-year period.* *The Board of Directors may decide to waive this non-compete clause up to the effective date of termination of Thierry Le Hénaff's office at the latest. In such an event, he would no longer be bound by the constraints of the non-compete clause referred to above and the Company would be released from any commitment to pay him a non-compete compensation.* *It should be noted that Thierry Le Hénaff will only be entitled to this indemnity if his departure is not concomitant with his retirement. Moreover, Thierry Le Hénaff will not be entitled to the indemnity once he reaches the age of 65. In these two cases, Thierry Le Hénaff will be released from his obligations.* *Lastly, in accordance with the recommendations of the AFEP-MEDEF Code, in the event of the simultaneous application of the severance payment and the non-compete compensation, the cumulative amount of these indemnities will not exceed two years of fixed and variable compensation (as defined above).*

By way of illustration and subject to approval at the annual general meeting of 19 May 2022 (14th resolution), the Chairman and Chief Executive Officer's fixed, variable and long-term compensation for the year ended 31 December 2021 would break down as follows:



3.4.2.3 Summary tables

SUMMARY OF COMPENSATION, STOCK OPTIONS AND SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER EXCLUDING COMPENSATION INDEMNITIES (TABLES 1 AND 2 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	2021		2020	
(Gross amounts in euros)	**Amounts awarded**	**Paid during the year**	Amounts awarded	Paid during the year
Fixed compensation	1,000,000 (1)	1,000,000 (1)	1,000,000 (1)	900,000 (1)
Annual variable compensation (2)	1,800,000	992,456	992,456	1,143,000
Exceptional compensation	None	None	None	None
Compensation for serving as director	None	None	None	None
TOTAL	**2,800,000**	**1,992,456**	**1,992,456**	**2,043,000**
Pension (3)	560,000	378,491	378,491	408,600
Benefits in kind – car	6,720	6,720	6,720	6,720
Executive officer unemployment insurance		18,025		18,024
Stock options	None	None	None	None
Performance shares (4)	2,457,300	N/A	1,577,400	N/A
Other long-term compensation	None	None	None	None
TOTAL	**5,824,020**	**2,395,692**	**3,955,067**	**2,476,344**

(1) The amount of the annual fixed compensation was set out at €1,000,000 by the annual general meeting of 19 May 2020. By a decision on 14 April 2020, the Board of Directors and Thierry Le Hénaff agreed to defer the effective date of the increase in fixed compensation until 1 January 2021. As a result, the annual fixed compensation paid in 2020 amounted to €900,000.

(2) Variable compensation is paid in the year following the period for which it is calculated based on the criteria set out in section 3.4.3.2 of this document and subject to shareholder approval of the components of compensation paid or awarded for the year, in accordance with the provisions of articles L. 225-100 and L. 22-10-34 of the French Commercial Code.

(3) 20% of the annual compensation (fixed and variable) since 7 June 2016.

(4) Value of performance shares awarded during the year calculated according to the method used in the consolidated financial statements, detailed in note 6.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

PERFORMANCE SHARES GRANTED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER IN 2021

	No. and date of plan	Number of shares granted in 2021	Vesting date/End of holding period	Value of shares according to the method used in the consolidated financial statements
Thierry Le Hénaff	2021 plan of 9/11/2021 (3-year vesting period +2-year holding period)	30,000 (1) (2)	12/11/2024 and 12/11/2026	€2,457,300

(1) i.e., less than 0.04% of the share capital.

(2) 36,000 in the event of outperformance. For further details, see section 3.5.1 of this chapter.

SUMMARY OF SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER NOT YET VESTED OR SUBJECT TO A HOLDING PERIOD DURING THE YEAR (INCLUDING TABLE 6 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

						Information based on the year just ended					
	Key characteristics of the free share plans					At 1 January	During the year		At 31 December		
	Plan number	Vesting period	Grant date	Vesting date	End of holding period	Shares awarded at 1 January	Shares awarded	Shares vested	Shares subject to performance conditions	Shares awarded not yet vested	Shares subject to a holding period
Thierry Le Hénaff	2021 plan	9/11/2021 to 8/11/2024	9/11/2021	12/11/2024	12/11/2026	N/A	30,000 (1) Value of shares according to the method used in the consolidated financial statements €2,457,300	N/A	30,000 (1)	30,000 (1)	N/A
	2020 plan	4/11/2020 to 5/11/2023	4/11/2020	6/11/2023	6/11/2025	30,000 (2)	N/A	N/A	30,000 (2)	30,000 (2)	N/A
	2019 plan	29/10/2019 to 30/10/2022	29/10/2019	31/10/2022	31/10/2024	30,000 (3)	N/A	N/A	30,000 (3)	30,000 (3)	N/A
	2018 plan	5/11/2018 to 7/11/2023	5/11/2018	8/11/2021	8/11/2023	N/A	N/A	23,214 Market value: €2,741,573	N/A	N/A	23,214
	2017 plan	8/11/2017 to 8/11/2020	8/11/2017	9/11/2020	9/11/2022	N/A	N/A	31,500 Market value: €2,782,710	N/A	N/A	31,500
						Total 60,000 (4)	Total 30,000 (1)	Total 54,714	Total 90,000 (5)	Total 90,000 (5)	Total 54,714

(1) 36,000 in the event of outperformance. For further details, see section 3.5.1 of this chapter.
(2) 36,000 in the event of outperformance. For further details, see section 3.5.1 of the 2020 Universal Registration Document.
(3) 36,000 in the event of outperformance. For further details, see section 3.5.1 of the 2019 Reference Document.
(4) 72,000 in the event of outperformance.
(5) 108,000 in the event of outperformance.

PERFORMANCE SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR WHICH THE HOLDING PERIOD EXPIRED IN 2021 (TABLE 7 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	No. and date of plan	Number of shares for which the holding period expired in 2021	Vesting conditions
Thierry Le Hénaff	2016 plan of 9/11/2016	33,000	Presence and performance conditions: REBIT margin over the period from 2016 to 2018 (25%), EBITDA to cash conversion rate over the period from 2017 to 2018 (25%), comparative TSR over the period from 2016 to 2018 (25%), return on average capital employed over the period from 2016 to 2018 (25%)

SUMMARY OF EMPLOYMENT CONTRACT, PENSION BENEFITS AND OTHER BENEFITS IN 2021 (TABLE 11 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	Employment contract		Supplementary pension benefits		Compensation or benefits due or potentially due upon termination or change of position		Indemnities relating to a non-compete agreement	
	Yes	No	Yes	No	Yes	No	Yes	No
Thierry Le Hénaff		X		X (1)	X		X	

(1) Thierry le Hénaff has not been covered by the defined benefit pension scheme since 7 June 2016. For further details, see section 3.4.2.1 of this chapter.

FINANCIAL CONDITIONS APPLICABLE TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR TERMINATION OF OFFICE, IN ACCORDANCE WITH THE CIRCUMSTANCES OF TERMINATION, SINCE 19 MAY 2020

	Dismissal for serious or gross misconduct	Resignation	Forced departure	Retirement
Severance payment	None	None	Compensation entirely contingent on fulfillment of three performance criteria (1): • before 60 years of age: maximum of 24 months of total annual gross compensation (fixed and variable) (2); • after 60 years of age: maximum of 18 months of total annual gross compensation (fixed and variable) (2); • after 62 years and six months of age: maximum of 12 months of total annual gross compensation (fixed and variable) (2); • after 65 years of age: none. The cumulative amount of the severance payment and non-compete benefit may not exceed twice his annual fixed and variable compensation.	None
Non-compete compensation	Monthly benefit equal to 100% of Thierry Le Hénaff's monthly fixed and variable (2) compensation until expiration of the non-compete clause. The Board of Directors may decide to waive this non-compete clause at any time until the effective date of termination of Thierry Le Hénaff's office, in which case the non-compete benefit will not be payable. The cumulative amount of the severance payment and non-compete benefit may not exceed twice his annual fixed and variable compensation.			None
Supplementary defined benefit pension scheme	None			
Unvested performance shares	Null and void	Null and void	Entitlement to unvested shares subject to a reasoned decision of the Board of Directors, in principle on a *pro rata* basis, and subject to fulfillment of the performance conditions set out in the plans. No accelerated vesting of shares.	Continuing entitlement

(1) TRIR (total recordable injury rate), annual variable compensation, EBITDA to cash conversion rate.

(2) Fixed compensation corresponds to the fixed compensation for the year in which the Chairman and Chief Executive Officer is forced to step down. Variable compensation corresponds to the average of thelast two years of variable compensation paid prior to departure.

3.4.3 Compensation of executive management members other than the Chairman and Chief Executive Officer

3.4.3.1 Compensation principles

Every year, the Nominating, Compensation and Corporate Governance Committee reviews the fixed and variable compensation structure proposed by the Chairman and Chief Executive Officer for Executive Committee members. This compensation comprises:

(i) two short-term components:

- annual fixed compensation based on the scope of the respective duties and responsibilities of each Executive Committee member,
- annual variable compensation, representing a percentage of the annual fixed compensation and based on general quantifiable targets identical to those set for the Chairman and Chief Executive Officer, and closely aligned with the Group's financial performance and the implementation of its strategy, and quantitative and qualitative targets (including CSR targets) designed to reward the individual performance of each Executive Committee member within their respective area of responsibility; and

(ii) a long-term incentive through the award of performance shares fully subject to performance conditions.

Executive Committee members are required to retain at least 20% of their vested shares in registered form for as long as they remain employed in this capacity. These obligations are suspended once the total value of the Arkema shares held, whatever their origin, is equivalent to 150% of their gross annual fixed compensation. The Chairman and Chief Executive Officer is subject to specific individual holding requirements (see section 3.4.2.1 of this chapter).

Each year Executive Committee members certify that they have not used any financial instruments to hedge the risk of losses on the stock options or performance share rights that have been, or will be, awarded to them by the Company.

The amount and structure of Executive Committee members' compensation packages are regularly compared to the market practices for equivalent positions in companies operating in the same industry with similar market capitalizations.

Executive Committee members do not receive any compensation for acting as directors of Group companies.

3.4.3.2 Annual compensation of Executive Committee members other than the Chairman and Chief Executive Officer

The total gross fixed compensation awarded by the Company to Executive Committee members for 2021 amounted to €3,262,472.

Moreover, the total variable compensation paid by the Company to Executive Committee members in 2021 in respect of 2020 amounted to €1,807,974.

Based on the targets approved by the Board of Directors at its meeting of 24 February 2021, namely (i) general quantifiable targets identical to those that apply to the Chairman and Chief Executive Officer and relating to growth in EBITDA, recurring cash flow, and margin on variable costs of new developments, and (ii) individual quantifiable and qualitative targets for each member, the Board of Directors, at its meeting of 23 February 2022, based on a proposal of the Nominating, Compensation and Corporate Governance Committee, approved the Executive Committee members' variable compensation for 2021. The total annual variable compensation awarded to Executive Committee members for 2021 stood at €2,586,588.

In addition, based on a proposal of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors set the compensation for 2022 for members of the Executive Committee – as constituted at the date of the Board of Directors' meeting – as follows:

- total gross fixed compensation will amount to €3,403,065, in line with market practices and with the changes to the Group's compensation policy for the 2022 financial year; and
- variable compensation will continue to be based on general quantifiable quantitative criteria related to the Group's financial performance as measured by targets for EBITDA, recurring cash flow and margin on variable costs of new developments, as well as on quantifiable and qualitative criteria specific to each member.

Consequently, compensation due and paid to Executive Committee members, excluding the Chairman and Chief Executive Officer, for 2021 and 2020 was as follows:

	2021		2020	
(Gross amounts in euros)	**Due for the year**	**Paid during the year**	Due for the year	Paid during the year
Fixed compensation	3,257,000	3,262,472 (1)	2,642,050	2,998,730 (2)
Variable compensation	3,403,065	1,807,974 (3)	1,705,572	1,755,703
TOTAL	**6,660,065**	**5,070,446**	**4,347,622**	**4,754,433**

(1) Based on the average exchange rate in 2021.
(2) Marie-Pierre Chevallier, Erwoan Pezron and Richard Jenkins joined the Executive Committee on 4 May 2020.
(3) Based on the average exchange rate in 2021.

3.4.3.3 Benefit schemes

Executive Committee members are covered by the same benefit schemes (death/disability and health insurance) as employees of Arkema France. They also benefit from a defined contribution pension scheme based on the part of their compensation that exceeds eight times the annual ceiling for social security contributions and is excluded from the contribution base for compulsory pension schemes. No Executive Committee member benefits from a supplementary defined benefit pension scheme.

3.5 Share-based compensation

Arkema wished to put in place share-based compensation instruments in order to secure the loyalty of executives and certain employees, and involve them more closely in the Group's future growth, as well as its stock market performance.

Accordingly, the Board of Directors put in place stock option and performance share plans. No stock option plans have been set up since 2012.

The accounting treatment of these share-based compensation instruments is described in note 6.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Share-based compensation principles

The share-based compensation policy by way of performance share grants adopted by the Board of Directors on the proposal of the Nominating, Compensation and Corporate Governance Committee, is as follows:

- closely involving executives, senior managers and certain employees who have performed exceptionally well or whom the Group wants to retain, in the Group's future growth and stock market performance in the medium term. In 2021, there were 1,532 beneficiaries;
- setting a vesting period of three years for performance shares awarded to the Chairman and Chief Executive Officer and the members of the Executive Committee, followed by a holding period of two years, *i.e.*, a total vesting-holding period of five years;
- submitting the vesting of performance shares to demanding performance criteria, which have included a criterion concerning Arkema's CSR performance since 2019. At the date of this document and since 2017, awards without performance conditions have been limited to awards representing no more than 70 shares;
- rewarding outperformance if targets are significantly exceeded. Since 2019, the maximum achievement rate for each criterion has been set at 120% and the maximum overall award capped at 120%;
- limiting the rights awarded to the Chairman and Chief Executive Officer in respect of annual performance share plans to a maximum of 10% of all rights awarded in any annual plan;
- awarding existing shares acquired under the share buyback program, or to be issued (since 2019); and
- in accordance with the AFEP-MEDEF Code, awarding performance share plans at the same period every year, *i.e.*, in November since 2013.

In addition, in accordance with the law and the AFEP-MEDEF Code, the Board of Directors sets a fixed number of vested shares that must be retained by the Chairman and Chief Executive Officer and by each Executive Committee member (see sections 3.4.2.1 and 3.4.3.1 of this chapter).

Performance criteria

Since 2019, the performance share plans have been subject to five demanding performance criteria, aligned with the Group's long-term ambitions and strategic priorities, each applying to 20% of the total award.

In 2019, the performance criteria were as follows:

- REBIT margin;
- EBITDA to cash conversion rate;
- comparative Total Shareholder Return;
- return on average capital employed; and
- CSR performance.

In line with the Group's long-term objectives for 2024, which were published at the time of the Capital Markets Day on 2 April 2020, and with Arkema's ambition to become a pure player in Specialty Materials, the Board of Directors decided to adjust the performance criteria for the 2020 plan as follows:

- the REBIT margin criterion is replaced by an EBITDA margin criterion in line with the presentation made on 2 April 2020; and
- the EBITDA margin and ROACE will be calculated at the level of the Specialty Materials platform, which will be the Group's ultimate scope.

Furthermore, as announced in 2019, the Board of Directors has decided to introduce a second environmental performance indicator inside the CSR performance criterion related to non-renewable resources management in addition to the indicator on greenhouse gas emissions. As the growing scarcity of water resources is a major social issue, the indicator set is water withdrawals as a percentage of Group sales.

Thus in 2021, the performance share plan was subject to the following five performance criteria, each accounting for 20% of the total award:

- EBITDA margin for the Specialty Materials platform;
- EBITDA to cash conversion rate;
- comparative TSR;
- return on average capital employed (ROACE) for the Specialty Materials platform; and

- CSR performance, measured in three areas:

1. environment, measured by two indicators:
   - greenhouse gas emissions (Scope 1 and Scope 2 + Montreal Protocol), and
   - non-renewable resources management (water withdrawals as a percentage of Group sales),
2. safety, measured by TRIR, and
3. diversity, measured by the percentage of women in senior management and executive positions.

All the targets set for these criteria are fully consistent with the medium- and long-term targets – particularly the 2024 targets presented to the financial markets – and are similar to the internal targets.

The achievement rates for the last three plans that vested (either in full or partially) are as follows:

Date of plan	Vesting year	Vesting rate
2016	2019	110%
2017	2020	105%
2018	2021	77.38%

Renewal of the authorization to grant performance shares

On the recommendation of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors decided at its meeting of 23 February 2022 to ask the annual general meeting to be held on 19 May 2022 to renew the authorization granted to the Board in 2019 to award free shares in the Company subject to performance conditions. Under this new 38-month authorization, the Board would be authorized to grant up to 1,500,000 performance shares (an amount similar to that of the previous authorization), representing 2.02% of the share capital at the date of the annual general meeting.

The Board of Directors has confirmed the broad principles of the share-based compensation policy described above and specified that it will continue to measure performance using the four financial performance criteria as well as a composite non-financial performance criterion from the previous authorization, which remain perfectly aligned with the Group's long-term ambition and objectives. If one of these criteria should cease to be relevant or if a new criterion should prove more appropriate, the Board shall propose a criterion with a similar long-term stringency. Lastly, the Board indicated that for each of these criteria, scales and assigned targets will continue to be fully in line with the long-term financial targets (currently through 2024) announced to the financial markets and to be similar to the internal targets.

Moreover, the Board of Directors indicated that for the plans implemented as part of the authorization, and subject to a favorable vote of the annual general meeting, the following changes would be made :

- concerning the TSR criterion: the comparison of the Group's performance with a group of peers will be carried out by comparing Arkema's TSR to the median TSR of the peer group. Note that the TSR will be adjusted for exceptional dividends, in particular those related to M&A transactions.

  The peer group was selected by the Board of Directors following a comprehensive review of the portfolios of each peer company by the Nominating, Compensation and Corporate Governance Committee, after taking into account the significant change in Sika's portfolio following the announced acquisition of BASF's construction chemicals assets on 11 November 2021. It comprises the following companies: BASF, Clariant, Evonik, HB Fuller, Lanxess, Dupont (high performance polymers company replacing Sika), Solvay, the MSCI Europe Chemicals Index (including dividends) and the CAC 40 index (including dividends).

  The Board of Directors will continue to review the peer group over the three-year duration of the authorization to take into account any developments in Arkema's profile and that of its competitors.

  The vesting scale will be as follows:

% of the median achieved by Arkema	Vesting rate
between 0% and 100%	0%
100%	50%
110%	100%
120%	120%
over 120%	120%

  This scale remains as rigorous as in the previous policy (with a vesting rate of 50% for the median). It also reinforces linearity while maintaining a strong alignment with shareholders' interests and the relationship between performance and compensation.

- concerning the non-financial criterion (CSR): the relative weighting of this criterion is increased from 20% to 25%. Half of this criterion will be measured in terms of greenhouse gas emissions (climate indicator), with a relative weighting of 12.5%. The other half will be measured using a composite indicator.

  The CSR criterion is thus now structured as follows:

  - a climate indicator, whose weighting has been increased from 20% to 50% of the CSR criterion, *i.e.*, 12.5% of the overall allocation (compared with 4% in previous plans). This indicator reflects the Group's carbon trajectory (changes in greenhouse gas emissions). The related targets will be consistent with the trajectory published in the 2021 Universal Registration Document and in line with the 2030 target of a 38% reduction compared with 2015 and with any future updates to this trajectory.
  - a composite indicator for the remaining 50% of the CSR criterion, addressing, for a relative weighting of one-third each, the following areas:
    1. *diversity*: diversity will continue to be measured in terms of the percentage of women in senior management positions (job level NP15 and above) in line with the Group's global target of women representing 30% of this category by 2030. An intermediate target of 26% by 2024 was set in early 2022. Accordingly, the target at this date would be 25.5% for a 100% achievement rate in 2024 and 26% for a 120% achievement rate.
    2. *the process safety event rate (PSER)*: this measures the safety of processes and aims to reduce industrial risks

and their social their environmental impacts.
For the 2022 plan, the 2024 target would be set at 2.6 for a 100% achievement rate and at 2.5 for a 120% achievement rate in line with the 2030 target of 2.0 described in section 4.1.7 of this document. The intermediate targets are 2.6 in 2024 and 2.3 in 2027.

3. *the circular economy*: this is measured in terms of a quantified, direct or composite indicator, based on the company's priorities and included in this document in line with shareholders' expectations.

The Board would retain the ability to decide whether to grant existing shares, acquired as part of the share buyback program, or to issue new shares.

Additional information about the resolution proposed to the vote at the annual general meeting on 19 May 2022 is provided in section 7.2 of this document.

Lastly, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors confirmed that the total amount that may be awarded to the Chairman and Chief Executive Officer may not exceed 10% of the annual plan, and that the holding requirements for shares granted to the Chairman and Chief Executive Officer continue to apply. Specifically, the Chairman and Chief Executive Officer is required to hold a number of Arkema shares – either granted or otherwise acquired – equivalent to 250% of his annual gross fixed compensation.

Black-out periods

In compliance with regulation (EU) no. 596/2014 of 16 April 2014 on market abuse (known as the Market Abuse Regulation or MAR), the AMF general regulations and the AFEP-MEDEF Code, and in order to prevent insider trading, Arkema has introduced black-out periods. During these periods, any person who has regular or one-time access to undisclosed accounting or financial information relating to Arkema and its subsidiaries is prohibited from trading in Arkema shares:

- 30 calendar days before the publication of the annual and half-yearly financial statements, including the day of publication; and
- 15 calendar days before the publication of quarterly financial information, including the day of publication.

These black-out periods notably apply to Executive Committee and Group management committee members.

In addition, pursuant to legal provisions as amended by the *Pacte* law, free shares may not be sold at the end of the vesting-holding period stipulated in the plan:

- 30 calendar days before the publication of the annual and half-yearly financial statements. These provisions apply to all persons, irrespective of their status and whether or not they are a party to inside information; and
- by members of the Board of Directors, the Chief Executive Officer or by employees with access to inside information that has not been made public.

3.5.1 Performance share plans

2021 performance share plans

In accordance with the share-based compensation policy in force within the Group and making use of the authorization given by the annual general meeting of 21 May 2019, the Board of Directors decided, at its meeting of 9 November 2021, to award a total of 364,288 performance shares to 1,532 beneficiaries (31% of whom were women), including the Chairman and Chief Executive Officer and the Executive Committee members.

For employees in France, the vesting period is three years, followed by a two-year holding period. For employees outside France, the vesting period is four years, with no holding period, so that the vesting of the shares may correspond to the chargeability of the related taxes. In accordance with the law and the AFEP-MEDEF Code, the Chairman and Chief Executive Officer and the members of the Executive Committee are subject to an additional requirement to retain the shares they have been awarded.

The vesting of the shares is, for all beneficiaries, subject to their continued presence within the Group. In addition, for awards of more than 70 shares, vesting is entirely subject to the achievement of five demanding performance criteria.

In line with the Group's long-term objectives for 2024, and with Arkema's ambition to become a pure player in Specialty Materials, the Board of Directors decided to confirm the following performance criteria for the 2021 plan, each accounting for 20% of the total award: the EBITDA margin for the Specialty Materials platform, the EBITDA to cash conversion rate, the comparative Total Shareholder Return (TSR), the return on average capital employed (ROACE) for the Specialty Materials platform, and Arkema's CSR performance. For each of these criteria, performance will be assessed over a three-year period, from 2021 to 2023, in accordance with the recommendations of the AFEP-MEDEF Code.

The various indicators used to measure fulfillment of the performance criteria will be based on the annual consolidated financial statements published by Arkema in accordance with the international financial reporting standards (IFRS) applicable at the date on which the Board of Directors approved the performance share plan.

The maximum vesting rate for each of these criteria remains at 120%. The overall vesting rate for all criteria combined may not exceed 120%. Hence, the maximum number of shares that may be awarded is 430,824, *i.e.*, 34% of the total number of performance shares that may be awarded pursuant to the authorization granted by the annual general meeting of 21 May 2019. In addition, since 2021, if the achievement rate for two or more criteria is well below 50%, then the vesting rate for each of the other criteria is capped at 100%.

For the 2021 plan, the five performance criteria, each applying to 20% of the total award are as follows:

- ***EBITDA margin for the Specialty Materials platform***

EBITDA margin is defined as follows: EBITDA as a percentage of sales.

The EBITDA is the sum of the EBITDA of the Adhesives Solutions, Advanced Materials and Coating Solutions segments, minus the share of Corporate EBITDA allocated to these three segments (allocation on a *pro rata* basis based on sales). The same calculation methodology applies to the sales calculation. By way of illustration, the EBITDA margin for the Specialty Materials platform was 14.9% in 2020.

The indicator is calculated using the average EBITDA margins for 2021, 2022 and 2023.

The vesting rates based on the indicator value are as follows:

Indicator value	Vesting rate in respect of the criterion
Indicator < 14%	0%
14% < = indicator < = 15%	Straight-line basis between 25% and 50%
= 15%	50%
15% <= indicator < = 16%	Straight-line basis between 50% and 100%
= 16.0%	100%
16% <= indicator < = 17%	Straight-line basis between 100% and 120%
17% < indicator	120%

- ***EBITDA to cash conversion rate***

The EBITDA to cash conversion rate corresponds to recurring cash flow, *i.e.*, free cash flow excluding exceptional items as a percentage of EBITDA.

The indicator is calculated using the average conversion rates for 2021, 2022 and 2023.

Free cash flow is adjusted for the impact of exceptional items (non-recurring items and exceptional capital expenditure) to ensure year-on-year comparability and to eliminate in particular significant non-recurring flows that could impact the criterion (for example, a significant inflow in 2020). Starting in the period 2021-2023, the vesting scales have been aligned with the Group's new long-term targets.

The vesting rates based on the indicator value are as follows:

Indicator value	Vesting rate in respect of the criterion
Indicator < 30%	0%
30% < = indicator < = 40%	Straight-line basis between 0% and 100%
40% < = indicator < = 45%	Straight-line basis between 100% and 120%
45% < indicator	120%

- ***Comparative Total Shareholder Return (TSR)***

Arkema's TSR over a three-year period is compared with that of its peers and two indices: BASF, Clariant, Evonik, HB Fuller, Lanxess, Sika, Solvay, the MSCI Europe Chemicals Index and the CAC 40 index (the "Peer Group").

Every component of the Peer Group is ranked by descending order of TSR.

The vesting rates based on the indicator value are as follows:

Arkema's ranking by descending order of TSR	Vesting rate in respect of the criterion
1st	120%
2nd	110%
3rd	100%
4th	75%
5th	50%
6th to 10th	0%

The TSR is calculated as follows: (share price at the end of the period - share price at the beginning of the period + sum of the dividends per share paid out during the period)/share price at the beginning of the period.

The average of the opening share prices during the first half of 2021 will be used to determine the price at the beginning of the period, and the average of the opening share prices during the first half of 2024 will be used to determine the price at the end of the period.

- ***Return on average capital employed (ROACE) for the Specialty Materials platform***

ROACE, which corresponds to REBIT of year N as a percentage of the average of capital employed at the end of years N and N-1, allows the measurement of profitability of investments over time. It is a value creation indicator.

REBIT is the sum of REBIT in the Adhesive Solutions, Advanced Materials and Coating Solutions segments, minus the share of Corporate REBIT allocated to these three segments (allocation on a *pro rata* basis based on sales). The same calculation methodology applies to the calculation of capital employed.

REBIT and capital employed are adjusted for:

1. the impact of major acquisitions in the year of acquisition and the two following years; and
2. the impact of exceptional capital expenditure in progress until the year of start-up and the following two years.

In the previous plan, the value used for the indicator was an end-of-period value, which eliminated the distortions caused by the strategy of refocusing on Specialty Materials. Now that this process is well underway, the indicator used going forward will be the average ROACE for 2021, 2022 and 2023. The values are in line with the 2024 target of at least 10%. The vesting rate of 0% has been maintained at the level of the Group's cost of capital.

Indicator value	Vesting rate in respect of the criterion
Indicator < 7.5%	0%
7.5% < = indicator < = 9.0%	Straight-line basis between 0% and 100%
9.0% < = indicator < = 10.0%	Straight-line basis between 100% and 120%
10.0% < indicator	120%

- ***Arkema's CSR performance***

CSR performance is measured using the following three indicators:

- **environment** (for 40% of the CSR criterion) with two indicators, each accounting for 50% of the Environment indicator:
  - *GHG* (for 50% of the environment indicator)

GHG (Scopes 1 and 2 + ODS) in kt CO_2 eq. in 2023	Vesting rate in respect of the indicator
Indicator > 3,628	0%
3,628 = > indicator => 3,300	Straight-line basis between 0% and 100%
3,300 => indicator => 3,200	Straight-line basis between 100% and 120%
3,200 > indicator	120%

The values used are in line with the published 2030 target (38% reduction in GHG emissions compared with 2015), with achievement in stages.

  - *water withdrawals* (for 50% of the environment indicator)

Water withdrawals as a percentage of Group sales (m^3/€k) in 2023	Vesting rate in respect of the indicator
Indicator > 8.9	0%
8.9 = > indicator => 8.0	Straight-line basis between 0% and 100%
8.0 => indicator => 7.6	Straight-line basis between 100% and 120%
7.6 > indicator	120%

This indicator has been changed in relation to the 2020-2022 plan. Withdrawals are now defined as gross volumes less regulated withdrawals and volumes sold to third parties.

The 120% achievement rate corresponds to a 2023 indicator value of 7.6, *i.e.*, the 2024 target one year ahead of schedule.

Sales will be calculated on the basis of 2021 exchange rates to eliminate the exchange rate effect.

- ***security***: TRIR (for 30% of the CSR criterion)

TRIR	Vesting rate in respect of the indicator
Indicator > 1.40	0%
1.40 = > indicator => 1.15	Straight-line basis between 0% and 100%
1.15 => indicator => 1.05	Straight-line basis between 100% and 120%
1.05 > indicator	120%

The indicator is now calculated using the average TRIR for 2021, 2022 and 2023.

- ***diversity*** (for 30% of the CSR criterion)

Percentage of women in senior management and executive positions in 2023	Vesting rate in respect of the indicator
Indicator < 23.0%	0%
23.0% < = indicator < = 24.0%	Straight-line basis between 0% and 100%
24.0% < = indicator < = 24.5%	Straight-line basis between 100% and 120%
24.5% < indicator	120%

The values used are in line with the 2030 targets.

Should the business portfolio evolve and lead to a significant impact on the value of one or more of the indicators, the Board of Directors, upon recommendation by the Nominating, Compensation and Corporate Governance Committee, may modify the target values.

SUMMARY OF 2021 PERFORMANCE SHARE PLAN

	Plan for employees in France	Plan for employees outside France
Date of annual general meeting	21 May 2019	
Authorized performance share awards as a % of the Company's share capital	1.96%	
Date of the Board of Directors' meeting	9 November 2021	
Number of rights awarded	239,575	124,713
of which to the Chairman and CEO	30,000	-
Total by authorization	1,310,756 shares, *i.e.*, 1.71% of the share capital at the date of the annual general meeting [(1)]	
Origin of shares to be awarded when the rights vest	-	-
Number of canceled rights [(2)]	90	630
Number of vested shares [(3)]	-	-
Number of rights still to vest at 31 December 2021	239,485	124,083
Vesting period	3 years	4 years
Holding period	2 years	None
Performance conditions	EBITDA margin for the Specialty Materials platform over the period from 2021 to 2023 (20%) EBITDA to cash conversion rate over the period from 2021 to 2023 (20%) Comparative TSR over the period from 2021 to 2023: (20%) ROACE for the Specialty Materials platform over the period from 2021 to 2023 (20%) Arkema's CSR performance in 2023 (20%)	
Vesting rate	-	

(1) Maximum number of shares that may be awarded, taking into account the potential award of up to 120% of the share rights subject to performance conditions.

(2) Performance share rights canceled because the holders left the Group.

(3) Shares awarded to the grantees (including shares awarded before the end of the vesting period, in the event of death for example).

Previous performance share plans

The plans implemented from 2006 to 2016 have all expired.

2020 AND 2019 PERFORMANCE SHARE PLANS

	2020		2019	
	Plan for employees in France	**Plan for employees outside France**	**Plan for employees in France**	**Plan for employees outside France**
Date of annual general meeting	21 May 2019			
Authorized performance share awards as a % of the Company's share capital	1.96%			
Date of the Board of Directors' meeting	4 November 2020		29 October 2019	
Number of rights awarded	238,550	128,245	237,945	131,035
of which to the Chairman and CEO	30,000	-	30,000	-
Total by authorization	870,798 shares, *i.e.*, 1.14% of the share capital at the date of the annual general meeting [1]		436,531 shares, *i.e.*, 0.57% of the share capital at the date of the annual general meeting [1]	
Origin of shares to be awarded when the rights vest	-	-	-	-
Number of canceled rights [2]	1,330	3,155	2,425	6,360
Number of vested shares [3]	3,700	-	3,745	-
Number of rights still to vest at 31 December 2021	233,520	125,090	231,775	124,675
Vesting period	3 years	4 years	3 years	4 years
Holding period	2 years	None	2 years	None
Performance conditions	EBITDA margin for the Specialty Materials platform over the period from 2020 to 2022 (20%) EBITDA to cash conversion rate over the period from 2020 to 2022 (20%) Comparative TSR over the period from 2020 to 2022 (20%) ROACE for the Specialty Materials platform over the period from 2020 to 2022 (20%) Arkema's CSR performance in 2022 (20%)		REBIT margin over the period from 2019 to 2021 (20%) EBITDA to cash conversion rate over the period from 2019 to 2021 (20%) Comparative TSR over the period from 2019 to 2021: (20%) Return on average capital employed over the period from 2019 to 2021 (20%) Arkema's CSR performance (20%)	
Vesting rate	-		-	

(1) 2019 and 2020 plans. Maximum number of shares that may be awarded, taking into account the potential award of up to 120% of the share rights subject to performance conditions.

(2) Performance share rights canceled because the holders left the Group.

(3) Shares awarded to the grantees (including shares awarded before the end of the vesting period, in the event of death for example).

2018 AND 2017 PERFORMANCE SHARE PLANS

	2017		2018	
	Plan for employees in France	Plan for employees outside France	Plan for employees in France	Plan for employees outside France
Date of annual general meeting	7 June 2016			
Authorized performance share awards as a% of the Company's share capital	1.94%			
Date of the Board of Directors' meeting	8 November 2017		5 November 2018	
Number of rights awarded	230,695	129,405	231,820	127,665
of which to the Chairman and CEO	30,000	-	30,000	-
Total by authorization	787,915 shares, *i.e.*, 1.04% of the share capital at the date of the annual general meeting (1)		1,147,400 shares, *i.e.*, 1.52% of the share capital at the date of the annual general meeting (1)	
Origin of shares to be awarded when the rights vest	Share buyback			
Number of canceled rights (2)	1,050	12,830	46,958	33,127
Number of vested shares (3)	239,499	121,887	184,862	-
Number of rights still to vest at 31 December 2021	-	-	-	94,538
Vesting period	3 years	4 years	3 years	4 years
Holding period	2 years	None	2 years	None
Performance conditions	REBIT margin over the period from 2017 to 2019 (25%), EBITDA to cash conversion rate over the period from 2017 to 2019 (25%), Comparative TSR over the period from 2017 to 2019 (25%), Return on average capital employed over the period from 2017 to 2019 (25%)		REBIT margin over the period from 2018 to 2020 (25%) EBITDA to cash conversion rate over the period from 2018 to 2020 (25%) Comparative TSR over the period from 2018 to 2020 (25%) Return on average capital employed over the period from 2018 to 2020 (25%)	
Vesting rate	REBIT margin (2017 to 2019): 125% EBITDA to cash conversion rate (2017 and 2019): 120% Comparative TSR (2017 to 2019): 50% Return on average capital employed (2017 to 2019): 125% Overall achievement rate: 105%		REBIT margin (2018 to 2020): 51.50% EBITDA to cash conversion rate (2018 and 2020): 120% Comparative TSR (2018 to 2020): 25% Return on average capital employed (2018 to 2020): 113% Overall rate: 77.38%	

(1) 2017 and 2018 plans. Maximum number of shares that may be awarded, taking into account the potential award of up to 110% of the share rights subject to performance conditions.

(2) Performance share rights canceled because the holders left the Group.

(3) Shares awarded to the grantees (including shares awarded before the end of the vesting period, in the event of death for example).

3.5.2 Stock option plans

In accordance with the share-based compensation policy, no stock option plan has been granted since 2012. The final plan, granted in 2011, expired on 4 May 2019.

CORPORATE SOCIAL RESPONSIBILITY

4

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

4.1 Arkema's corporate social responsibility (CSR) approach

4.1.1 CSR policy

Arkema aims to generate sustainable and responsible growth for its businesses and to meet societal challenges by providing its customers with sustainable and innovative solutions that contribute to the Sustainable Development Goals defined by the United Nations.

The Group's CSR policy is developed in compliance with the main international texts and standards in force and more particularly with the International Bill of Human Rights, the International Labour Organization's (ILO) Declaration on Fundamental Principles and Rights at Work, the OECD Guidelines for Multinational Enterprises, the ten principles of the United Nations Global Compact, to which Arkema committed in 2014, and the Responsible Care® program, of which the Group has been a member since 2006.

Arkema uses the Global reporting Initiative (GRI) standards as its CSR reporting framework. In accordance with the European Commission's 2019 guidelines, the Group also refers to the Task Force on Climate-Related Financial Disclosure (TCFD) framework for its climate reporting.

To facilitate the understanding of its CSR approach among all stakeholders, Arkema published a Social Commitment Charter, which was approved by the Executive Committee. It has been implemented across the organization to ensure support for its sustainable development culture. The charter is based on factors that have long been fundamental to Arkema, including a culture of safety, respect for the environment, innovation, employee issues and a culture of close dialogue. It sets out the three key commitments that structure the Group's CSR policy:

- deliver sustainable solutions driven by innovation;
- manage our activity as a responsible manufacturer; and
- cultivate an open dialogue and close relations with stakeholders.

3 CSR COMMITMENTS

Deliver **sustainable solutions** driven by **innovation**

- Responsible product stewardship
- Solutions that address societal, climate and circular economy challenges
- Innovation at the heart of the activities

Manage our **activity** as a **responsible manufacturer**

- Safety of people and processes
- Health
- Climate
- Resources management
- Environmental footprint reduction

Cultivate an **open dialogue** and close relations with our stakeholders

- Ethics
- Human Rights
- Diversity and inclusion
- Employee development
- Responsible value chain
- Corporate citizenship

Charters and policies

The Social Commitment Charter is broken down into different policies that support the Group's three commitments: an Innovation Policy, a Health, Safety, Environment and Quality Policy, a Human Rights Policy, a Business Conduct and Ethics Code, a Supplier Code of Conduct, a charter for the promotion and respect of the International Labour Organization's conventions, an Anti-Corruption Policy, a policy on conflict minerals and a policy on the use of Group products for medical devices applications.

These charters, policies and codes are applied across the Group and all of its subsidiaries and are all available in the Social Responsibility section on the Company's website (www.arkema.com).

4.1.2 CSR governance

Arkema's CSR governance is integrated into the Group's corporate governance. Arkema's CSR ambition, the main challenges, risks and opportunities, the related potential initiatives and their monitoring, the performance indicators and the sustainable development targets are defined and validated by the Executive Committee and presented once a year to the Board of Directors by the Sustainable Development Vice-President. The scope of the CSR data audit and the findings of the independent third-party auditor responsible for this audit are presented every year to the Audit and Accounts Committee. These findings appear in the auditor's opinion issued to the annual general meeting along with the Board of Directors' report, which also includes a variety of social and environmental information.

Moreover, the Board of Directors, at its meeting of 24 February 2021, decided to create, from the close of the annual general meeting of 20 May 2021, an Innovation and Sustainable Growth Committee tasked with assessing the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth, thereby reinforcing the review mechanism of CSR issues by complementing the duties of the aforementioned Audit and Accounts Committee, as well as those of the Nominating, Compensation and Corporate Governance Committee relating to diversity. The committee's action and work are described in section 3.3.4.3 of this document.

To ensure that the social, environmental and business aspects of Arkema's operations are managed consistently and in the interests of all stakeholders, the Group's CSR commitment is led by the Chairman and Chief Executive Officer of the Company and the Group Executive Committee. The Group's commitment to the United Nations Global Compact is renewed each year, and its adherence to the ten principles is clearly set out in its Communication On Progress. This commitment has been GC Advanced level since 2019. Internally, environmental, social and ethics policies are validated by the Executive Committee members, who are responsible for their dissemination and application across the Group. The operational entities are responsible for the effective implementation of these policies.

To fulfill its ambitious CSR approach, the Group has created a Sustainable Development department, comprising the Product Safety and Environment department and the Sustainable Development team. It reports directly to the Industry and CSR Executive Vice-President, who is a member of the Executive Committee.

In addition, three steering committees, one for each of the three commitments set out in the Group's CSR policy, guide and support the Group's progress in the area of CSR. The three committees are chaired by the Industry and CSR Executive Vice-President. The Product Stewardship Steering Committee is made up of members of the Executive Committee in charge of the Business Lines and the R&D and Sustainable Development Vice-Presidents. The Industrial Ecology Steering Committee is made up of members of the Executive Committee in charge of the Business Lines and the Industrial, HSE, Process, Procurement and Sustainable Development Vice-Presidents. The CSR/Stakeholder Dialogue Steering Committee is made up of the Human Resources & Communication Executive Vice-President and a number of corporate Vice-Presidents who are actively involved in the CSR process. The three steering committees meet twice a year. Every year, the Sustainable Development Vice-President presents the Executive Committee with an overview.

A formal network of CSR correspondents was created in 2019. It comprises approximately 40 members, including representatives from each of the businesses that make up the Group's segments, corporate department and the main countries in which the Group operates. These correspondents work with the Sustainable Development department, which coordinates the network, to implement the CSR policy within their organization.

Integration of CSR into the Group's organic and external growth projects

CSR considerations are factored into the evaluation phases prior to acquisitions, in particular employee-related and labor law issues, environmental impacts of sites including the climate impact, sustainable purchasing and business ethics practices, and relations with local communities.

In the case of business disposals or reorganizations, special attention is paid to employee-related issues. Thus, prior to implementing such projects, the Executive Committee carefully examines the employee-related impacts and factors them into its decision-making process. Where necessary, the purchaser is required to make certain commitments.

As regards organic growth projects, industrial expenditure is now subject to a CSR assessment based on the Group's commitments and objectives. For projects in excess of €5 million, this assessment is an integral part of the approval process as of the feasibility phase.

For projects requiring the Board of Directors' prior approval, and more generally for any growth transaction or investment project requiring its opinion, the Board also ensures that all social issues and environmental impacts have been fully considered in the assessment process in accordance with the strategy described above.

4.1.3 Key impacts, risks and opportunities

As an economic actor, Arkema interacts with its social environment through its activities. The identification and analysis of the Group's impact on its ecosystem are part of its sustainable development process in order to mitigate the negative impacts and accentuate the positive impacts of the Group's actions, both for Arkema itself and for its stakeholders.

To identify the key impacts, risks and opportunities, the Group looks at stakeholder expectations, which are analyzed in three-yearly materiality assessments (see section 4.1.6), global megatrends (see the "Profile, ambition and strategy" section of this document), its duty of care plan (see section 4.1.5) and its consolidated non-financial information statement (see section 4.1.4) to identify risks. The risk identification and review process is carried out using a collaborative approach involving the Sustainable Development, Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. The main non-financial risks are included in the Group's risk map. They are presented in chapter 2 of this document and are reviewed by the Risk Review Committee, in line with the risk management procedure described in section 2.2 of this document.

The main CSR-related impacts, risks and opportunities are considered across the entire value chain and in relation with its business partners.

Since its creation, Arkema has been engaged in a continuous process of reducing the main risks associated with its activities, particularly those relating to safety and the environment. At the same time, thanks to its capacity for innovation and its expertise, Arkema develops new products and solutions that provide a wide range of opportunities to contribute to meeting the challenges of sustainable development, particularly those relating to the climate and the circular economy (for further details, see section 1.1.2 of this document).

The key issues form the basis of structured programs at Group level, with progress tracked *via* indicators as presented in the table below. These programs are presented in detail in the various sections of this chapter. The key performance indicators for CSR, together with long-term targets for each one, are set out in section 4.1.7 of this chapter.

PRIORITY ISSUES, ACTION PLAN AND ASSOCIATED OBJECTIVES

Priority areas	Corresponding priority issues	Action plan and programs	Objectives
Sustainable solutions [(1)]	Sustainable solutions driven by innovation Collaborative innovation Responsible product stewardship	Develop the range of solutions: • continue and reinforce collaborative innovation and partnership initiatives in different formats; and • implement the sales portfolio sustainability assessment program (Archimedes) and increase the proportion of sales that contribute significantly to the Sustainable Development Goals (ImpACT+).	By 2024, 100% of our sales portfolio assessed in light of sustainability. By 2030, 65% of ImpACT+ sales.
(1) See details in section 4.2 "Sustainable solutions".			
Circular economy [(2)]	Circular economy, including water and waste management Collaborative innovation	Intensify the circular economy approach across the entire value chain based on the program drawn up in 2020 targeting four areas: • maximize the use of renewable and recycled materials; • step up the responsible management of materials, waste, water and energy at the Group's sites; • take action to keep the products and materials marketed by Arkema in the use loop, through eco-design and the development of recycling systems; and • strengthen tools for measuring circularity and extend life-cycle assessments.	By 2023, reduction in water withdrawal to 8.0 cu.m/€k of sales compared with 9.0 cu.m/€k in 2019. By 2024, 50% of sales covered by a life-cycle assessment.
(2) See details in section 4.3 "Circular economy".			

Priority areas	Corresponding priority issues	Action plan and programs	Objectives

Climate [3]	Greenhouse gas emissions reduction and energy management	Develop and roll out a climate plan in line with the Paris Agreement:
		• revise objectives to better meet the challenges of climate change:
		  • target introduced in 2019: absolute reduction in greenhouse gas emissions based on a scientific approach.
		• implement the climate plan based on the following levers:
		  • innovate and improve production processes,
		  • optimize energy efficiency, and
		  • step up purchases of low-carbon energy.
			By 2030, 38% reduction in the absolute value of greenhouse gas emissions* compared with 2015.
			** Scope 1 and Scope 2 as defined in the Kyoto Protocol + substances listed in the Montreal Protocol.*
			
			By 2030, 19% reduction compared with 2015 levels in absolute emissions related to fuel and energy (excluding Scopes 1 and 2), waste produced, and upstream and downstream transportation and distribution.
			
			Commitment that raw materials suppliers representing 82% of GHG emissions related to the Group's purchases set Science-Based Targets (SBTs) on their Scopes 1 and 2 by 2025.
			
			By 2030, 20% reduction in net energy purchases (EFPI relative to 2012).

(3) See details in section 4.4 "Climate".			

Industrial risks [4]	Prevention and management of industrial risks	Continue the actions taken while still aiming for the same level of excellence in process safety:
		• target to reduce the number of process safety events; and
		• main drivers implemented:
		  • continue the regular analysis of industrial risks and the ongoing implementation of the measures necessary to manage them, and
		  • strengthen process safety procedures.
			By 2030, reduction in the process safety event rate (PSER) to 2.0.

(4) See details in section 4.5 "Safety and environment".			
Well-being and health [5]	Well-being at work and work-life balance Occupational health and safety	Define a Group-wide, in-depth approach to work-life balance: • structure the global policy on workplace well-being; and • evaluate the initiatives undertaken *via* employee engagement surveys. Continue the actions taken while still aiming for the same level of excellence in personal safety: • target to reduce the total recordable injury rate (TRIR).	By 2030, reduction in the total recordable injury rate (TRIR) to 0.8.
(5) See details in section 4.5 "Safety and environment" for health, and section 4.6 "Labor relations and stakeholder relations".			

The Group's 3 CSR commitments *sustainable solutions;* *responsible manufacturer;* *open dialogue.*

Significant events of 2021

2021 was once again shaped by the Covid-19 health crisis but to varying degrees depending on geographic area. In line with 2020, protective measures were implemented and updated at each stage of the crisis in accordance with local regulations, to help protect employee health and prevent the spread of the virus at Group sites. Against a backdrop of total and partial lockdowns in various regions, Arkema demonstrated its capacity to manage and control the health impacts of the crisis while maintaining its industrial operations at the level required to serve its customers.

In this context, investors, customers and other economic stakeholders, legislators and civil society in general maintained and even reinforced their social expectations. In line with these expectations, Arkema continued to implement its transformation programs to address the priority issues listed above.

In 2021, the sixth IPCC report and the COP26 international conference strengthened expectations of a major and rapid reduction in greenhouse gas (GHG) emissions and of achieving carbon neutrality by 2050. In addition, the European Commission continued its consultations and publications as part of the Green Deal, in particular the Chemical Strategy for Sustainability, the Fit for 55 plan to reduce carbon emissions, the Taxonomy Regulation and the Corporate Social Responsibility Directive.

Contribution to the UN Sustainable Development Goals

The Sustainable Development Goals (SDGs) defined by the United Nations for 2030, which Arkema has adopted, set out the economic, social and environmental challenges facing our world today. Based on the expectations expressed by stakeholders, the Group's activities and the three commitments structuring its CSR policy, Arkema has assessed its contribution to the SDGs by identifying the extent of its commitments and actions with reference to the targets set for each of them. The aim of these actions is to mitigate social risks and to foster opportunities that contribute to the development of sustainable solutions. Arkema integrates the SDGs in its reporting in line with the practical guide published jointly by the United Nations Global Compact and the Global reporting Initiative (GRI) [(1)].

TABLE OF THE GROUP'S CONTRIBUTION TO THE UNITED NATIONS SDGS AND THEIR DETAILED TARGETS

	Sustainable solutions	Responsible manufacturer	Open dialogue	Strategic objectives or programs
1 No poverty			1.5	
2 Zero hunger	2.1 2.3 2.4			
3 Good health and well-being	3.8 3.9	**3.5 3.6 3.9**	3.5 3.6 3.9	Reduction in personal injuries
4 Quality education		4.3 4.4 4.5	4.3 4.4 4.5 4.7	
5 Gender equality			**5.5**	Increase in gender diversity
6 Clean water and sanitation	6.1 6.2 6.3 6.4	**6.3 6.4**		Reduction of effluent releases in water (COD)
7 Affordable and clean energy	**7.1 7.2 7.3**	**7.2 7.3**		Renewable energy and electricity storage solutions Increase in energy efficiency
8 Decent work and economic growth	8.8	**8.8**	8.4 8.5 8.7 8.8	Reduction in process events
9 Industry, innovation and infrastructure	**9.1 9.4 9.5**	9.4		Electronics solutions
10 Reduced inequalities			10.4	
11 Sustainable cities and communities	**11.1 11.2**			Home efficiency and insulation solutions
12 Responsible consumption and production	**12.2 12.3 12.4 12.5**	12.4 12.5	12.6	Solutions contributing to more sustainable use of natural resources
13 Climate action	**13.1**	**13.1 13.3**		Solutions contributing to climate action Reduction in greenhouse gas emissions
14 Life below water	14.1	14.1 14.2		
15 Life on land	15.1 15.5	**15.5**		Reduction in air emissions (VOC)
16 Peace, justice and strong institutions			16.5	
17 Partnerships for the goals	17.17	17.14	**17.14**	Supplier CSR assessment Increase in supplier commitment for the climate

Strategic contribution (through strategic objectives or programs)
Direct contribution (resulting from volontary initiatives)
Indirect contribution (resulting from the Group's activities)

(1) *"Integrating the SDGs into Corporate Reporting: A Practical Guide".*

The strategic contribution to the SDGs that relate to Arkema's sustainable solutions commitment is demonstrated by the Group's choice of the five strategic innovation platforms presented in section 1.1.2 of this document. The strategic contributions to the SDGs relating to its responsible manufacturer and open dialogue commitments are illustrated by the long-term targets, which are presented in section 4.1.7 of this chapter.

In line with its social commitment, Arkema develops buy-in of the SDGs across all its business and interactively with its value chain. As part of its commitment to responsibly manage its solutions portfolio, the Group began a systematic evaluation in 2018 factoring in contributions to the SDGs, which has since been rolled out widely. This process is described in section 4.2.3 of this document.

4.1.4 Consolidated non-financial information statement

In compliance with articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code *(Code de commerce)*, Arkema takes into account the social and environmental consequences of its activities (those of the Company and of all its subsidiaries included in the consolidation scope), as well as their impact in terms of Human Rights and the fight against corruption and tax evasion.

The Group's business model is described in the "Profile, ambition and strategy" section of this document.

The identification and review of the main risks associated with its activities are based on a number of sources: the general risks listed in the international reference documents cited in section 4.1.1 of this chapter; the risks targeted by the Responsible Care® program, which are specific to the chemicals industry; feedback from the Group's own experience; incidents that have occurred at companies with similar activities or scope; the material topics expressed by stakeholders during the materiality assessment presented in section 4.1.6 of this chapter; and the Group's duty of care plan. The risk identification and review process is carried out using a collaborative approach involving the Sustainable Development, Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. The main non-financial risks are included in the Group's risk map. They are presented in chapter 2 of this document and are reviewed by the Risk Review Committee, in line with the risk management procedure described in section 2.2 of this document.

The main non-financial risks identified by the Group in the areas mentioned above are presented in this chapter, along with the due diligence procedures and policies implemented to prevent, identify and mitigate those risks and the outcomes of those policies in the form of performance indicators.

The main risks are:

- the risk of industrial accidents liable to have social or environmental consequences;
- the risk of exposure to chemicals, whether involving Group or subcontractor employees, customers, end users or local residents;
- the risk of pollution and the risk of contributing to climate change, whether through Arkema's own activities or those of its upstream value chain or through the use of its products; and
- the risk of losing the skills and expertise necessary to continuously meet business, technological, social and environmental expectations in a proactive manner.

In addition to the risks mentioned above, the Group monitors the following risks, which are also presented in this chapter: ethics and compliance risks, including those relating to the fight against corruption, the risk of Human Rights violations, the risk of poor social and environmental performances by suppliers or subcontractors, and the risk of scarcity of non-renewable resources.

The Group's governance of CSR issues is described in section 4.1.2 of this chapter.

The non-financial information statement for the year ended 31 December 2021, which includes all the CSR performance indicators mentioned in this chapter, was reviewed by the independent third-party auditor, as indicated in its limited assurance statement in section 4.7.8 of this chapter.

In compliance with article R. 225-105-1 III of the French Commercial Code, reported non-financial information is published on the Group's website at the following address: https://www.arkema.com/global/en/social-responsibility/

CROSS-REFERENCE TABLE FOR THE NON-FINANCIAL INFORMATION STATEMENT

Articles L. 225-102-1, L. 22-10-36 and R. 225-105 of the French Commercial Code *(Code de commerce)*	Sections in this document
Company business model	Profile, ambition and strategy
Description of the main risks involved in the way the Company takes into account the social and environmental consequences of its activities as regards Human Rights, and avoidance of corruption and tax evasion	2.1 (non-financial risks are tagged "CSR")
Social impact of the Company's activities	4.6.1
Environmental impact of the Company's activities	4.3.3 and 4.5.3
Impact of the Company's activities on Human Rights	4.1.5 and 4.6.3
Impact of the Company's activities on avoidance of corruption and tax evasion	4.6.2
Impact of the Company's activities and of the use of goods it produces and services it provides on climate change	4.1.5 and 4.4
Social commitments to sustainability, allowance made for social and environmental challenges in supplier and subcontractor relations, and measures taken regarding consumer health and safety	4.1, 4.2.4 and 4.6.4
Social commitments to the circular economy	4.3
Social commitments to combat food waste	Non-material risk for the Group
Social commitments to combat food insecurity	Non-material risk for the Group
Social commitments to animal welfare	4.2.4.4
Social commitments to fair, responsible and sustainable food	Non-material risk for the Group
Collective bargaining agreements signed within the Company and their impacts on its economic performance and on employee working conditions	4.6.1.7
Actions to counter discrimination and promote diversity	4.6.1.6
Measures to promote the recruitment of people with disabilities	4.6.1.6

Taxonomy Regulation reporting

About the Taxonomy Regulation

In line with the European Taxonomy Regulation 2020/852 (the Taxonomy Regulation) and its delegated acts on climate change mitigation and adaptation, and the content and presentation of environmental information, Arkema has implemented, pursuant to article 8 of such regulation, a process to generate the eligibility information required for this first reporting year.

Companies subject to the non-financial performance statement, transposition into French law of directive 2014/95 on the disclosure of non-financial information, are required to report their sensitivity to the European green taxonomy from 1 January 2022. For this first reporting year, from 1 January 2022 until 31 December 2022, non-financial undertakings shall only disclose the proportion of Taxonomy-eligible and non-eligible economic activities in their total turnover, capital and operational expenditure and the qualitative information relevant for this disclosure.

This initial reporting therefore covers only two of the six environmental objectives set by the European Union, namely climate change mitigation and adaptation.

Group activities eligible to Taxonomy objectives

Based on the activities described in the Taxonomy Regulation, Arkema's activities falling within the relevant scope were identified and analyzed jointly by representatives of the Research and Development, Sustainable Development and Finance departments, as well as representatives of the Business Lines.

For the three key performance indicators (KPIs) stated below, Group activities eligible to climate change mitigation and adaptation objectives are manufacture of plastics in primary form, manufacture of soda ash and manufacture of chlorine, as described in sections 3.12, 3.13 and 3.17 of Annexes I and II of the Delegated Regulation of 4 June 2021.

The manufacture of plastics in primary form accounts for the majority of the Group's eligible activities, and concerns the Group's three growth segments, chiefly involving the High Performance Polymers, Coating Resins and adhesives Industrial Assembly Business Lines falling within the scope of eligibility.

The KPIs for eligible activities in 2021 are therefore:

	2021 KPI
Percentage of Turnover	30%
Percentage of Capex	38%
Percentage of Opex	27%

These indicators were generated using existing reporting systems to carve out the required financial aggregates, based on the Group's literal understanding.

More generally, the ratios of Turnover and Capex to eligible activities form part of Arkema's policies on climate change mitigation and adaptation, discussed in greater depth in sections 4.4.3 and 4.4.4 respectively.

The denominators and numerators of these ratios were determined on the basis of the analytical structure used for presenting financial data for the Group's activities. In addition, financial information from the Group's information systems was analyzed and checked for consistency with Turnover, Opex and Capex in 2021. For Capex and Opex, where this structure did not allow direct generation of the required data, assumptions were made or allocation keys applied.

Calculations and explanations of indicators

The following sections set out the methods used and contextual data for the three indicators that meet the criteria for eligible activities specified in Annex I of Delegated Regulation 2021/2178:

Turnover Key Performance Indicator (KPI)

This KPI corresponds to the ratio between third-party turnover for taxonomy-eligible activities and overall Group turnover as reported in the consolidated financial statements at 31 December 2021.

Third-party turnover for the eligible activities is derived from the accounts consolidation system when it can be assimilated to whole units in the Group financial reporting structure. Otherwise, the amounts are derived from more detailed analyses using the Group's Business Intelligence information systems targeting eligible technologies.

Capex Key Performance Indicator (KPI)

This KPI corresponds to the ratio between Capex for activities identified as eligible to the Taxonomy and overall Group Capex.

The denominator therefore corresponds to the total of property, plant and equipment and intangible assets as published in the Alternative Performance Indicators in note 4 to the consolidated financial statements, right-of-use assets (ROU, IFRS 16) for the period, as given by the specific reporting tool used for application of IFRS 16, and property, plant and equipment and intangible assets resulting from business acquisitions, excluding goodwill, whose values are shown as additions to the consolidated balance sheet of the Group entities concerned.

The numerator corresponds to the items in the three above categories that the Group was able to associate with the eligible activities identified.

For eligible activities assimilated to whole units in the investment reporting structure, the data was obtained from the Group consolidation system. In other cases, data was calculated by assigning investment amounts to the production sites for eligible activities, basically in proportion to the fixed production costs for these activities at these sites.

Using the Group's reporting tool for right-of-use assets, the increase of these assets was identified for the year 2021. The values taken for the numerator are those directly allocated to the management units to which the eligible activities can be assimilated.

For this initial reporting, given the complexity of the analysis involved, there was no inclusion of individual Capex liable to correspond to purchases of products from activities themselves eligible to the Taxonomy.

In 2021, Capex charged to eligible activities was significantly impacted by the project to develop bio-sourced monomer and polymers production capacity in Asia. (For more details on this project, see the "Profile, ambition and strategy" section of this document.)

Opex Key Performance Indicator (KPI)

Because of the complexity of carving out Opex as specified in the texts of the Taxonomy Regulation and its delegated regulations, the analysis of eligibility for Opex focused on R&D-related expenses along with maintenance and repair costs and short-term lease costs. R&D expenses are identified in the consolidation system, while other expenses are taken from the information systems of certain entities by applying, where necessary, assumptions on the average percentage of such expenses with respect to total overheads for the activities concerned.

DETAILS ON TURNOVER CURRENTLY ELIGIBLE FOR THE TAXONOMY REGULATION

Taxonomy 2021 Turnover				Criteria for substantial contribution			
Economic activity	Code(s)	Overall Turnover in €m	Percentage of Turnover	Climate change mitigation	Climate change adaptation	Enabling activity category	Transitional activity category
A. TAXONOMY-ELIGIBLE ACTIVITIES							
Manufacture of plastics in primary form	C.20.16	2,875	30%	X	X		X
Manufacture of soda ash	C.20.13	15	< 1%	X	X		X
Manufacture of chlorine	C.20.13	3	< 1%	X	X		X
Turnover from taxonomy-eligible activities		**2,893**	**30%**				
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES							
Turnover from currently taxonomy-non-eligible activities		6,626	70%				
TOTAL A + B		**9,519**	**100%**				

DETAILS ON CAPEX IN ACTIVITIES CURRENTLY ELIGIBLE FOR THE TAXONOMY REGULATION

Taxonomy Capex 2021				Criteria for substantial contribution			
Economic activity	Code(s)	Overall Capex in €m	Percentage of Capex	Climate change mitigation	Climate change adaptation	Enabling activity category	Transitional activity category
A. TAXONOMY-ELIGIBLE ACTIVITIES							
Manufacture of plastics in primary form	C.20.16	311	37%	X	X		X
Manufacture of soda ash	C.20.13	3	< 1%	X	X		X
Manufacture of chlorine	C.20.13	1	< 1%	X	X		X
Capex for taxonomy-eligible activities		**315**	**38%**				
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES							
Capex for currently taxonomy-non-eligible activities		523	62%				
TOTAL A + B		**838**	**100%**				

DETAILS ON OPEX IN ACTIVITIES CURRENTLY ELIGIBLE FOR THE TAXONOMY REGULATION

Taxonomy Opex 2021				Criteria for substantial contribution			
Economic activity	Code(s)	Overall Opex in €m	Percentage of Opex	Climate change mitigation	Climate change adaptation	Enabling activity category	Transitional activity category
A. TAXONOMY-ELIGIBLE ACTIVITIES							
Manufacture of plastics in primary form	C.20.16	(122)	26%	X	X		X
Manufacture of soda ash	C.20.13	0	< 1%	X	X		X
Manufacture of chlorine	C.20.13	(5)	1%	X	X		X
Opex in taxonomy-eligible activities		**(127)**	**27%**				
B. TAXONOMY-NON-ELIGIBLE ACTIVITIES							
Opex in currently taxonomy-non-eligible activities		(335)	73%				
TOTAL A + B		**(462)**	**100%**				

The Group will be adjusting its methodology and analysis on Taxonomy eligibility in pace with changes in texts and activities.

Beyond the scope of direct Taxonomy-eligibility as such, a significant part of the Group's operations concerns the sale of products for downstream activities that are currently identified as eligible to the Taxonomy, such as manufacture of renewable energy technologies; manufacture of equipment for the production and use of hydrogen; manufacture of low carbon technologies for transport; manufacture of batteries; construction, extension and operation of water collection, treatment and supply systems; construction of new buildings and renovation of existing buildings.

4.1.5 Duty of care plan

Pursuant to the provisions of article L. 225-102-4 of the French Commercial Code, the Group has established and implemented a duty of care plan covering the activities of the Company and all the subsidiaries it controls (see section 6.1.2 of this document). More specifically, Arkema has conducted an in-depth review of the consequences of its activities, and of those carried out by its suppliers and subcontractors that relate to their business relationship with Arkema, in order to identify any serious risk of violations of Human Rights and fundamental freedoms, as well as any serious health, safety and environmental risks, so that, as part of a continuous improvement approach, the Group can introduce or supplement the reasonable care measures necessary to prevent such risks or mitigate their impact.

Management of the duty of care plan

The duty of care plan is reviewed – overall and with respect to its implementation and the effectiveness of measures undertaken. The review is led by the Sustainable Development department, with input from the Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. The progress made and proposals for action are presented at least once a year to the Risk Review Committee, which validates the duty of care plan before submission to the Executive Committee then to the Board of Directors.

As part of the monitoring of the implementation of the duty of care plan and the assessment of its effectiveness, the internal audit and control system may be modified, if necessary, to take into account any additional items identified. For further details on the risk management and internal control system, see section 2.2.3 of this document.

Mapping of serious risks

The identification and review of these risks was carried out using a collaborative approach involving the Sustainable Development, Human Resources, Health, Safety and Environment, Legal Affairs, Procurement, and Internal Audit and Internal Control departments. This process resulted in a risk map that was presented to the Risk Review Committee in line with the risk management procedure described in section 2.2 of this document. The procedures used to regularly assess the situation of the Group's activities and subsidiaries with regard to the risk map are described in more detail in section 2.2.4 of this document.

The methods for managing these risks and monitoring the effectiveness of the measures undertaken are different, depending on whether the risks relate to the Group's activities or those of its suppliers and subcontractors.

Risk management and effectiveness monitoring for risks relating to the Group's activities

The identification and review of these risks are based on deductive analyses, internal feedback, incidents that have occurred at companies with similar activities or scope, and general risks listed in international reference documents. Risk assessments are updated regularly to take into account lessons learned, advances in preventing risks and mitigating their impact, and any emerging risks deemed relevant. Stakeholder expectations, particularly the main issues identified in the 2019 materiality assessment presented in section 4.1.6 of this chapter, are taken into account in the duty of care plan.

Risks are reviewed in light of a combination of factors that includes their impact and likelihood of occurrence and the level of control provided by existing prevention and management measures.

Human Rights and fundamental freedoms

Respect for Human Rights is of the utmost importance to Arkema. The Group therefore makes every effort to prevent Human Rights violations against its employees, partners and other stakeholders and to remedy any violations that do occur.

After reviewing internal feedback and the general risks presented in the International Labour Organization's Declaration on Fundamental Principles and Rights at Work and the International Bill of Human Rights, and assessing the impact, likelihood of occurrence and level of control that Arkema has over these issues, no risks of serious violations have been identified in this area.

Given the importance that Arkema places on Human Rights and fundamental freedoms, the Group issued its Human Rights Policy in order to make its commitments and management of the risks in this area clearer and more visible for all stakeholders. This policy is available both internally and externally. In 2021, the Group used the available internal audit data to identify and analyze any potential Human Rights violations related to its activities. The results confirmed the absence of any serious violations. For further details, see section 4.6.3 of this chapter.

Health and safety

As a responsible manufacturer, Arkema places personal health and safety among its top priorities. This commitment is clearly expressed in its Health, Safety, Environment and Quality Policy. A harmonized approach, based on risk prevention, an integrated management system and the dissemination of a health and safety culture, has existed within the Group for many years and is managed centrally.

The main risks of serious harm to personal health and safety are:

- the social and environmental consequences arising from industrial accidents or acts of malice. Accident risks are described in section 2.1.1 of this document. The management system for these risks is described in detail in sections 4.5.1 and 4.5.2 of this chapter and includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident.

  The effectiveness of the measures undertaken is monitored using numerous indicators, including the total recordable injury rate per million hours worked (TRIR) and the process safety event rate per million hours worked (PSER). Including accidents involving Group employees and subcontractor employees, the TRIR was 1.0 in 2021, unchanged from 2020, thus consolidating on the significant improvement compared with previous years. In fact, Arkema's performance in terms of its TRIR is one of the best in the chemicals industry. In 2021, the PSER was 3.1, a significant improvement on previous years. Given the performance achieved in 2021, the Group raised its TRIR target to 0.8 and its PSER target to 2.0 by 2030. For further details, see section 4.5.2 of this chapter;
- exposure to substances that are toxic or hazardous to human health, whether involving Group or subcontractor employees, customers or people living near Group facilities, as described in section 2.1.1 of this document. The management system for health and safety risks, which is described in detail in sections 4.5.1 and 4.5.2 of this chapter, includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident. In addition, responsible product stewardship, including the transparency and availability of product information, is presented in sections 4.2.4 and 4.5.2 of this chapter; and
- the number of occupational illnesses related to exposure to chemicals is one of the indicators for monitoring the effectiveness of prevention measures over the long term. In 2021, 26 cases of occupational illness were reported Group-wide. The frequency rate of 0.7 per million hours worked is a marked improvement on previous years. Details on occupational illnesses are given in section 4.5.2.2.4 of this chapter.

Environment

As a responsible manufacturer, Arkema places environmental risk management among its top priorities. This commitment is clearly expressed in its Health, Safety, Environment and Quality Policy.

A harmonized approach, based on the vision set out in this policy, has existed within the Group for many years and is managed centrally.

The main risk of serious damage to the environment is the pollution of air, water and soil, which is described in section 2.1.1 of this document. The management system for environmental risks is described in detail in sections 4.5.1 and 4.5.3 of this chapter and includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident, or in the case of legacy pollution. The effectiveness of the measures undertaken is monitored *via* numerous indicators, including two strategic intensive Environmental Footprint Performance Indicators (EFPIs compared with 2012) for which targets have been set for 2030. One relates to the amount of volatile organic compounds (VOCs) released into the air (VOC EFPI). In 2021, the VOC EFPI was 0.50, well below the 2020 figure and in line with the 0.35 target set for 2030. The second relates to chemical oxygen demand (COD) in effluent discharges

(COD EFPI). In 2021, the COD EFPI was 0.45, close to the 0.40 target set for 2030. For further details, see section 4.5.3 of this chapter. The results confirm the validity of the Group's programs and initiatives on reducing pollution risks.

Arkema is also attentive to climate change and responsible resource management, two major challenges facing society today.

The Group's climate policy and its management are described in section 4.4 of this chapter and include measures aimed at reducing emissions. In 2019, the Group stepped up its program aimed at combating global warming and set a new objective in line with the Paris Agreement. The effectiveness of the measures undertaken is monitored *via* two strategic indicators for which targets have been set for 2030. The first relates to greenhouse gas emissions from operations at the Group's industrial sites (GHG indicator). In 2021, absolute GHG emissions compared with 2015 were 0.66, down significantly on the 2020 figure and consistent with the 0.62 target set for 2030. This reduction was achieved through specific actions under the Group's climate plan, and through its strategy of scaling down the Intermediates segment business. For further details, see section 4.4.3.1 of this chapter. The second indicator measures net energy purchases (Energy EFPI compared with 2012), the intensity of which reflects the consumption of energy whose production generates greenhouse gas emissions. In 2021, the Energy EFPI was 0.85, down sharply on the 2020 figure under the combined effect of an ambitious action plan and more favorable manufacturing conditions. This decrease is coherent with the 0.80 target set for 2030. For further details, see section 4.4.3.2 of this chapter.

To strengthen its commitment to promoting responsible resource management, Arkema set a new target in 2021 for water withdrawals as a percentage of Group sales. The aim is now to achieve a reduction of 11% compared with the baseline year 2019, *i.e.*, a target of 8.0 cu.m/€k by 2023. The indicator stood at 6.9 cu.m/€k in 2021, a sharp drop on the 2020 figure, owing to the combined effect of lower withdrawals and higher sales.

Risk management and effectiveness monitoring for risks relating to the activities of suppliers and subcontractors with which Arkema has established business relationships

Arkema has a number of suppliers involved in various activities relating to the supply of raw materials, energy, goods and services. These activities are liable to entail various kinds of risks. To select suppliers and subcontractors and develop their sense of responsibility with a view to reducing the risk of serious violations of Human Rights and fundamental freedoms, harm to personal health and safety, and damage to the environment, Arkema takes a harmonized approach, set out in detail in section 4.6.4 of this chapter.

The effectiveness of the measures undertaken is monitored in terms of the number of suppliers assessed and the scores obtained. At end-2021, over 1,700 suppliers had been assessed, and CSR scores had risen for 66% of suppliers whose assessments had been updated. To promote responsibility across its value chain and strengthen its commitment to responsible procurement, the Group defined a new strategic indicator in 2020, which shows the percentage of purchasing spend from relevant suppliers covered by a CSR assessment. The indicator stood at 71% in 2021, and the Group aims to reach 80% by 2025.

Some of the Group's products use plant-based raw materials. If raw material producers are farmers, the assessment system outlined above is not always applicable. For supplies of castor oil, the main bio-based raw material used by the Group, an initiative is in progress under the Pragati project, launched in 2016, on environmentally friendly and socially responsible sourcing. This initiative is described in section 4.6.4.6 of this chapter.

Remediation process

In the event of a major accident involving health, safety or the environment, a crisis unit is set up in accordance with the Group procedure described in section 4.5.2.4 of this chapter.

For non-accidental incidents liable to affect Human Rights and fundamental freedoms, human health and safety and the environment, the remediation process is organized on a case-by-case basis with representatives from the departments involved and a management team adapted to the specific situation. Details on remediation measures regarding biodiversity are given in section 4.5.3.2 of this chapter.

Report on the implementation of the duty of care plan

For risks related to the Group's activities, the following conclusions were drawn from the implementation of the duty of care plan:

- significant change is not necessary for the health, safety and environment management system, which is considered to meet duty of care requirements;
- judging from the main indicators, continuous progress initiatives appear to be effective, and should be continued in order to achieve the strategic goals the Group has set:
  - for 2030 in terms of total recordable injury rate (TRIR of 0.8) and process safety event rate (PSER of 2.0), and
  - for 2030 in terms of environmental impact concerning the four strategic indicators: a climate indicator (GHG -38% in absolute terms compared with 2015) and three intensive emission indicators (VOC EFPI -65%, COD EFPI -60% and Energy EFPI -20% compared with 2012);

- no risks were identified of serious violations to Human Rights or fundamental freedoms, or in labor or business relations. However, Arkema is attentive to these issues and is rolling out prevention and monitoring initiatives.

Concerning risks relating to the activities of suppliers and subcontractors, the programs under way meet duty of care expectations, including:

- the roll-out of the Together for Sustainability (TfS) program, with a 2025 target of covering with a TfS assessment 80% of the Group's purchasing spend from relevant suppliers (see details in section 4.6.4.5 of this document); and
- the Pragati project for responsible castor farming (see section 4.6.4.6 of this document for details).

Whistleblowing system and reports

The Group has a whistleblowing system that complies with both the requirements of the law on duty of care and the French Sapin II Law. For further details, see section 4.6.2.5 of this chapter.

4.1.6 Stakeholders and materiality assessment

The Group's CSR approach, which includes an open dialogue, aims to establish a responsible and value-creative value chain shared by Arkema and its stakeholders, as presented in the "Profile, ambition and strategy" section of this document.

Open dialogue

Consultation and open dialogue with internal and external stakeholders is a prerequisite for understanding their expectations, building relationships based on trust and cooperation, reducing social risks and creating value for all.

The following table summarizes the Group's dialogue with stakeholders in its ecosystem.

Stakeholders	Context and purpose of dialogue	Key stakeholder expectations in the area of CSR	Form of dialogue
Customers	Business relationship and collaboration aimed at meeting the current and future needs of customers and end users	Innovative, sustainable, healthier and more environmentally friendly solutions tailored to specific needs Collaborative innovation and partnerships Circular economy and climate change Responsible procurement	Arkema establishes ongoing dialogue with its customers at various levels of the organization. To increase the value added created, the Group capitalizes in particular on: • dedicated management of global key accounts as part of a commercial excellence program; • joint innovation programs with customers, particularly with regard to climate issues and resource management and including life-cycle assessment if required; • development of new digital solutions that increase value added for customers and partners; and • a global, online survey to assess overall satisfaction. For further details, see the section on Commercial excellence in the "Profile, ambition and strategy" section of this document.
Suppliers	Business relationship and collaboration aimed at meeting the current and future needs of the Group and its customers	Circular economy and climate change Collaborative innovation and partnerships	Arkema favors suppliers that have a global presence (Europe, Americas and Asia), are competitive and innovative (including in digital technology), and actively deploy a CSR policy. Arkema maintains open dialogue with its suppliers at various levels of the organization so that they support the Group in its developments over the short and long term, particularly with regard to climate issues and resource management. Arkema encourages its suppliers to commit to a corporate social responsibility program by conducting CSR performance assessments. To help achieve its SBT climate target, Arkema raises awareness and encourages its most GHG-intensive suppliers to take part in climate action and disclose their commitments. For further details, see sections 4.6.4 and 4.4.3 of this chapter.

Stakeholders	Context and purpose of dialogue	Key stakeholder expectations in the area of CSR	Form of dialogue
Research partners	Technology partnerships aimed at strengthening the Group's innovation performance by providing access to additional skills and discoveries that can drive breakthrough innovations	Collaborative innovation and partnerships Contribution to the social and economic dynamics of territories	Arkema develops a diverse range of partnerships in various forms, including with academic institutions and industrial companies or as part of national or international cooperation efforts. Partnerships such as those involving the Group's innovation platforms contribute to fulfilling the United Nations' Sustainable Development Goals (SDGs), particularly SDG 12, which relates to resource management, and SDG 13 on climate action. For further details, see sections 1.1.2 and 1.1.5 of this document.
Financial community, shareholders and SRI rating agencies	Inform the market of the Group's results and main operations Improve understanding of the Group's activities, strategy and outlook among investors, analysts and individual shareholders through transparent information	Long-term value creation Preventive management of ESG (Environment, Social, Governance) risks Non-financial performance (ESG criteria) Climate plan management integrated into the strategy	• Results presentations; • meetings with and days dedicated to institutional investors and analysts; • discussions with financial rating agencies; • completing questionnaires and discussions with SRI rating agencies; and • annual general meeting. For further details, see section 6.4 of this document.
Employees and employee representative bodies	Dialogue with employee representative bodies and direct dialogue with employees	Training and individual and collective development Diversity and equal opportunities Well-being at work and work-life balance	• Continuous social dialogue with employee representative bodies that goes beyond legal requirements and provides numerous opportunities for discussion and negotiation with a view to driving social progress; and • consultation and dialogue with employees, notably in the form of internal surveys. For further details, see sections 4.6.1.4 and 4.6.1.7 of this chapter.
Neighboring communities	Neighbors and communities that interact locally with Group sites	Prevention and management of industrial risks Transparency and dialogue Contribution to the social and economic dynamics of territories	The Common Ground® initiative described in section 4.6.6.2 of this chapter promotes local dialogue at each of the Group's sites.
Civil society and NGOs	Proactive and reactive dialogue	Climate change and circular economy Prevention and management of industrial risks Responsible product stewardship Business ethics and transparency	• Collaboration with NGOs on specific projects; • discussions in relation to the materiality assessment; • periodic meetings with the media; and • responsible and transparent communication in the event of a crisis. For further details, see section 4.6.6 of this chapter.
Public authorities	Regular and occasional contact aimed at ensuring the responsible development of the Group's activities	Compliance with laws and regulations Prevention and management of industrial risks Responsible product stewardship Contribution to the social and economic dynamics of territories	• Responding to periodic surveys; • participation in various consultation and working groups; and • occasional contact at various levels (departments and cabinets) on specific topics. For further details, see section 4.6.5 of this chapter.
Professional associations	Continuous contribution to defending the industry's interests vis-à-vis the public authorities and participation in identifying and disseminating best practices across the industry	Climate change and circular economy Prevention and management of industrial risks Responsible product stewardship	Arkema participates actively in segment- or topic-specific working groups, commissions and statutory bodies within relevant associations and in the external initiatives carried out by such associations. For further details, see section 4.6.5 of this chapter.

Materiality assessment

In 2019, the Group conducted its second materiality assessment, a formal process of listening and consulting with stakeholders on CSR topics. This second assessment was extended to include the Group's three key regions – the Americas, Asia and Europe – and consultation of a broader range of stakeholders.

It is generally accepted practice to carry out a materiality assessment every three years. Arkema therefore used its 2019 assessment to draw up its strategy and will perform a new assessment in 2022.

This materiality assessment is based on an innovative approach used to clarify and strengthen the Group's CSR policy to cover both historical and rising issues. The methodology has brought genuine added value in confirming the adequacy of CSR initiatives already in place and suggesting pathways for improvement. Given the vast geographic scope covered by the assessment, decisions can be made at the global (corporate) level that can clearly be adapted locally to the seven countries directly involved.

The materiality assessment was carried out with the help of a third-party expert (*Des Enjeux et des Hommes* and C3 Consensus Europe). It was conducted in two phases, as follows:

1. A preparatory phase, during which the Group's stakeholders were mapped and the list of historical or rising CSR issues were identified.

Mapping of the Group's stakeholders in 7 countries

The map covered stakeholders at the corporate level and in seven countries (France, Italy, the United States, Mexico, China, Malaysia and Singapore) located in the three key regions in which the Group operates. These countries were chosen for their economic importance, domestic demographics and multicultural representation within the Group. Several thousand employees and external stakeholders were identified to take part in interviews, including customers, suppliers, research partners, the financial community, shareholders, non-financial rating agencies, employees and employee representatives, neighboring communities, civil society and NGOs, the media, public authorities, and professional associations.

28 historical and rising CSR issues

The list of 28 CSR issues was prepared based on the points identified in the 2016 materiality assessment, preliminary interviews with key internal stakeholders, recognized international CSR guidelines, a detailed literature review, benchmarking against industry peers and a workshop led by a predictive expert. The issues were divided into two categories:

- 14 "historical" issues of proven importance to the Group. In line with its continuous improvement philosophy, the Group wanted to interview stakeholders to measure its maturity on these key issues; and
- 14 "rising" issues. The Group wanted to understand the importance of these issues for stakeholders in order to transpose them into its CSR policy.

Historical issues for estimation of maturity		Rising issues for estimation of importance	
1	Sustainable solutions driven by innovation	**15**	Developing of a CSR culture
2	Responsible product stewardship	**16**	Responsible procurement and supplier CSR commitment
3	Collaborative innovation	**17**	Responsible personal data management
4	Prevention and management of industrial risks	**18**	Integration of digital technology into company activities
5	Occupational health and safety	**19**	Integration of CSR criteria into the Group's mergers and acquisitions policy
6	Greenhouse gas emissions reduction and energy management	**20**	Consideration of circular economy challenges
7	Water and waste management	**21**	Taking into account climate change-related risks for the company
8	Responsible governance	**22**	Reliable and educational communication on the characteristics and the proper use of products
9	Business ethics	**23**	Carbon offsetting and positive contribution to biodiversity
10	Transparency	**24**	Fair remuneration and social protection
11	Stakeholder dialogue	**25**	Well-being at work and work-life balance
12	Labor relations and respect for Human Rights	**26**	Promoting the positive impact of products and solutions
13	Training and individual development	**27**	Taking into account new end-consumer expectations
14	Diversity and equal opportunities	**28**	Contribution of the Group to the social and economic dynamics of territories

2. A consultation phase, involving over 40 in-depth interviews ("qualitative" consultation) with a wide range of stakeholders in the Group's three key regions, and an online survey ("quantitative" consultation) sent to over 6,000 employees and more than 2,400 external stakeholders.

The participation rate in the online survey was 26%, twice as high as the usual rate for this type of survey.

The answers from internal and external stakeholders were compared by analyzing the survey findings and each issue was ranked. The findings are shown in two materiality matrices:

- the maturity matrix: the 14 historical issues as perceived to reflect Arkema's maturity; and
- the importance matrix: the 14 rising issues as perceived to reflect their importance for Arkema.

The detailed matrices are available on the Group's website:

https://www.arkema.com/global/en/social-responsibility/vision-and-strategy/priority-issues/

Priority issues

Given the findings of the stakeholder survey, the Group decided to rank the most important historical and rising issues with two levels of priority (priority or important) and two levels of action (continuous, or short- or medium-term change).

Priority issues include points that were identified as priorities in 2016 as well as the most relevant rising issues. The priority issues that would involve a short-term change to make the Group's activity more sustainable are included under "seize opportunities". The other priority issues are grouped together under "maintain excellence".

The table below presents the priority issues on the two levels of action. The full table is available on the Group's website.

TABLE OF PRIORITY ISSUES

MAINTAIN EXCELLENCE (continuous)	SEIZE OPPORTUNITIES (short- or medium-term change)
Responsible product stewardship	Sustainable solutions driven by innovation
Occupational health and safety	Collaborative innovation
Prevention and management of industrial risks	Integration of digital technology into company activities
Business ethics	Consideration of circular economy challenges, including water and waste management
Diversity and equal opportunities	Greenhouse gas emissions reduction and energy management
	Training and individual development
	Well-being at work and work-life balance

The Group's 3 CSR commitments *sustainable solutions;* *responsible manufacturer;* *open dialogue.*

The materiality assessment confirmed the adequacy of the Group's CSR policy, which is structured around its three commitments, and enabled it to update its CSR priorities and identify issues that offer strategic opportunities for both the Group and its stakeholders. Consequently, the Executive Committee approved the global initiative of this materiality assessment and selected actions to take, which were published on the Group's website and intranet in June 2019. More specifically, five priority areas were defined, covering issues identified in this assessment and relating to Arkema's mission laid down in its business model presented in the "Profile, ambition and strategy" section of this document: "Design and develop, as a responsible manufacturer, innovative solutions adapted to our customers' main challenges in response to global megatrends and support them in their quest for sustainable performance".

The five priority areas defined are:

- development of a portfolio of sustainable solutions driven by innovation and responsible product stewardship;
- intensification of the circular economy;
- climate action;
- reduction of industrial risks; and
- health and well-being.

Action plans for the five priority areas were updated in 2020 and are described in the table presented in section 4.1.3 "Main impacts, risks, and opportunities" of this document. The associated indicators or targets are presented in detail in section 4.1.7 of this document.

In addition to working on these priority areas and maintaining a continuous improvement approach, the Group has decided to:

- reinforce employees' skills in digital technology and corporate social responsibility so as to better integrate these dimensions in all activities; and
- strengthen stakeholder relations locally with the Common Ground® initiative (described in section 4.6.6.2 of this document) and internationally through formal discussions with a panel of stakeholders.

In 2020 the Group brought together about ten representatives from each category of external European stakeholders and Arkema executives who represent the Business Lines, procurement and sustainable development. They chiefly discussed two key issues faced by the Group, the circular economy and climate change. Expectations were expressed concerning the need for collaboration across the entire value chain and pursuit of the Group's social contribution in its regions in three areas: labor, environmental and economic issues.

In 2022, Arkema will carry out a further materiality assessment to determine possible changes in stakeholder expectations and issues. The priority areas and action plan may be updated following this consultation.

4.1.7 CSR key performance indicators

The following table summarizes Arkema's key CSR performance indicators. These indicators, as well as the associated long-term targets, are reviewed annually by the Executive Committee, which is responsible for setting them and, where necessary, updating them. They reflect Arkema's determination to take an active role in the sustainability transition, in line with the Group's ambition described in the "Profile, ambition and strategy" section of this document, as well as its determination to address the major challenges and priority issues identified in the materiality assessment and presented in section 4.1.3 of this chapter.

In terms of safety, the TRIR and PSER targets were set for 2030 and revised to a more ambitious level, in light of the performance achieved in 2021.

Tracking and analyzing these KPIs enables the Group to validate, year after year, the performance of its CSR process and upgrade it as required. See the various sections of this chapter for further details.

	Target year	Target	2021	2020	2019
SUSTAINABLE SOLUTIONS					
Percentage of ImpACT+ sales (1)	2030	65%	51%	50%	46%
Percentage of sales from products made from renewable or recycled raw materials (2)			10%	10%	9%
RESPONSIBLE MANUFACTURER					
Percentage of AIMS audited sites	2025	100%	86%	82%	80%
Safety					
Total recordable injury rate (TRIR) (3)	2030	0.8	1.0	1.0	1.4
Process safety event rate (PSER) (4)	2030	2.0	3.1	4.0	3.7
Environmental footprint					
Greenhouse gas (GHG) emissions (5) *(in absolute terms compared with 2015)*	2030	0.62	0.66	0.77	0.87
Volatile organic compound (VOC) emissions *(in EFPI terms compared with 2012)*	2030	0.35	0.50	0.58	0.60
Chemical oxygen demand (COD) *(in EFPI terms compared with 2012)*	2030	0.40	0.45	0.45	0.50
Net energy purchases *(in EFPI terms compared with 2012)*	2030	0.80	0.85	0.90	0.91
OPEN DIALOGUE					
Employee development and diversity					
Percentage of women in senior management and executive positions	2030	30%	24%	23%	23%
Percentage of non-French nationals in senior management and executive positions	2030	50%	40%	41%	40%
Responsible procurement					
Percentage of purchasing spend from relevant suppliers covered by a TfS assessment (6)	2025	80%	71%	68%	68%

(1) The percentage of sales contributing significantly to the United Nations SDGs (ImpACT+) was calculated on the basis of an assessment of 85% of the Group's third-party sales in 2021, 72% in 2020 and 44% in 2019.

(2) The percentage of sales from products made from renewable or recycled raw materials covers products with a renewable or recycled raw material content of at least 25% in 2021 and 20% for previous years (the threshold increase did not impact the value of the indicator).

(3) The TRIR includes injuries to both Group and subcontractor employees.

(4) The PSER is calculated in accordance with the criteria set out by the International Council of Chemical Associations (ICCA) and the European Chemical Industry Council (CEFIC).

(5) Greenhouse gas emissions cover direct Scope 1 emissions and those of ozone-depleting substances, and indirect Scope 2 emissions.

(6) Relevant suppliers are those accounting for 80% or more of the Group's recurring purchasing spend.

Improvement process and recognition

For several years now, Arkema has been strongly engaged in a process to improve its CSR performance. The Group's approach is regularly assessed by external stakeholders, particularly extra-financial rating agencies and customers, providing the Group with areas for improvement that will enable it to rank among the best performing companies in the industry. As requested by Group customers, site audits may also be performed by independent auditing firms to supplement this assessment.

In 2021, Arkema was ranked among the top five in the chemicals sector by rating agency V.E. and was included in the newly created French CAC 40® ESG index.

Arkema also maintained its position in the Dow Jones Sustainability Index, improving its ranking to third place in the Chemicals category of DJSI World. This recognition, and the general improvement in extra-financial ratings, confirm the appropriateness of the Group's CSR approach.

Inclusion in the DJSI World and DJSI Europe indices since 2020

"A" rating since 2017

In 2021, a "B" rating was obtained for Climate Change and a "B" rating for Water Security

Inclusion in the Europe 120 and Eurozone 120 indices since 2015
Inclusion in CAC 40® ESG in 2021

Arkema ranks among the top 1% of companies in the sector since 2014

"C+" rating. Arkema is in the top worldwide decile

4.2 Sustainable solutions

DEVELOP INNOVATIVE SOLUTIONS ADAPTED TO GROUP CUSTOMERS' MAIN CHALLENGES AND SUPPORT THEM IN THEIR QUEST FOR SUSTAINABLE PERFORMANCE

4.2.1 Management of sustainable solutions

In a world faced with a multitude of economic, environmental and social challenges, Arkema aims to provide its customers with sustainable and innovative solutions that contribute to the Sustainable Development Goals (SDGs) defined by the United Nations. As indicated in section 4.1.6 of this chapter, responsible product stewardship and the provision of sustainable and innovative solutions have been clearly confirmed as priorities in the materiality assessment.

Solutions that contribute to sustainable development are therefore central to Arkema's innovation policy and to the development of its product range. This opens up a vast array of opportunities, both for the Group and its partners.

Through its commercial excellence program, Arkema listens to its customers, enhancing its understanding of their needs with a view to developing innovative solutions adapted to their challenges and supporting them in their quest for sustainable performance.

Through its choice of research areas, its continuous development of employees' skills and its innovation structure and processes, Arkema endeavors to develop solutions with its partners that address the societal challenges of today and tomorrow.

Through responsible product stewardship, Arkema also takes care to ensure that its products do not harm people's health or safety or damage the environment. These aspects are taken into account right from the product design stage.

In addition to complying with the regulations, which forms the foundation of its commitment, Arkema implements an approach aimed at continuously improving scientific knowledge so that it can adapt its range of solutions accordingly and provide its customers and end users with the information necessary for the appropriate use of its products.

The importance of sustainable solutions is reflected in the Group's organization. For example, the Product Safety and Environment team is an integral part of the Sustainable Development department. The Product Stewardship Steering Committee meets at least twice a year to review progress and decide on priorities and action plans to improve the responsible management of the range of solutions. The new committee comprises six members from the Executive Committee, which oversees business and industrial operations, and members from the Sustainable Development and Research and Development departments. Every year, the Sustainable Development Vice-President presents the Executive Committee with an overview. In addition, the Board of Directors decided to create an Innovation and Sustainable Growth Committee in 2021. The committee is tasked with assessing the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth. The overall governance of sustainable development is presented in section 4.1.2 of this chapter.

To supplement its innovation and responsible product stewardship processes, Arkema has implemented a program to systematically assess its portfolio of solutions in light of sustainability criteria. The program is presented in section 4.2.3 of this chapter.

Circular economy

Arkema has made the circular economy a priority area with the overall goal of reducing the environmental impact of its activities throughout the life cycle. Arkema's approach to the circular economy is presented in section 4.3 of this chapter.

4.2.2 Innovation

Innovation is a strategic pillar in Arkema's targeted growth strategy and a key component in its contribution to sustainable development. Innovation in manufacturing technologies, products and applications is a driving force behind the development of sustainable solutions consistent with the Group's social responsibility commitment.

Arkema's innovation strategy is outlined in section 1.1 of this document.

Indicative of the Group's momentum on sustainable development, its patent filings in this field saw a significant increase in 2021, both in absolute terms and proportionally to total filings.

	2021	2020	2019
Number of patent applications filed during the year relating to sustainable development	200	158	149
Percentage of patent applications filed during the year relating to sustainable development	90%	78%	67%

4.2.3 Management of the solutions portfolio

Archimedes program: assessment of the solutions portfolio

To shift its product range more assertively toward sustainable solutions, in 2021 Arkema continued the program it started in 2018 to systematically assess its portfolio of solutions in light of sustainability criteria.

The approach used is consistent with the Chemical Industry Methodology for Portfolio Sustainability Assessments (PSA) established by the World Business Council for Sustainable Development (WBCSD). It takes into account all of the social, environmental and economic impacts.

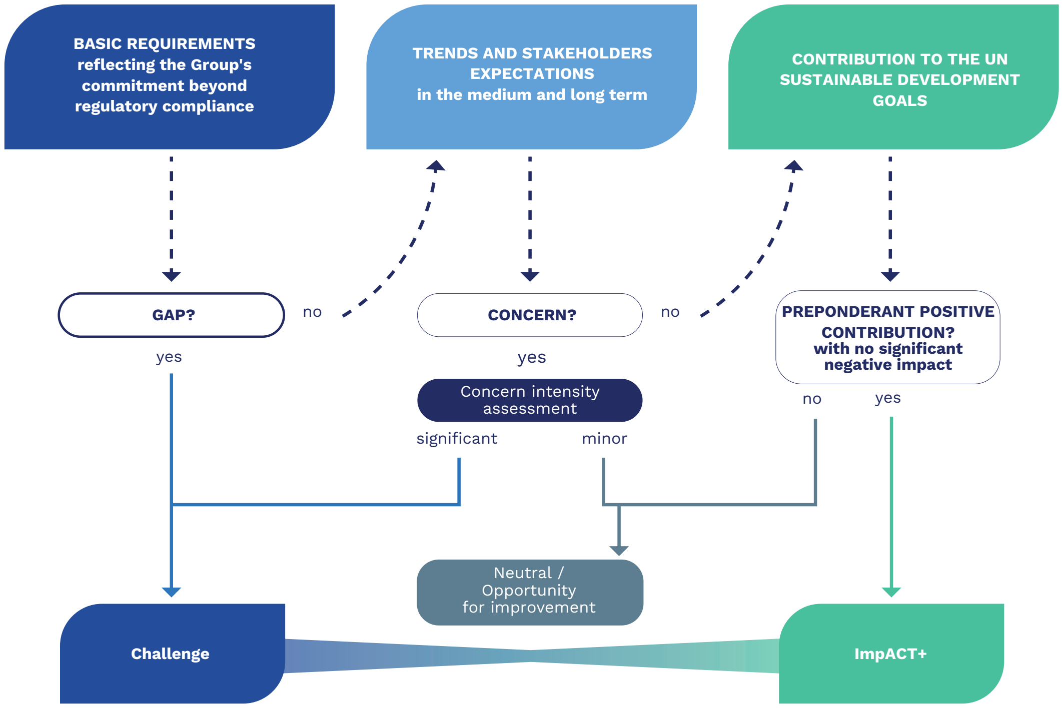
Products are considered in the context of their applications and of the regions in which they are sold.

To the extent permitted by the information available, the assessment takes into account the entire value chain, including manufacturing processes, from raw materials to the product's end of life. It is carried out using three sets of criteria:

- basic requirements, which reflect (i) the Group's commitments relating to product responsibility in the area of health, safety and the environment, going beyond regulatory compliance, (ii) the principles of ethics and respect for Human Rights, and (iii) long-term profitability factors;
- medium- and long-term trends in the regulatory framework and market expectations in terms of sustainable solutions, for which an impact criticality assessment is performed; and
- contribution to the UN Sustainable Development Goals (SDGs), using the market's standard solutions as a reference. The ten SDGs most relevant to Group activities were selected.

The assessment considers all known, presumed or suspected hazardous substances present in finished products as well as in raw materials and processes. Particular attention is paid, in terms of both products and the raw materials used, to the presence of substances identified in the regulations as being substances of very high concern (SVHCs) after Arkema's analyses, or which nonetheless meet SVHC criteria.

ARCHIMEDES PROGRAM: ASSESSMENT FLOWCHART



In this way, solutions are classified into different levels of contribution, making it easier to more effectively target actions that favor a sustainable sales portfolio.

ImpACT+ solutions

Solutions in the ImpACT+ category include those that, on the basis of a decision tree reflecting the three sets of criteria mentioned above, simultaneously (i) meet the basic requirements, (ii) are aligned with regulatory trends and market expectations, (iii) have a positive impact compared with the market standard on at least one of the SDGs, and (iv) do not generate a significant negative impact on the other SDGs.

Neutral and Challenge solutions

Other solutions can have a neutral impact or present a certain degree of risk in view of evaluation criteria. Based on the impact criticality assessment, they are classified as either “Neutral/Opportunity for improvement” or “Challenge”.

Appropriate action and improvement plans have already been drawn up for more than 75% of “Challenge” solutions, including plans for substitution by safer alternatives.

At end-2021, the assessment covered 85% of the Group’s third-party sales compared to 72% at end-2020. The method is being fine-tuned as it is rolled out and this approach will continue in 2022.

The percentage of sales generated by ImpACT+ solutions stood at 51% in 2021 with a target of 65% by 2030.

To achieve this strategic objective, the Group implements voluntary actions to support three key drivers, which are continuous improvement of solutions, sustainable innovation for products and applications, and active promotion of ImpACT+ solutions.

2030 *TARGET*

To strengthen its commitment in terms of sustainable offer, the Group has set a strategic target: 65% of ImpACT+ sales in 2030

	2021	2020	2019
Percentage of ImpACT+ sales (1)	51%	50%	46%

(1) *The percentage of sales contributing significantly to the United Nations SDGs (ImpACT+) was calculated on the basis of an assessment of 85% of the Group’s third-party sales in 2021, 72% in 2020 and 44% in 2019.*

ImpACT+ solutions which, through their design and their use and end-of-life phases, contribute to the efficient use of resources and a reduction in the carbon footprint (Sustainable Development Goals No. 12 “Ensure sustainable consumption and production patterns” and No. 13 “Take urgent action to combat climate change and its impacts”), accounted for 43% of the Group’s sales in 2021.

FOCUS

Bostik butyl sealing tapes: for safe and efficient buildings

Butyl sealing tapes provide a safe and easy-to-use solution to ensure the integrity of the building envelope throughout its life. They create a watertight, draught-proof seal around windows and doors, thus reducing the building's energy consumption. They replace metal or bitumen, thus eliminating the need for flame treatment, avoiding exposure of construction workers to heavy metals, and providing unique flexibility even at low temperatures.

FOCUS

Crayvallac® organic bio-based powders

Made from castor oil derivatives, Crayvallac® organic powders are a family of high performance rheology modifiers. One of their distinguishing features is their exceptional rheofluidifying behavior, which improves run-out resistance at higher film thicknesses, thus helping to reduce the number of coats to be applied. An excellent alternative to fumed silica-based technologies, Crayvallac® organic powders are also safer for the people who handle them.

4.2.4 Responsible product stewardship

4.2.4.1 Responsible product stewardship policy

Arkema integrates health, safety and environmental protection into every product's design and throughout its life-cycle.

This product stewardship process, which in certain aspects exceeds regulatory requirements, engages stakeholders across the product chain, from raw material suppliers to end-customers.

The Group expresses its commitment to responsible product stewardship in its Social Commitment Charter and its Hygiene, Safety, Environment and Quality Policy and by endorsing the International Council of Chemical Associations' (ICCA) Responsible Care® initiative.

Concrete actions to reflect this commitment include:

- active contribution to advancing scientific knowledge to better take into account the hazards and risks relating to products and their use;
- product design aiming to reduce health, safety and environmental risks. Particular care is taken with products designed for consumers and professionals and with products likely to end up in recycling loops;
- risk management in existing products ranges that could lead to substitution, taking into account the entire value chain so that all aspects are considered, from raw materials to the product's end of life, including waste treatment and the circular economy; and
- communication and clear information for product users, based on fair advertising and marketing practices.

Leveraging its organization and the scientific and regulatory expertise acquired over many years, Arkema ensures that product-specific HSE roadmaps are defined by country and are adapted to local conditions, thus helping to drive continuous improvement and deepen its knowledge of each product's features and conditions of use. In addition, the Group uses the Arkema Integrated Management System (AIMS) described in section 4.5.1.2 of this chapter to manage HSE risks related to product modifications, particularly changes to product composition and manufacturing processes.

A training module on responsible product stewardship has also been introduced internally and added to the training program for various business and Supply Chain teams.

4.2.4.2 Regulatory product management

Regulatory compliance plays a key role in product safety for customers, the entire value chain and stakeholders.

In recent years, Arkema has notably deployed the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and implemented the European Union's Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulations, which came into effect in 2007 to make the production and use of chemicals safer throughout the European chemicals industry.

Deployment of GHS

GHS is a major United Nations initiative designed to replace the various chemical classification and labeling standards used in different countries with a global system based on consistent criteria. The Group has deployed it in every participating country, in line with its implementation in local legislation.

In Europe, the GHS has been transposed into the Classification, Labeling and Packaging (CLP) regulation governing chemical products and mixtures. Arkema reassessed and classified all the substances contained in its product portfolio within the regulation's deadline and updated the related Safety Data Sheets and labels. The Group tracks the GHS updates published twice a year and aligns its Safety Data Sheets accordingly in the countries and regions that transpose them.

In addition, Arkema has deployed the system in other countries, in particular in the United States, South Korea, China, Malaysia, Australia and Turkey, again within the regulatory timeframe. Roll-out is proceeding apace in the countries that are currently phasing in the GHS.

REACH implementation in Europe

REACH is a European regulation that aims to make in-depth changes in the way chemical substances are managed by improving the level of knowledge of these substances, analyzing their environmental and health risks and defining measures to manage the risks arising from their use or manufacture.

An advocate of the regulation's objectives since its inception, Arkema mobilized a team of more than 30 experts in toxicology, ecotoxicology and regulatory compliance – working both centrally within the Product Safety and Environment department as well as within the Group's businesses and corporate departments – to successfully complete the final phase of registration. In total, the Group registered 425 substances, 40% of which as the lead registrant, at the various stages of registration of the REACH regulation. Compliance with these regulations is expected to represent an overall cost of around €65 million for the registration of substances by the first three deadlines. An additional envelope of more than €40 million has been earmarked to cover the maintenance, improvement and development of the portfolio during 2019-2023.

When the registration stages have been completed, research on chemical substances will continue in line with the REACH regulation to further improve knowledge of their properties and applications. The regulation represents a significant source of progress in the areas of risk management and the protection of the health and safety of people and the environment.

The quality of REACH registration dossiers has been of great public interest since the end of the last REACH deadline.

In its 2017 REACH review, the European Commission stated that REACH was fully operational and delivered results on par with its objectives, and that it addressed citizens' concerns about chemical safety. The Commission identified four measures to improve the implementation of REACH, including one to improve the quality of registration dossiers.

In June 2019, the European Commission and the European Chemicals Agency (ECHA) issued a joint action plan with a set of measures to address that need for improvement.

In parallel, the European chemical industry, *via* the European Chemical Industry Council (Cefic), has defined and launched an action plan to review and improve registration dossiers. This multi-annual plan provides REACH registrants with a framework to progressively reassess safety data. In its action plan, Cefic sets the timeline, roles and responsibilities, substance prioritization criteria and critical issues, and explains how progress is to be reported. Cefic has signed a cooperation agreement with ECHA on its implementation.

Arkema joined the more than 190 companies from the chemical industry in signing up to the action plan. It fits perfectly with the Group's responsible product stewardship strategy, which has gone beyond the ECHA's demands by proactively updating its dossiers to take into account new data and changes to ECHA guidelines. These proactive updates accounted for around 45% of the Group's filings maintenance activity in 2021.

With the launch of the European Union's Chemicals Strategy for Sustainability, Europe is opening a new regulatory chapter for the assessment and management of chemical risks. Arkema is already preparing by analyzing both the impact of the strategy on its business and the opportunities it could generate, which will be translated by the authorities into regulations and implementing measures in the years to come after consultation with stakeholders, including national and European industry associations.

Management of REACH-defined substances of very high concern (SVHC)

The European Union introduced its Community Rolling Action Plan (CoRAP) right from the first phase of registration, in order to be able to identify the substances of most concern by 2027. Since 2012, 384 substances have been or will be evaluated under the plan. Thirty-three of the Group's substances have been listed in CoRAP and their state of advancement is as follows:

CoRAP	2012-2023	Evaluation completed	Additional information provided: awaiting conclusion	Additional data being constituted	Upcoming evaluation
Number of substances	33	19	2	4	8

Following evaluation, additional information may be requested to determine if the risks are effectively managed. This could eventually lead to proposed pan-European risk management measures, such as restrictions, the identification of substances of very high concern or other initiatives outside the REACH remit.

Arkema has put in place a dedicated process to track the REACH-defined SVHCs that are used in its productions or placed on the market. It was designed in response to the REACH substance authorization process, which has two phases:

- the first consists in identifying substances that could have potential negative impacts on human health or the environment. Once so designated, these "substances of very high concern" are added to a list of substances that may be subject to prior authorization for their specific use (Annex XIV); and
- the second phase aims to ensure that the risks from the use of these SVHCs are adequately managed and that the substances themselves are being gradually replaced by appropriate alternatives. These substances may not be placed on the market or used after a designated date unless an authorization is granted (or waived) for their specific use.

As soon as the authorities propose that a substance be listed as an SVHC, Arkema responds to the public hearings organized by the ECHA for substances whose use(s) may be subject to authorization.

In cases where these substances finally qualify as SVHCs and are included in the candidate list, a review is conducted to determine the most appropriate response, such as assessing alternative substances for the intended uses, applying for authorization when the substance is listed in Annex XIV, or converting the production unit and phasing out production.

ANALYSIS OF THE GROUP'S SVHCS

Substances of Very High Concern	SVHCs contained in products placed on the market	Of which SVHCs contained in raw materials
SVHCs subject to REACH authorization	10	9
SVHCs on the REACH candidate list	50	45

Outside Europe, the table above covers all the Group's businesses except for recent acquisitions by Bostik. Products containing these substances, whether subject to authorization or on the candidate list, accounted for 2.5% of sales in 2021, down from 2.9% in 2020. This decrease, despite the increase in the number of SVHCs in the candidate list, is the result of the Group's reformulation and substitution work. The Archimedes portfolio evaluation program outlined in section 4.2.2 is capable of identifying products in a "challenge" category, for priority action-plan rollout.

In November 2015, Arkema filed an application with the ECHA for the authorization of sodium dichromate, used as a processing aid at the Jarrie plant in France, while waiting for an alternative solution to be found. The request was accepted by the European Commission on 29 January 2018 for a period of 12 years.

At the end of 2021, the industry candidate list contained 219 substances, including (i) hydrazine produced at the plant in Lannemezan, France, (ii) 2-imidazolidinethione (ETU) produced by MLPC, (iii) nonylphenol ethoxylates (NPE) produced by the surfactants and additives business and (iv) two photoinitiators (2-methyl-1-(4-methylthiophenyl)-2-morpholinopropan-1-one and 2-benzyl-2-dimethylamino-4'-morpholinobutyrophenone) produced by Lambson.

On 13 June 2017, NPE was added to the list of substances that require authorization. In 2018, Arkema decided not to maintain these product lines in the applications subject to authorization.

REACH's third component is the restriction procedure, which is intended to restrict or prohibit a substance's production, marketing or use. The restriction relating to perfluorooctanoic acid (PFOA) derivatives came into effect on 13 June 2017. However, the Group has not been affected by the measure because it voluntarily replaced these substances in its fluoropolymer production process back in January 2016, before the measure came into effect in Europe. There have also been discussions, particularly in Europe and the United States, on changes in regulations concerning per- and polyfluoroalkyl substances that could have an impact on certain Group fluoropolymer chemical activities.

Previously recommended for authorization, cobalt chloride is now recommended for restriction, after an analysis of the most effective risk management option. The proposal prepared by the ECHA was published in October 2018. It was finalized in September 2020 when the Committees for Risk Assessment (RAC) and for Socio-Economic Assessment (SEAC) issued their final opinions to the European Commission in anticipation of a regulatory proposal. The Group, which uses the substance as a processing aid at the Jarrie plant in France, is analyzing the impact and exploring various solutions, including replacement.

With regard to microplastics, France's law of 10 February 2020 on the fight against waste and promotion of the circular economy introduces restrictions on the use of microplastics intentionally added to products. It will have a limited impact on the Group's activities in 2027 for some of its products used in cosmetics applications. At the same time, the European Commission will finalize a proposed restriction on the use of microplastics in certain applications in 2022, which could mean that France will have to align, when the time comes, its own legal provisions with the new European regulatory framework.

Compliance with other legislation

Outside Europe, Arkema markets its chemicals in accordance with national and regional regulations, as applicable. Due to its history and global presence, some of these products are already notified in many inventories. Should a need arise for a new product notification, applications can be filed in a timely manner thanks to the extensive database Arkema maintains on the characteristics of its products.

In particular, since 2015, this process has made it possible to respond to the three new REACH-like regulations that have been introduced in South Korea, Taiwan and Turkey. For example, Arkema has completed phase I registration of substances in Taiwan and has been submitting annual reports to the Korean authorities since 2016.

Arkema has also joined consortia formed to jointly register substances brought to market in South Korea, in accordance with article 15 of the Act on the Registration and Evaluation of Chemical Substances (ARECS), and registered nine substances before the first deadline of June 2018. The Group completed the pre-registration of all substances brought to market in South Korea in June 2019, in accordance with the amendment issued in March 2018, and registered the substances covered by the first deadline (31 December 2021). Arkema continues to prepare for the registration of substances according to schedule.

The Group is now preparing for the upcoming registration deadline in Turkey and has already completed the necessary pre-registrations. It also prepared for the United Kingdom's exit from the European Union and started compliance work on the basis of the regulatory information available, in particular with the grandfathering of registrations held by Arkema UK Ltd and substance notification at 27 October 2021 to benefit from transition periods for registration.

Following the publication of rules aimed at reforming the Toxic Substances Control Act (TSCA) Chemical Substance Inventory in the United States, the Group notified the US authorities of active substances in its portfolio in February 2018.

On a more specific note, the Group does not manufacture any persistent organic pollutants (POPs).

The Group complies with regulations on genetically modified organisms (GMOs) in different countries and regions. The vast majority of plant-based raw materials used by Arkema is guaranteed GMO-free, and this can be traced if customers so require.

Lastly, the Group has a policy of restricting the use of its products in medical applications solely to temporary implants (less than 30 days). To assist the Group's businesses in their choices, Arkema has set up medical applications assessment committees in order to assess the compliance of the intended products with prevailing laws and regulations.

4.2.4.3 Product information

Arkema relies on an in-house team of expert toxicologists and ecotoxicologists which conducts product hazard studies and works closely with regulatory experts to assess risks in normal conditions of use. The findings are shared across the Group and externally in various forms, such as Safety Data Sheets and labeling.

Safety Data Sheets (SDSs)

In many countries, Arkema describes its product characteristics and conditions of use in Safety Data Sheets (SDSs), which are required to market chemicals classified as hazardous to human health or the environment. They are prepared in some forty languages based on a global database comprising the composition of every product and its toxicological, ecotoxicological and physicochemical data, thereby ensuring consistent information in every market. Arkema issues SDSs in accordance with regulatory requirements and posts them on the Group website or the online QuickFDS platform. As part of the responsible product stewardship process, Arkema exceeds regulatory obligations by issuing SDSs even for products that are not classified as hazardous and by providing users with an emergency hotline available 24/7.

In Europe, the Group's organization and IT infrastructure have made it possible to issue extended SDSs, the latest REACH compliant format, which improve risk management by including exposure scenarios for each identified use.

Labeling

Arkema has also developed systems to print labels with a consistent classification, regardless of the country in which the product is manufactured or marketed.

In addition, efficient IT systems enable Arkema to prepare compliance documents and align them as needed with the latest formats and data, notably when the GHS standardized classification and labeling system is introduced in a new country.

Poison control centers

The CLP regulation makes alignment with the GHS a legal obligation throughout the European Union. In addition, under the regulation, companies that put hazardous mixtures on the market must provide information about those mixtures to the bodies appointed by their country. The appointed bodies make the information available to poison control centers so that they can provide medical advice rapidly in an emergency situation.

Under the new provisions of the CLP regulation, which came into effect in March 2017, these companies will be required over time to:

- use a harmonized format for the transmission of information *via* a portal hosted by the European Chemicals Agency (ECHA). This EU-wide format will gradually replace national requirements for the transmission of information; and
- generate a unique formula identifier (UFI) for each formula, which must be included on the product label. This establishes an unambiguous link between the product placed on the market and the information relating to the mixture, enabling accurate and rapid identification of the product's formula. Accurate identification is essential in order to provide the appropriate medical advice in an emergency.

With the help of its teams and its IT infrastructure, the Group took the measures necessary to meet the first deadline in January 2021 and continues its activities for the next deadline, set for 1 January 2024.

4.2.4.4. Animal welfare

Given its business portfolio, Arkema neither conducts triage trials on substances derived from its research nor participates in toxicology research projects that could involve the use of laboratory animals.

The Group always conducts in-depth analyses of data in existing literature, thanks to constant tracking of information on Group substances, in order to use all of the available public information.

The Group does not conduct toxicology studies on vertebrate animals other than those required by the authorities and only after an in-depth analysis and application of up-to-date existing public information on the substances in question. The necessary studies are contracted to outside laboratories which are subject to oversight by the relevant ethics committees.

As required by REACH, the Group applies, whenever possible, the rules for waiving standard testing when such tests are not justified (due to the absence of exposure) or when alternative methods can be used. In addition, Arkema participates in the work of FRANCOPA, a French platform dedicated to the development, validation and dissemination of alternative animal testing methods, using the 3Rs (reduction, refinement, replacement), to which the Group adheres. It applies the 3R approach in all the studies it conducts.

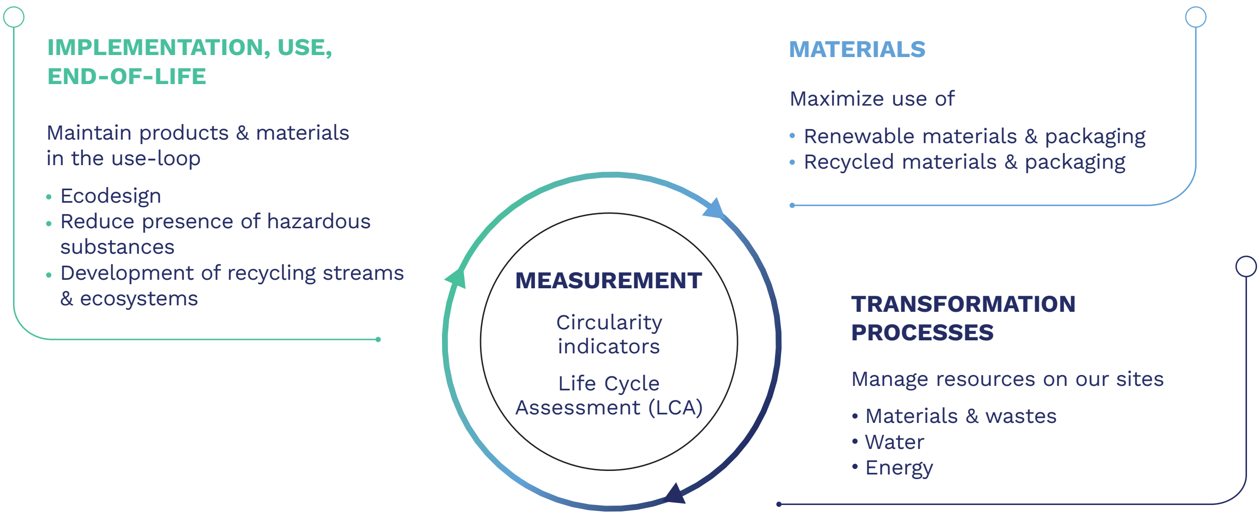
4.3 Circular economy

DESIGN PRODUCTS AND SERVICES THAT MINIMIZE WASTE AND POLLUTION AND OPTIMIZE THE USE OF RESOURCES, AND KEEP PRODUCTS AND MATERIALS IN USE

4.3.1 Circular economy approach

To respond to the scarcity of natural resources and the increasing environmental impact of human activities, Arkema develops the circular economy by conserving resources and reducing the environmental impact of activities throughout the life cycle. The Group has made the circular economy a priority area, in line with the findings of its materiality assessment, presented in section 4.1.6 of this document. The circular economy challenge and the changes it requires apply to both the Group's solutions and its industrial operations, and Arkema is speeding up and strengthening its actions in this area.

Arkema's approach to the circular economy and responsible resource management covers the entire value chain and is based on four main drivers:



The circular economy program is managed by the Circular Economy Coordination Committee, which meets at least twice a year. It is made up of the Research & Development, Sustainable Development, Processes and Environment Vice-Presidents and the Renewables and Recycling Scientific Director. It oversees programs relating to the circular economy and the progress made in this area.

The main advances are shared with the Industrial Ecology Steering Committee for aspects related to transformation processes and with the Product Stewardship Steering Committee for all other aspects of the circular economy. These two steering committees, which include members of the Executive Committee, approve guidelines and decide on priorities and action plans.

4.3.2 Material selection

A pioneer in the use of raw materials made from biomass, as illustrated by the use of castor oil to produce Rilsan® specialty polyamides, Arkema makes every effort to maximize the use of circular materials in its products and packaging, including recycled or non-virgin materials and materials from renewable sources. The "Natural resources management" strategic innovation platform, described in section 1.1.2.1 of this document, fully supports this dynamic.

The new facility being built in Singapore that will be used to produce 100% bio-based amino 11 monomer and Rilsan® polyamide 11 will expand Arkema's offer of high performance materials made from renewable sources as of 2022. The Group issued its first green bond in 2020 to finance the construction of the new plant (see section 5.5 of this document).

The Group works extensively with its suppliers to measure the percentage of renewable and recycled materials in purchased products and packaging, to encourage the development of circular solutions, in particular *via* partnerships, and to secure the supply of strategic materials.

In addition, the Group's activities are encouraged to apply eco-design principles, and more particularly the use of circular materials and packaging, right from their solutions' initial phases of development.

This ongoing commitment was again demonstrated in 2021 by the fact that products at least 25% made from renewable or recycled raw materials accounted for around 10% of Group sales. Coming in at over €950 million, this sales figure is up by a sharp 12% on 2019 and 20% on 2020. Renewable raw materials include bio-sourced materials (*i.e.*, from biomass, plant or animal), and materials certified renewable by a Mass Balance approach. Recycled raw materials may also include materials certified using the Mass Balance approach.

FOCUS

SENSIO™: a range of bio-based, biodegradable surfactants for more sustainable detergency

SENSIO™ surfactants, which are up to 100% plant-based, GMO-free and non-competitive with the food chain, are derived from the sustainable castor oil industry, in which Arkema is a major player. Thanks to the Mass Balance approach, SENSIO™ surfactants are ecocertified and can be used in ecolabeled products, enabling Arkema's customers to create new-generation detergent formulas that are increasingly concentrated and effective, more sustainable, more responsible and more efficient.

4.3.3 The circular economy in transformation processes

The Group's initiatives to reduce the environmental impact of its industrial sites are underpinned by its resource management policy and notably consist in optimizing their use of raw materials, energy and natural resources like water. New manufacturing units are designed to incorporate environmental footprint considerations into the choice of processes and equipment. Special attention is also paid to operating conditions, and maintenance and development investments are regularly undertaken to optimize the use of water, energy and raw materials at Group plants.

4.3.3.1 Energy use

Arkema has developed a climate policy, which is presented in section 4.4 of this chapter. This policy includes ambitious objectives and concrete actions to improve the Group's energy intensity. For further details, see section 4.4.3.2 of this chapter.

4.3.3.2 Water use

Water is used in the Group's industrial operations to:

- provide a reaction medium for certain production processes, cool production installations and clean products and equipment;
- generate steam; and
- operate hydraulic barriers to treat groundwater contaminated by legacy pollution on historical sites.

To contribute to optimizing the use of fresh water, whether withdrawn from the surface or the water table, Arkema is upgrading production practices by installing water-saving systems and closed loops. These initiatives can cover a wide range of solutions, such as tracking usage more effectively, installing flow meters, deploying leak detection programs, changing technologies, upgrading fire-fighting systems, recovering rainwater and recycling water from scrubbing or vapor condensates.

In 2016, as part of the operational excellence program, the Group launched the Optim'O project to optimize its production units' water management.

The analyses carried out as part of this project found that:

- 80% of water withdrawn from the natural environment is returned as surface water;
- 90% of consolidated water use is attributable to less than 17 plants, none of which are located in a water-stressed region; and
- facilities located in water-stressed regions in 2019, identified using the World Resources Institute's Aqueduct tool, represented less than 2% of the Group's consolidated water use and accounted for less than 2% of total production in terms of tonnage.

Drawing on these observations, the Optim'O project gives rise to numerous initiatives, particularly at the sites that account for most of the Group's water use and/or generate the most wastewater.

In 2020, the identification of the Group's water-stress-related risks was stepped up by adopting a more detailed, forward-looking methodology and by using WRI's Aqueduct and WWF's Water Risk Filter. The next phase, which involves analyzing the impact of water stress on the Group's activities, began in 2021 with the launch of a pilot study on a Business Line with operations worldwide.

FOCUS

Reducing water use

In Changshu (China), the systematic approach to optimizing water resources led to the roll-out of several water reuse projects, as a result of which the site's consumption fell by 22% between 2019 and 2021.

The table below presents consolidated water withdrawals in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

Water use	2021	2020	2019*
Total water withdrawn *(in millions of cu.m)*	104	114	116

* *Following a correction of the 2019 metering methodology at the Pierre-Bénite site (France), the 2019 value communicated in the 2019 Universal Registration Document was reassessed by 2.8 million cu.m (corresponding to 0.32 cu.m/€k), consistent with the metering methodology of the other years.*

Water withdrawal decreased by 10 million cu.m in 2021. About half of this reduction came from divestment of the PMMA business, and the remainder from water savings achieved.

To step up action on protecting water resources, in 2021 the Group set a new goal for water withdrawal as a percentage of Group sales. The indicator is based on gross volumes less withdrawals and volumes sold to third parties. The reduction target is 11% with respect to 2019, *i.e.* 8.0 cu.m/€k by 2023. The indicator stood at 6.9 cu.m/€k in 2021, a sharp drop on the 2020 figure, owing to the combined effect of lower withdrawals and a higher sales figure.

4.3.3.3 Raw materials use

Arkema wants to contribute to optimizing the consumption of non-renewable raw materials used in its manufacturing process with the primary goal of reducing their use by deploying process control initiatives and developing best operating practices.

In addition, to optimize its own and its customers' raw materials use, the Group undertakes, independently or in partnership with suppliers, such programs as recycling the reaction solvents used in its production processes. It promotes the purchase of recycled packaging and encourages its suppliers to develop this practice. It also offers customers other recycling solutions and deploys circular economy initiatives that are described in sections 4.3.2 and 4.3.4 of this chapter.

Lastly, the Group also uses circular, renewable and recycled raw materials in its production processes, as described in section 4.3.2 of this document.

4.3.3.4 Circular economy and industrial operations

The Group strives to limit waste and recovers by-products generated by its industrial processes. The Group's industrial-scope circular economy program has been strengthened since 2020 and involves:

- reducing consumption of raw materials;
- reducing the use of packaging (upstream and downstream);
- reducing waste production;
- carefully sorting and preparing waste to ensure the best possible treatment process;
- securing the sale of co-products and by-products and preventing their reclassification as waste;
- improving internal and external waste treatment processes; and
- processing third-party waste in cases where it is possible to improve disposal methods.

As part of this program, an awareness campaign has been launched for all industrial sites and a review of all waste flows has been initiated in order to improve circularity.

FOCUS

Solvent regeneration at Ribécourt (France)

Solvents must be renewed to maintain the performance of the processes in which they are used. A growing proportion of solvents is purified by the sites or by subcontractors for reuse. The Ribécourt plant is a perfect example of this approach, with a process that recycled 215 tonnes of solvents in 2021.

Recycling packaging materials

For many years, the Group has been using recycling and recovery channels provided by packaging suppliers and encourages its customers to also use these systems.

Recycled packaging is used whenever possible, depending on the compatibility between containers and contents. Out of their total packaging consumption, some industrial sites use up to 70% recycled packaging.

More direct channels have also been set up, such as at the ArrMaz plant in Kunming (China), which returns intermediate bulk containers (IBCs) to its suppliers, and which itself set up a take-back system for empty drums and IBCs from several of its customers in 2021.

The Group also stresses the importance of using new packaging designed with an optimized percentage of recycled materials, as cardboard and plastic container recycling operators now offer a wide selection.

The marketing teams from the Group's various businesses work to integrate into their product lines packaging made from the Post Consumer Recycled (PCR) stream, as the offer of these materials continues to grow. The Group's technical approach to packaging places priority on single-material packaging and high recyclability options. For example, the small bags used for Bostik's tile adhesives and mortars have always been made out of kraft paper, a material with a recycling rate of 80% to 85%. A firm advocate of using recycled packaging, Arkema urges its suppliers to design and develop standards that will contribute to rapidly expanding recycled packaging solutions throughout the chemical industry.

In 2020, manufacturers of plastic cartridges (an essential packaging component for the sealants and adhesives produced by the Group) entered into a technical testing phase designed to ensure that a significant portion of recycled plastic is integrated into their production processes in the near future.

Reusing by-products

Arkema markets by-products from the production of its leading products by finding suitable commercial applications linked to their inherent properties.

By-products from the conversion of castor oil into undecanoic amino acid at the Marseille (France) plant are examples of re-use through the Oleris® range, whose bio-based origin is in increasing demand in recycling channels.

At the Hengshui site in China, similar by-products, along with crystallized sodium sulfate converted from a sulfuric acid waste flow, accounted for a total of 69,000 tonnes sold in 2021.

Waste

Recycling

In addition, Arkema is seeking solutions to transform certain types of industrial waste, which otherwise would be discarded, into products that can be used in other industries. The Group formed a transdisciplinary working group – representing Business Lines, procurement, processes, HSEQ, R&D and sustainable development – to step up these efforts and increase coordination with partners.

In 2021, 21% of waste produced worldwide by the Group was recycled on- or off-site to recover useful materials.

For several years, the Mont facility in France has marketed the sodium-water produced as part of a monomer purification process to the paper industry for use in the kraft paper and cardboard production process. The basic, organic material-rich water helps to minimize sulfur loss in the process regeneration loops.

At the Lacq site (France), desulfogypsum from the sulfur residue treatment facility is a non-hazardous waste that is re-used as a material for the manufacture of plasterboard. In 2021, 12,500 tonnes of desulfogypsum were recycled in this way, thereby avoiding their being sent to landfill.

At the Jarrie site (France), used secondary filters from the hydrogen peroxide production unit were previously sent straight to disposal systems. Thanks to a new waste recovery system, the palladium present in these filters is now recycled and reused in the production of one of the catalysts used by the site. This precious metal is on the European Union's list of critical raw materials.

Emissions

While inherent to its industrial operations, the Group ensures that its waste production is managed at every stage of its business activity and that resource recovery and recycling solutions are found whenever possible.

This commitment is reflected in a number of areas:

- reducing waste at source, by designing products and processes that generate as little waste as possible;
- recycling waste in the product value chain, in compliance with the REACH regulation; and
- recovering the energy potential of by-products and waste, wherever possible, by burning them as fuel.

In recent years, the Group has in particular:

- explored new ways to recover and reuse certain types of by-products, for example, to replace conventional fuels in boilers, notably at the La Chambre, Carling and Marseille sites in France;
- recycled cleaning solvents and optimized cleaning cycles; and
- installed filters to reduce sludge volumes.

The following chart shows the amounts of recovered and non-recovered waste generated by the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

RECOVERED AND NON-RECOVERED WASTE
(in kt per year)

The Group's objective is not only to reduce overall waste production, but also to recycle waste or recover its energy potential by burning it as fuel.

The following tables show the amounts of hazardous and non-hazardous waste that were either recycled or burned as fuel in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

Hazardous waste (in kt per year)	2021	2020	2019
Hazardous waste recycled into materials	27	20	26
Hazardous waste burned as fuel	63	60	57 (1)
Non-recovered hazardous waste	91	103 (2)	95 (1) (2)
• Of which landfilled	3.8	2.5	3.8
TOTAL HAZARDOUS WASTE	**181**	**183 (2)**	**178 (2)**

(1) The breakdown between recovered and non-recovered hazardous waste in 2019 was corrected following a historical classification error.

(2) Quantities of waste have been adjusted to eliminate water sent to treatment plants. This water returns to the aquatic environment after treatment.

Non-hazardous waste (in kt per year)	2021	2020	2019
Non-hazardous waste recycled into materials	58	48	54 (1)
Non-hazardous waste burned as fuel	8	9	8
Non-recovered non-hazardous waste	144	147 (2)	141 (2)
• Of which landfilled	25	26	26
TOTAL NON-HAZARDOUS WASTE	**210**	**204 (2)**	**203 (2)**

(1) The 2019 figure for non-hazardous waste recycled into materials has been corrected, after a co-product was erroneously included in its calculation.
(2) Quantities of waste have been adjusted to eliminate water sent to treatment plants. This water returns to the aquatic environment after treatment.

The overall waste volume rose by 4 kt in 2021. Given the high growth in activity, this increase is minor, owing to progress under the circular economy policy and divestment of the PMMA business during the year.

In 2021, 21% of waste produced by the Group worldwide was recycled at the production site or off-site to recover useful materials and 18% was burned as fuel.

4.3.4 Development, use and end-of-life management

Arkema works with its partners across the value chain to design and develop solutions that help keep products and materials in the use loop.

Eco-design

In cooperation with its customers and suppliers, Arkema works for each of its Business Lines and technology platforms to identify the most relevant circularity drivers, such as optimization of the quantity of materials used, extension of product lifespan, separability of materials and components, recycling and degradability.

Various training initiatives have been carried out with the teams involved in innovation within the Group's businesses to ensure that these issues are taken into account from the earliest phases of the design process.

Reducing the presence of hazardous materials in the Group's products

The presence of certain substances in our products can affect their recyclability. Arkema is committed to implementing a responsible product stewardship approach that takes this issue into account, thereby providing its customers with safer solutions. The Group's policy is described in section 4.2.4 of this chapter.

FOCUS

EnVia® resins range: for safer paints and coatings

EnVia® products contain no added alkyl phenol ethoxylate (APEO) surfactants, formaldehyde or formaldehyde donors and have a low volatile organic compound (VOC) content and low residual monomer levels. The EnVia® range enables Arkema's customers to formulate more health- and environmentally-friendly paints and varnishes, and facilitates access to ecolabels.

Extending the lifespan of Group customers' products

Arkema aims to constantly improve the lifespan of both its own and its customers' products.

Kynar® PVDF, for example, is a long-lasting coating solution. In the Kynar Aquatec® range, used for reflective roofs that reduce buildings' energy consumption, it preserves the white finish for an especially long time without maintenance.

Durastrength® acrylic impact modifiers extend the lifespan and enhance the performance of rigid and flexible PVC in applications such as siding, fences, decks, rails, pipes and injection-molded parts.

Recycling Group customers' products

Arkema is developing a number of solutions that make it easier for customers to recycle their products.

For example, Elium® liquid thermoplastic resins are produced using the same equipment and processes as thermoset composites. Their properties make parts made from Elium® easy to recycle, unlike parts made from thermoset resins such as epoxy.

The Group has also developed technologies to protect glass bottles (Kercoat®) and hide scuffs (Opticoat®), which significantly improve the appearance and useful lives of bottles by tripling the number of times returnable bottles can be reused, notably for beer manufacturers.

The Specialty Surfactants activity has developed a solution that increases the recycling rate of roadwork scrap. Using Cecabase RT® additives in asphalt mix increases the aggregate recycling rate by 10% to 15% compared with conventional techniques. These additives also reduce the asphalt mix's workable heating temperature.

The circular economy is based on interaction between the various participants in an ecosystem and therefore requires the development of partnerships and consortiums to set up recycling systems.

In 2019, for example, Arkema introduced Virtucycle®, a new recycling program in partnership with Agiplast, which specializes in the regeneration of high performance polymers. The program enables customers to partner with Arkema in post-industrial and post-consumer recycling projects for its high performance polymers. The Group acquired Agiplast in June 2021.

In Europe, the European MMAtwo project was launched in 2018 to develop a chemical recycling process for PMMA that is to be validated on an industrial scale within three years. This initiative brings together 13 partners, including four French businesses representing all stages in the value chain. The European Union is providing €6.6 million of the project's funding, as part of its Horizon 2020 program.

4.3.5 Resource management measurement and life-cycle assessment

Measuring performance is an integral part of the plan for transitioning to a circular economy approach. Arkema has therefore introduced a number of indicators relating to products and industrial processes, as presented below.

To accelerate its approach, the Group has defined medium- or long-term targets for two of these indicators:

	Target year	Target	2021	2020	2019
Percentage of sales from products made from renewable or recycled raw materials (1)			10%	10%	9%
Water withdrawal by industrial sites *(cu.m/€k of sales)*	2023	8.0	6.9	9.7 (2)	9.0 (2)
Percentage of sales covered by a life-cycle assessment	2024	50%	27%	22% (3)	na

(1) The percentage of sales from products made from renewable or recycled raw materials includes sales of products with a renewable or recycled raw material content of at least 25% in 2021 and 20% for previous years (this change in threshold did not impact the value of the indicator).

(2) The values for water withdrawal in 2019 and 2020 were corrected following a change in the definition of the indicator, now based on gross volumes less regulated withdrawals and volumes sold to third parties.

(3) From 2021, the proportion of sales covered by a life-cycle assessment is measured as a percentage of revenue. The 2020 value has been corrected.

Product life-cycle assessments

To assess the environmental performance of its products, Arkema uses life-cycle assessments (LCAs) to convert the entire inventory of a product's process material and energy inputs and environmental emissions into environmental impacts.

The Group has developed dedicated LCA expertise at its Rhône-Alpes research center in France. It has also set up the global Arkema's Life Cycle Assessment Network, which is instilling this LCA culture across the organization, in particular through periodic employee training courses, and endurably embedding it into the Group's CSR process. The Group supplies LCA data at the request of customers to enable them to assess the environmental footprint of a given product all along its value chain.

A full life-cycle assessment was carried out on 27% of the sales generated in 2021. Depending on the type of product, internal experts assess the impacts in such areas as climate (greenhouse gas emissions), ozone depletion potential, contribution to acidification, and energy, water and land use. Their scope is generally limited to a cradle-to-gate analysis, *i.e.*, to production operations and upstream factors. In certain cases, this expertise may be shared with customers to help them implement their own eco-design process, by providing them with the impact data and discussing the most relevant indicators and the best practices associated with their assessment. LCAs are performed in accordance with the recommendations of the International Reference Life Cycle Data System (ILCD) Handbook and the international ISO 14040 and ISO 14044 standards describing the principles and framework for LCAs.

The Group intends to significantly increase the percentage of sales covered by LCAs in coming years to reach at least 50% by the end of 2024.

4.4 Climate

REDUCING THE CARBON FOOTPRINT OF THE GROUP'S ENTIRE VALUE CHAIN

4.4.1 Climate approach and commitment

The IPCC's sixth assessment report, published in 2021, clearly shows the impact of greenhouse gas emissions from human activities on climate change. The report specifically states that limiting climate change by 2100 is contingent on rapidly and substantially reducing greenhouse gas (GHG) emissions and achieving carbon neutrality by 2050.

Arkema confirms its commitment to countering climate change with an ambitious climate plan aligned with the Paris Agreement. This includes mitigation measures and an adaptation strategy.

The Group has set strategic long-term climate change mitigation targets for its entire value chain in line with an approach that uses Science-Based Targets (SBTs) and a trajectory that aims to limit the rise in global temperatures to well below 2°C above preindustrial levels by the end of the century.

2030 TARGET

38% reduction in greenhouse gas emissions* compared with 2015

** Absolute target for Scope 1 and Scope 2 greenhouse gas emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol.*

2030 TARGET

Reduce net energy purchases by 20% in EFPI terms compared with 2012

The Group has also set out formal commitments for Scope 3 emissions:

- 19% reduction from 2015 levels by 2030 in categories 3 (fuel- and energy-related activities not included in Scope 1 or 2), 4 (upstream transportation and distribution), 5 (waste generated) and 9 (downstream transportation and distribution); and
- commitment from raw materials suppliers representing 82% of the Group's Scope 3, category 1 emissions (purchased goods and services) to set SBTs for their Scopes 1 and 2 emissions by 2025.

The methodology used to define this SBT is described in section 4.7 of this chapter. For a maximum contribution to the climate change challenge, this methodology covers GHG emissions under Kyoto Protocol Scopes 1 and 2, plus substances listed under the Montreal Protocol.

All Arkema Business Lines are required to contribute to reducing the overall carbon footprint.

The Group continuously innovates and improves its production processes, implements an ambitious energy efficiency optimization strategy, notably through its Arkenergy program, and pursues its efforts to purchase energy from low-carbon sources.

Arkema also encourages its suppliers of the most emissions-intensive raw materials to commit to SBTs to reduce their emissions by participating in the CDP supply chain initiative. The Group is determined to enhance its product range, notably by developing solutions that help reduce greenhouse gas emissions. The four innovation platforms, "Lightweight materials and design", "New energies", "Living comfort and home efficiency" and "Natural resources management", described in section 1.1.2 of this document, as well as changes to its fluorogases offer, contribute to this objective.

In addition to the mitigation measures outlined above, and detailed in section 4.4.3, the Group is developing a climate change adaptation strategy, presented in section 4.4.4 of this chapter.

The climate plan is managed by the Climate Steering Committee, which meets on a quarterly basis. This committee is coordinated by the Sustainable Development department and comprises the Group Process and Energy Procurement Vice-Presidents, industrial Business Line Vice-Presidents and regional HSE Vice-Presidents. It leads climate-related programs and monitors progress, not only with a view to achieving the quantitative targets that the Group has set, but more broadly in a way that marks out a path towards a carbon neutral economy by 2050.

Climate governance is supported at the highest level of the Group and is fully integrated into the CSR governance system described in 4.1.2 of this document. The Industrial Ecology Steering Committee meets twice per year to track progress on the Group's global action plan and to monitor the contribution made by each business to reducing greenhouse gas emissions. It is chaired by the Industry & CSR Executive Vice-President and comprises Executive Committee members in charge of the Group's businesses, the Sustainable Development, Safety and Environment Vice-Presidents, and Vice-Presidents of the actively involved functional units, such as processes and energy.

The climate plan, performance indicators and targets are defined and validated by the Executive Committee and presented once a year to the Board of Directors by the Sustainable Development Vice-President. The Executive Committee is informed about GHG emissions on a quarterly basis.

In addition, climate issues are taken into account in industrial investment decisions, energy supply contracts and the evaluation of acquisition projects.

Arkema teamed up with around 100 other French companies at the Rencontre des Entrepreneurs de France (LaREF) meeting for French entrepreneurs held in August 2020, in support of a low-carbon industry and economy by signing the French Business Climate Pledge 2020 in line with its 2015, 2017 and 2019 commitments.

In 2021, as part of COP26, Arkema reaffirmed its commitment to climate action by taking up the pledges of the European Climate Plan.

4.4.2 Alignment with the TCFD recommendations

As part of its commitment to climate action, Arkema supports the recommendations issued by the Taskforce for Climate-related Financial Disclosures (TCFD). These recommendations are designed to provide a framework for business communication on climate change by organizing information into four key areas: governance, strategy, risk management, metrics and targets. More detailed information can be found in this document and in the CDP climate change questionnaire to which Arkema responds every year and which is aligned with the TCFD recommendations.

	Further details	
	Section of this document	**2021 CDP questions**
GOVERNANCE		
The presentation of CSR governance in section 4.1.2 of this chapter includes topics relating to climate change. In addition, a steering committee dedicated specifically to Arkema's climate plan was set up in 2019. Every year, performance shares are granted to the Chairman and Chief Executive Officer and to the Group's executives and employees. The climate-related objective of reducing greenhouse gases (GHGs) has been one of the key performance indicators since 2019. The achievement rate of this objective therefore has an impact on the allocation of performance shares.	4.1.2 4.4.1 4.6.1.5 3.5.1	C1.3 C1.3.a C1.1.a C1.1.b C1.2 C1.2.a
STRATEGY		
Main risks:		C2.3.a
• Physical risks	2.1.3	
Acute physical risks related to climate change (extreme weather events, such as floods, droughts and storms) that could (i) cause significant damage to certain sites or to the upstream chain and therefore impact the operations carried out at those sites and (ii) generate significant costs due to insurance deductibles and damage not covered by insurance policies.		
• Transition risks	2.1.2	
The introduction or strengthening of regulations relating to the pricing of GHG emissions (emissions trading systems such as the ETS, carbon taxes, taxes on energy purchases, etc.) could have a negative impact on the Group's activities by increasing operating costs and reducing profitability. **New regulations affecting the fluorogas market**, which could force the Group to sharply reduce, or even cease, the sale or production of certain products.		
Main opportunities:		C2.4.a
• Resource efficiency		
Energy: reduced energy use thanks in particular to the Arkenergy program, driving a reduction in production costs and environmental impacts. **Renewable and recycled raw materials:** development of specialty materials based on renewable raw materials, such as Rilsan® polyamide 11, and recycled raw materials to preserve non-renewable resources and meet high market expectations. **Recyclable solutions:** design of recyclable solutions such as Elium® resin, keeping the material in the use loop.	4.4.3.2 1.1.2.1 4.3	
• Markets		
Clean electric mobility: development of new solutions to improve the performance of batteries designed for energy storage in the fast-growing low GHG emission electric vehicle market. **Transportation:** development of lightweight materials for the aeronautics and automotive industries, reducing fuel consumption and therefore GHG emissions. **Construction:** development of solutions to improve building energy efficiency, reducing heating and air-conditioning needs and therefore GHG emissions. **3D technology:** development of a wide range of dedicated materials and solutions to support 3D printing customers and partners. Among the advantages of additive manufacturing, using less raw materials contributes to reducing GHG emissions.	1.1.2.3 1.1.2.2 1.1.2.6	
Climate-related scenarios: Preliminary work on climate-related scenarios was initiated in 2018. Extreme climate-related rainfall was assessed under the RCP 2.6 and RCP 8.5 scenarios. The analysis shows that climate-related flood risks are limited for Group sites in the short term.	4.4.4	C.3.1.a, C.3.2.a

	Further details	
	Section of this document	2021 CDP questions
RISK MANAGEMENT		
The procedures for identifying, assessing and managing financial and non-financial risks described in section 2.2 of this document cover the risks related to climate change. These risks are described under "Regulatory requirements and CSR expectations" and "Natural disasters and climate change", presented respectively in sections 2.1.2 and 2.1.3 of this document. To manage the acute physical risks related to climate change, Arkema is defining scenarios and determining alternative production locations within the Group for the majority of its sites in order to ensure continuity of service to its customers. For transition risks related to new regulations on GHGs and fluorogases, the Group is supported by regulations experts to anticipate regulatory changes and by its R&D teams to develop alternative solutions with lower GHG emissions.	2.1 2.1.2 2.1.3 2.2 4.4	C.2.2, C.2.2.a
METRICS AND TARGETS		
Greenhouse gas emissions targets (Scopes 1, 2 and 3):	4.4.3	C4.1, C4.1.a, C4.2, C4.2.b,
• for Scope 1 and Scope 2 greenhouse gas emissions as defined in the Kyoto Protocol and substances listed in the Montreal Protocol:	4.4.3.1	C6.1, C6.3,
• by 2030, 38% reduction in absolute emissions compared with 2015.		
• for Scope 3 greenhouse gas emissions as defined in the Kyoto Protocol:	4.4.3.3	C6.5
• by 2030, 19% reduction compared with 2015 levels in absolute emissions from fuel- and energy-related activities not included in Scopes 1 and 2 (category 3), waste generated (category 5), and upstream and downstream transportation and distribution (categories 4 and 9), and		
• commitment from raw materials suppliers representing 82% of the Group's Scope 3, category 1 emissions to set SBTs for their Scopes 1 and 2 emissions by 2025.		C12.1.a
The Group also has an intensive objective to reduce net energy purchases in terms of EFPI by 20% between 2012 and 2030. Also, an internal carbon price is used in the industrial investment analysis and approval process.	4.4.3.2 4.4.3.1	
The Group tracks the percentage of sales from products made from renewable or recycled raw materials [(1)], as well as the percentage of sales that contribute to Sustainable Development Goals 12 "Responsible consumption and production" and 13 "Climate action". In addition, Arkema uses life cycle assessments (LCAs) to measure the environmental performance of its products, including their climate impact, and aims for LCAs to cover 50% of its sales by 2024. The results of the LCAs inform eco-design initiatives inside and outside the Group.	4.3.2 4.2.3 4.2.4	

(1) The percentage of sales from products made from renewable or recycled raw materials includes sales of products with at least 25% renewable or recycled raw materials.

4.4.3 Climate change mitigation

Arkema is committed to reducing greenhouse gas emissions in order to limit global warming, and is working to contribute to a carbon neutral economy by 2050.

The Group publishes its greenhouse gas emissions in accordance with the GHG Protocol, which is based on the Kyoto Protocol:

- Scope 1 emissions are direct emissions;
- Scope 2 emissions are indirect emissions relating to energy purchases; and
- Scope 3 emissions are indirect emissions relating to the value chain, both upstream and downstream of the Group's activities.

In addition to complying with the GHG Protocol, the Group also reports its direct greenhouse gas emissions from ozone depleting substances (ODS) in line with the Montreal Protocol.

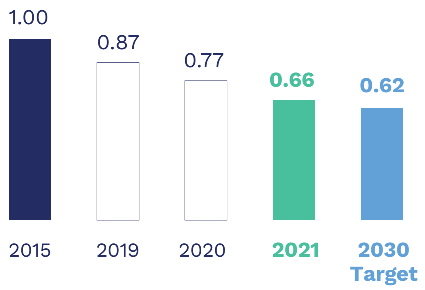
Tracking of the Group's GHG emissions

The table below details greenhouse gas emissions [(1)] (in kt CO_2 eq.) from the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

Scopes 1 + 2 + ODS	2021	2020	2019
GHG emissions *(in kt CO_2 eq.)*	3,117	3,628	4,087

(1) Scope 1 and Scope 2 greenhouse gas emissions as defined in the Kyoto Protocol + ODS listed in the Montreal Protocol.

GHG EMISSIONS *



* Scopes 1 + 2 + ODS, in absolute terms compared with 2015.

In 2021, the Group's GHG emissions were down 14% compared with 2020. Absolute GHG emissions compared with 2015 were 0.66, down significantly on the 2020 figure and consistent with the 0.62 target set for 2030. Given the context of rising production volumes, this sharp drop is mainly due to proactive measures under the Group's climate plan and divestment of the PMMA business.

4.4.3.1 Scopes 1 and 2 greenhouse gas emissions

Scope 1 direct emissions

The Group's direct greenhouse gas emissions (Scope 1) arise from:

- hydrofluorocarbon (HFC) emissions from its fluorogas production units;
- fugitive emissions from cooling circuits using GHGs;
- burning of fuel oil and gas in production operations; and
- emissions from processes that generate CO_2, N_2O or CH_4 as a product, by-product, co-product, waste or gas discharges, such as thermal oxidation, which is used to convert VOCs into CO_2.

To reduce its impact on global warming, the Group has implemented an action plan to minimize direct GHG emissions, which includes:

- systematic leak detection programs and the installation of emissions scrubbers at fluorogas production facilities;
- energy efficiency improvements to processes under the Arkenergy program, reducing fossil fuel consumption of its boilers (see section 4.4.3.2 on energy); and
- optimization of processes and operating conditions of reactions to limit GHG emissions produced or emitted directly during the combustion of by-products, co-products or waste.

Capex and Opex on this climate change mitigation action plan on eligible activities are covered in the Taxonomy reporting, as outlined in section 4.1.4 of this chapter.

Absolute indicator for direct greenhouse gas emissions

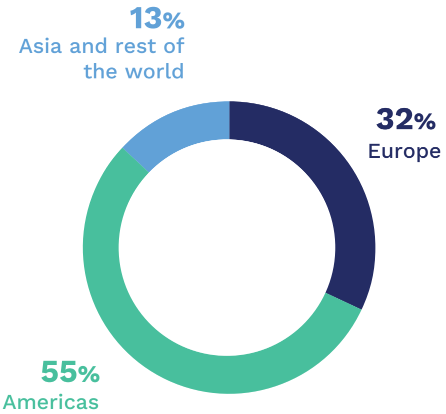
The table below details direct greenhouse gas emissions (in kt CO_2 eq.) from the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

Scope 1 GHG emissions *(kt CO_2 eq.)*	2021	2020	2019
Total	1,822	2,268	2,698
Of which CO_2	1,436	1,495	1,490
Of which HFC	349	742	1,174
Others	37	31	34

The main factors behind the very significant decrease in emissions in 2021 were: improved reaction yields at the F32 unit in Calvert City (United States); continued improvement in vent treatment at fluorogas production facilities; and divestment of the PMMA business.

Other improvements and investments contributed to reducing direct Scope 1 emissions, such as on boilers in Honfleur and Genay (France), the cooling system in Coatza (Mexico), as well as a distillation column and a reboiler in Lannemezan (France).

SCOPE 1 DIRECT GHG EMISSIONS BY REGION



In 2021, direct emissions fell in each region.

Other direct emissions

The Group emits GHGs involved in producing HCFCs, substances that deplete the ozone layer (Montreal Protocol).

Montreal Protocol	2021	2020	2019
Greenhouse gas emissions *(kt CO_2 eq.)*	234	257	247

Scope 2 indirect emissions

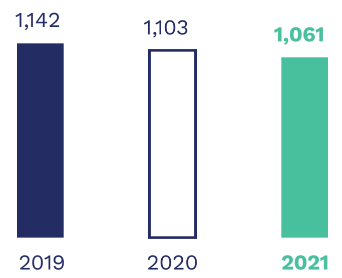
The Group analyzes the following indirect GHG emissions:

- Scope 2 CO_2 emissions from the suppliers of the electricity and steam purchased by the Group; and
- Scope 3 CO_2 emissions, categories 1, 2, 3, 4, 5, 6, 7, 8, 9 and 12. See section 4.4.3.3 below.

To reduce its indirect Scope 2 emissions, the Group takes steps to scale back its energy consumption and source low-carbon or renewable electricity, as described in section 4.4.3.2 on energy.

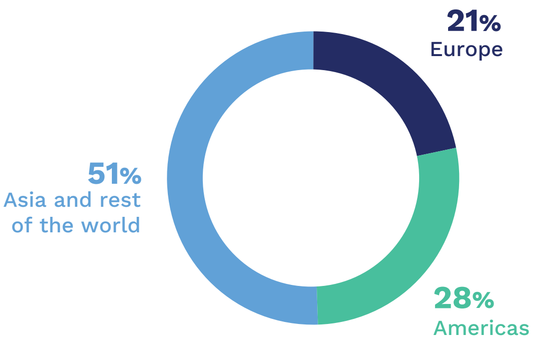
The chart below presents the Scope 2 emissions from the Group's operations in 2021, 2020 and 2019, as defined above and calculated according to the methodology described in section 4.7 of this chapter.

SCOPE 2 INDIRECT GHG EMISSIONS
(in kt CO_2 eq.)



Despite rising production, scope 2 CO_2 emissions decreased by more than 3% in 2021 *versus* 2020, owing to energy efficiency programs, more favorable production paces and divestment of the PMMA business.

SCOPE 2 INDIRECT GHG EMISSIONS BY REGION



Internal carbon price

To enhance its long-term approach, the Group set an internal price for Scope 1 and Scope 2 GHG emissions, expressed in terms of CO_2 equivalent, known as "internal carbon price". It is used to analyze strategic industrial investments and to steer investment decisions under the operational excellence program towards the lowest carbon solutions. The internal carbon price is applied to compare scenarios using different processes to determine their impact on product cost. Using the internal carbon price also serves to enhance employee awareness, drive behavioral changes, promote energy efficiency, and encourage teams to identify and seize low-carbon opportunities.

The Executive Committee reviews the use of the internal carbon price, checks its relevance and, if necessary, adjusts the value. The price is currently set at €50 per tonne of CO_2.

4.4.3.2 Energy

The Group deploys a wide range of actions to reduce Scopes 1 and 2 CO_2 emissions as part of both the Arkenergy program and its operational excellence strategy (for further details, see the "Profile, ambition and strategy" section of this document).

Energy use

The Group uses a variety of energy sources, primarily in its industrial operations. To optimize energy consumption, the Group set the following target:

2030 TARGET

Reduce net energy purchases by 20% in EFPI terms compared with 2012.

To this end, the Arkenergy program is being rolled out in every subsidiary through a global network of Energy Leaders in the businesses lines, facilities and relevant Procurement and Technical departments. It focuses on optimizing the energies used in the Group's production facilities and processes. Moreover, Arkenergy is structured to meet the following priorities:

- continuously optimize energy use and cost, from equipment design and procurement to day-to-day on-site operations;
- deploy an energy management system to systematically integrate best operational practices, define site-specific targets and periodically review them; and
- ensure compliance with energy efficiency legislation, regulations and other applicable standards.

As well as improving energy efficiency, the program is also contributing to reinforcing the production plants' competitiveness.

Based on energy efficiency audits worldwide, focusing on the plants that account for more than 85% of the Group's energy consumption, the Arkenergy approach covers the following main points:

- implementing the ISO 50001 energy management system. To date, a total of 31 sites are ISO 50001-certified, which corresponds to approximately 55% of Arkema's total energy use. In 2021, the number of certified sites decreased due to the sale of the PMMA business;
- allocating a dedicated capital expenditure budget specifically for Arkenergy initiatives. In 2021, 52 capital projects were funded out of the budget, including 29 in Europe, 13 in the Americas and 10 in Asia; and
- since 2018, automating processes in order to continuously optimize the use of energy and raw materials.

The Group's deployment of digital technologies helps to optimize energy consumption through the introduction of data collection and analysis systems. For example, advanced control systems involve installing "controllers" or IT systems that enable comprehensive and coherent management of the units' various operating parameters. The resulting optimization has brought a reduction in the energy (steam) used, while maintaining product quality and operating stability. In 2021, the projects in Houston (United States) and La Chambre (France) were rolled out and a new project was launched in Shanghai (China).

Arkema introduced a management system in Europe for all its steam traps in 2020, which it rolled out worldwide in 2021. Any failure of the trap system can cause significant energy losses. The aim of this program is to reduce the steam trap failure rate by 75% over three years through changes to their installation and regular inspections. The new digital solution enables the Group to visualize the condition of its steam traps, as well as the progress made on repairs and compliance work, and to consolidate the results at Group level.

Actions are also implemented at several plants to maintain insulation at its optimal level in order to avoid any loss of energy, along with solutions to recover alternative energy.

FOCUS

Optimized steam trap management worldwide

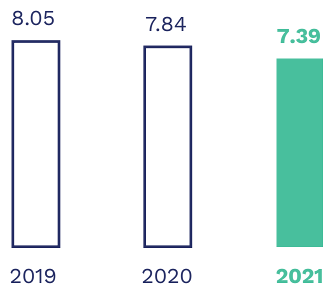
The program launched in 2020 in Europe was rolled out to Asia and the Americas in 2021, with the aim of covering the most energy-intensive sites, which account for 85% of the Group's total energy consumption.

By the end of 2021, 90% of these sites had joined the program. Since its launch in 2020, nearly €2 million has been invested. This has reduced consumption by 48 GWh in 2021, which represents a 33% decrease in the average trap failure rate.

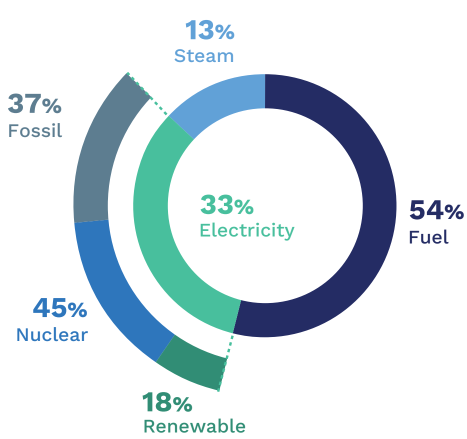
Absolute indicator for energy purchases

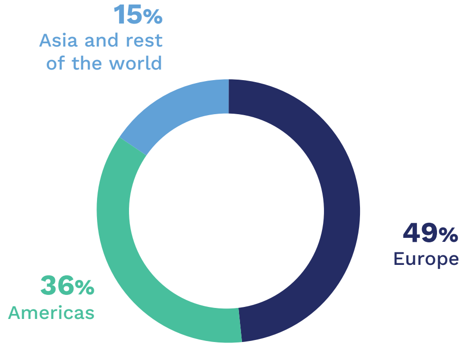
The chart hereafter presents consolidated net energy purchases in 2021, 2020 and 2019, in TWh, according to the methodology described in section 4.7 of this document.

NET ENERGY PURCHASES
(in TWh)



The net energy purchases by type of energy and geographical region break down as follows:





In 2021:

98% of the TWh generated by fuel were natural gas-fired, unchanged from 2020;

22% of the net TWh purchased by the Group, regardless of source, were from low-carbon electricity, as was the case in 2020. The proportion of renewable electricity in the group's electricity purchases increased from 13% to 18%.

As part of its mobilization in favor of the climate and its strategic objective of reducing GHGs, Arkema is shifting its energy mix in favor of low-carbon energy sources.

FOCUS

Arkema sites powered by renewable energy

Following the example of the Saint-Auban site (France), where a solar power plant producing 19 GWh per year went into operation in 2019, most of which is for self-consumption, in 2022 the Clear Lake site (United States) will receive about one-third of its electricity needs from a 260 MW solar power plant located in the Texas desert. These emblematic projects demonstrate the feasibility of green electricity production on brownfield sites where it does not compete with farmland.

Intensive indicator for net energy purchases

The chart below presents the net energy purchases EFPI for the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter. Net energy purchases are calculated using the Group's biggest net energy purchasing entities, which account for more than 80% of the consolidated total.

NET ENERGY PURCHASES EFPI

Energy performance improved significantly in 2021, owing to measures taken under the Arkenergy program and the return to more favorable production conditions.

4.4.3.3 Scope 3 greenhouse gas emissions

Following an initial inventory of its indirect Scope 3 emissions in 2016, the Group estimates the Scope 3 emissions arising from its upstream and downstream value chain each year, in accordance with the GHG Protocol calculation guidance issued by the World Business Council for Sustainable Development (WBCSD). The guidance also supports compliance with French legislation and standards, including the provisions of French Law no. 2015-992 of 17 August 2015 concerning the energy transition to drive green growth.

According to the WBCSD, drawing on the GHG Protocol, Scope 3 emissions arise from 15 categories of activities across the corporate value chain. Arkema has identified nine material categories, three non-material categories and three categories that are not relevant. The emissions estimated for the Group in 2021 are presented for ten of these categories in the table below. The calculation methods are described in the methodology presented in section 4.7.3.4 of this chapter. Additionally, the Group is working on estimating downstream categories 10 and 11, as well as on enhancing the reliability of category 12 data.

Category number	Category name	Emissions *(kt CO_2 eq.)*	Comments
1	Purchased goods and services	7,515	Significant. As is often the case in the chemicals industry, this category is material for Arkema. Greenhouse gas emissions reported for this category increased in 2021, chiefly as a result of changes in the product mix and an estimate based on a broader scope.
2	Capital goods	440	Significant. Emissions in this category rose by 34%, consistent with the increase in development investments.
3	Fuel- and energy-related activities not included in Scope 1 or 2	677	Significant, stable.
4	Upstream transportation and distribution	278	Significant, stable.
5	Waste generated in operations	430	Significant, stable.
6	Business travel	5	Non-significant
7	Employee commuting	32	Non-significant
8	Upstream leased assets	5	Non-significant
9	Downstream transportation and distribution	292	Significant. In 2021, GHG emissions in this category were stable.
10	Processing of sold products	Data not available	Significant.
11	Use of sold products	Data not available	Significant. As is often the case in the chemicals industry, this category is the most material for Arkema. Estimation for this category is difficult, because of partial data on product use and the lack of a recognized methodology. The Group has identified Fluorogases as the most emission-intensive products. Arkema is developing new blends and products to enable the transition from the old generation of products (HCFCs) to current (HFCs) and new generations (HFOs). Year after year, these transitions result in an extremely significant reduction in the average global warming potential of the Fluorogases sold by the Group.
12	End-of-life treatment of sold products	2,568	Significant. The estimate for this category is globally stable. At this stage, it does not take into account the Fluorogases activities.
13	Downstream leased assets	-	Not relevant. The Group does not lease any assets downstream of its value chain.
14	Franchises	-	Not relevant. The Group does not have any franchises.
15	Investments	-	Not relevant.
TOTAL		**12,243**	

In 2021, indirect Scope 3 GHG emissions, which were estimated for 10 categories, represented 12,243 kt CO_2 eq. The increase arises mainly from changes in category 1.

In 2019, Arkema set Science-Based Targets (SBTs) aligned with a trajectory well below 2°C for its Scope 1 and 2 emissions and ozone-depleting substances. In 2020, it introduced SBTs for certain categories of Scope 3 emissions, thereby setting targets for its value chain in line with the Paris Agreement:

- a 19% reduction in Scope 3 emissions categories 3, 4, 5 and 9 between 2015 and 2030; and
- commitment from suppliers representing 82% of Scope 3, category 1 emissions to set SBTs for their Scopes 1 and 2 emissions by 2025.

To meet this target, in 2021 Arkema asked more than 100 suppliers, which are the main contributors to Scope 3 category 1 for raw materials, to complete the CDP questionnaire. For this first year, suppliers already committed to SBTs, or planning such commitment in the next two years, accounted for 31% of the Group's Scope 3, category 1 emissions for 2021.

In 2021, Arkema defined and launched the Low Emission Supply Chain program to reduce its Scope 3, category 9 carbon footprint. For further details, see section 4.6.4.6 of this chapter.

4.4.3.4 Low-carbon solutions

Continuous dialogue with customers and the 2019 materiality assessment show that climate change is a key concern for Group customers. For example, they want low-carbon products and solutions that help them reduce their GHG emissions and energy consumption.

Arkema's innovation strategy is a key component in its contribution to sustainable development. This strategy is detailed in section 1.1 of this document. Arkema is determined to enhance its product range, by developing solutions that help reduce greenhouse gas emissions. The four innovation platforms, "Lightweight materials and design", "New energies", "Living comfort and home efficiency" and "Natural resources management", described in section 1.1.2 of this document, as well as changes to its Fluorogases offer, contribute to this objective.

A few examples of solutions that contribute to reducing greenhouse gas emissions (Scope 3, categories 10, 11 and 12):

- Rilsan® polyamide 11 and Kepstan® PEKK, used as a metal substitute (solutions for "lightweight materials and design");
- Elium® recyclable resins (solutions for "natural resources management" and "lightweight materials and design");
- Kynar® PVDF, Foranext® electrolytes, Bostik Vitel® polyester (solutions for "new energies");
- Bostik adhesives and sealants (solutions for "living comfort and home efficiency");
- Forane® HFO fluorogases with a very low global warming potential.

In 2021, solutions which, through their design and their use and end-of-life phases, contribute to the efficient use of resources and a reduction in the carbon footprint (Sustainable Development Goals 12 "Responsible consumption and production" and 13 "Climate action") accounted for 43% of Group sales. For further details, see section 4.2.3 of this chapter.

FOCUS

Arkema supports the wind power industry in recycling

Recycling end-of-life wind turbines is a major industrial and environmental challenge for the wind power industry due to the considerable volumes involved. Bringing together seven partners from academia and industry, the Zero wastE Blade ReseArch (ZEBRA) project was launched in September 2020 to create the first 100% recyclable wind turbine.

With its Elium® thermoplastic liquid resin and its structural adhesives, Arkema proposes a breakthrough innovation in the composites market, opening up new perspectives in many sectors and especially in the production of wind turbine blades.

The Elium® resin-based composite parts are 100% recyclable, through a mechanical or chemical recycling process of scraps and end-of-life composite parts.

Arkema's position in this consortium demonstrates the Group's commitment and drive to integrate a circular economy model into its product design and to participate in developing new renewable energy technologies.

4.4.4 Climate change adaptation

For Arkema, adapting to climate change aims to reduce the vulnerability of its assets and operations to the current and expected effects of climate change, and to increase its resilience as described in section 2.2 of this document. Adaptation strategies supplement the mitigation measures presented in the previous section.

In order to prevent and limit the potential impact of natural disasters and climate change at the exposed sites, insofar as this is possible, the Group has defined scenarios that take into account the evolution and consequences of climate change, including the increased frequency and intensity of certain weather events, such as storms, flooding and drought.

For most of these sites, there are alternative production arrangements within the Group to absorb all or part of the production and thus ensure continuity of customer service. Some, however, are the only production sites for the products in question.

Following the industrial accident that took place at the Crosby site in Texas in September 2017 as a result of Hurricane Harvey, a category 4 storm, the US Chemical Safety and Hazard Investigation Board (CSB) published a report on the accident on its website on 24 May 2018, as well as a press release entitled "CSB Releases Arkema Final report". Consequently, Arkema has strengthened its existing risk and hazard analysis procedures by devising a policy to ensure periodic assessment of the potential impact of a natural disaster or extreme weather event at its sites, within the deadline imposed by the CSB. At the same time, Arkema has developed an extreme weather planning and response toolbox to ensure that critical safeguards, such as backup power, function as intended during extreme weather events, including hurricanes or floods.

Capex and Opex concerning action plans on adaptation to the consequences of climate change on eligible activities are included in the Taxonomy reporting outlined in paragraph 4.1.4 of this chapter.

Exposure to extreme rainfall

Extreme climate-related rainfall was assessed under the RCP 2.6 and RCP 8.5 scenarios for the period 2021-2050, using data referenced in scientific, peer-reviewed papers (Aqueduct Water Stress Projections from the World Resources Institute).

This assessment was conducted in line with TCFD recommendations and using a forward-looking scenario analysis to 2050, reflecting the long life of assets in the chemical industry. The study covered 134 Group sites in the following countries: Egypt, Morocco, China, Indonesia, India, Korea, Philippines, Vietnam, Belgium, Switzerland, Germany, Denmark, Spain, France, United Kingdom, Italy, Netherlands, Poland, Romania, Turkey, Canada, United States, Australia, New Zealand, Argentina, Brazil, Mexico, Malaysia, Saudi Arabia, Sweden.

The analysis in the RCP 8.5 scenario shows that climate-related flood risks are limited to two sites over the short term, and that 11 sites are subject to risks of extreme rainfall (> 700 mm/year).

Exposure of industrial sites to water stress

As part of the Optim'O project, launched in 2016 to optimize water management, Arkema conducted a study to identify water stress-related risks for its industrial sites. The results of this analysis are presented in section 4.3.3.2 of this chapter.

Based on this analysis, Arkema decided to step up this identification process. The next phase, which involves analyzing the impact of water stress on the Group's activities, began in 2021 with the launch of a pilot study on a Business Line with operations worldwide.

Exposure of the Group's value chain to the effects of climate change

Climate change could impact Arkema's supply chain if, for example, a major supplier or subcontractor could not supply one or more Group facilities, thereby impacting the Group's operating and financial performance and its ability to deliver to its clients.

However, suppliers with a strong CSR policy that are taking climate action, through adaptation and mitigation measures, will reduce their risks, increase their reliability and also be better partners for sustainable innovation. This is why Arkema has integrated these aspects into its purchasing process and endeavors to build sustainable and balanced, long-term, trust-based relationships with our suppliers and subcontractors. The Together for Sustainability (TfS) initiative plays a central role in the process of assessing risks and opportunities, including those related to the climate. For further details on the responsible procurement policy, see section 4.6.4 of this chapter.

Taking further steps, the Group initiated a program in 2021 to raise the awareness of its raw material suppliers by requesting their participation in the CDP questionnaire. This program urges them to engage in reducing their greenhouse gas emissions and to assess their exposure to climate change in order to define their own adaptation strategy. For further details, see section 4.4.3.3 of this chapter.

4.5 Safety and environment

BEING A TOP QUARTILE PERFORMER IN THE CHEMICAL INDUSTRY IN TERMS OF SAFETY AND REDUCING THE ENVIRONMENTAL FOOTPRINT OF THE GROUP'S OPERATIONS

As part of its commitment to societal issues described in section 4.1 of this chapter, Arkema operates as a responsible manufacturer and resolutely observes a policy of continuous improvement and operational excellence. The Group's ambition is to rank among the leading chemical producers in terms of safety performance and it is fully determined to reduce the environmental footprint of its activities.

4.5.1 Health, safety and environmental management

Safety, health and environmental protection are core priorities in the management of Arkema's business and manufacturing operations, and a major focus of its CSR policy. This focus is shown by the Group's involvement in the Responsible Care® program, a voluntary initiative undertaken by the chemical industry to responsibly manage its operations and products, based on a continuous improvement process.

The health, safety, environment and quality policy confirms the responsible manufacturer commitment expressed in the Group' Social Commitment Charter described in section 4.1.1 of this chapter.

The Group's health, safety and environment approach is structured around three areas: prevention of industrial risks (related to safety, the environment and pollution), an integrated management system, and a culture of safety and the environment. It reflects prevailing legislation and the Group's own requirements formally defined in a Health, Safety, Environment and Quality (HSEQ) Policy and in a global standard, the Health, Safety and Environment (HSE) manual. The policy and manual form the basis of HSE management systems in all Group entities, and also cover quality, security and energy.

The materiality analysis performed in 2019 confirmed that occupational health and safety and prevention of industrial risks were among the Group's priority issues and have been properly integrated as such into its CSR approach.

The Arkema Integrated Management System (AIMS) for this policy is integrated globally by the Group Safety and Environment department (DSEG) and its experts in industrial hygiene, safety and the environment. The department head reports to the Industry and CSR Executive Vice-President, who is a member of Arkema's Executive Committee, and makes a monthly presentation to the Executive Committee to keep it informed of the key HSE indicators, progress made in its programs, and any significant events. In addition, the HSEQ policy and key indicators are presented each year to the Board of Directors as part of the industry overview presented by the Industry and CSR Executive Vice-President. Lastly, a review of the environmental risks is presented annually to the Board's Audit and Accounts Committee.

Implementation of the Health, Safety, Environment and Quality (HSEQ) Policy is handled by the operating teams in each region and business.

The Group has set an ambitious target to implement and audit the Arkema Integrated Management System (AIMS) at all its sites, as described in section 4.5.1.2 of this document.

2025 TARGET

Audit 100% of Group sites* in accordance with the Arkema Integrated Management System (AIMS).

** For newly acquired companies' sites, the roll-out of this system takes place over a period of around three years.*

Consideration for safety and environmental issues in acquisition and investment decisions

When looking into potential acquisition deals, a team of internal Group experts analyzes the HSE documents and information provided by the seller based on a list of questions and pre-defined criteria. On-site surveys are also conducted. Taking these steps enables the Group to identify potentially critical environmental situations, estimate the cost of resolving them, and measure the efforts that may be required to bring these sites up to Group safety and environmental standards.

Similarly, safety and environmental issues are taken into account in the early stages of investment plans, and their compliance with Group objectives is verified.

4.5.1.1 Risk prevention

Whether in the area of security, health, safety or the environment, risk prevention is everyone's responsibility. Arkema believes that all occupational accidents are preventable and that everyone has their own role and responsibility in ensuring occupational health and safety and protecting the environment and neighborhoods where we operate.

In the area of process safety, Arkema is continuously improving its risk prevention and management practices.

These measures are presented in detail in sections 4.5.2.2 and 4.5.2.3 of this chapter.

4.5.1.2 Management system and audits

The effective implementation of the Group's HSEQ/S/En policies – which cover health, safety, environment and quality, as well as security and energy – is regularly audited, with a focus on measuring progress and harmonizing practices. These audits are an important management practice.

To ensure a highly efficient inspection and control process, all of the Group-led HSEQ audits have been consolidated into a single audit, known as the Arkema Integrated Management System (AIMS). It is based on all of the Group's standards, both proprietary and endorsed, such as ISO 9001, ISO 14001, ISO 45001 and ISO 50001. This "all-in-one" approach has the dual benefit of being aligned with the Group's corporate culture and ensuring consistency across all its HSEQ management initiatives. For the largest sites (49% of all Group sites), Full AIMS audits are conducted every three years by teams comprising Arkema employees and representatives from an independent third-party auditor. Follow-up audits are then performed every year by the independent third-party auditor. For smaller sites and depending on their specific situation, Simplified or Light AIMS audits, as defined in section 4.7 of this chapter, are conducted at least every five years by Arkema staff.

The 2025 target is for 100% of facilities to have undergone a Full, Simplified or Light AIMS audit in line with the Group's audit schedule.

	2021	2020	2019
% of sites AIMS-audited	86	82	80

The steady increase in the percentage of AIMS-audited facilities since 2015 illustrates the continued deployment of this program, including at sites coming from acquisitions. Progress was less significant in 2020 and 2021, as some Simplified and Light audits were postponed due to the health crisis arising from the Covid-19 pandemic.

As part of an AIMS audit, field audits are carried out to ensure that site-led initiatives are implemented effectively and comply with requirements, notably the field initiatives described in section 4.5.1.3 of this document. These concern everyone working on the site, including Group and subcontractor employees, and apply to every aspect of the site's operations, including production, logistics, maintenance, offices, construction or turnaround sites, and production unit shutdowns.

During AIMS audits, facilities can also be audited according to a variety of international standards, to earn or renew external certification, depending on their particular situation.

The number of sites certified in this way over the last three years is presented in the following table. In 2021, the number of certified sites decreased due to the sale of the PMMA business.

Number of sites certified according to each standard	2021	2020	2019
ISO 45001 (health and safety)	85	87	86
ISO 14001 (environment)	84	82	81
ISO 50001 (energy)	31	34	33
ISO 9001 (quality)	146	154	156

Some 60% of Group facilities (industrial sites and R&D centers) have been certified to ISO 45001 standard in Europe, 46% in the Americas and 73% in Asia. This certification relating to health and safety represents 48% of Arkema employees.

ISO 14001 certification requires each production facility or R&D center to identify its environmental impact in terms of water, air (including greenhouse gas emissions), waste, noise, odors, soil, use of resources and logistics flows, and then to define an action plan with priority areas for improvement. Periodic environmental assessments enable the facilities to measure progress and determine new improvement targets.

	2021	2020	2019
% of ISO 14001-certified sites	58	54	53

Depending on local conditions, certain facilities have been certified to other standards, such as the Responsible Care® Management System (RCMS) in the United States. RCMS is an integrated safety, health and environmental management system based on the principles of the Responsible Care® program.

Number of sites certified according to the standard	2021	2020	2019
RCMS (United States only: health, safety, environment)	13	15	14

In addition, the Group performs non-AIMS internal audits every year, including:

- operational safety audits: construction site inspections, pre-start-up reviews, and operational safety audits in areas such as mechanical integrity and explosive atmospheres;
- regulatory hazardous materials transportation audits;
- supplier and logistics audits: transportation companies and warehouses are inspected and assessed. These audits are performed in addition to third-party audits, such as the Safety & Quality Assessment System for overland transportation, the Chemical Distribution Institute for maritime shipping, and the European Barge Inspection Scheme for river shipping. A certain amount of packaging is also inspected;
- security audits; and
- environmental audits in the United States and environmental reporting audits in Europe and Asia.

The results of these audits are taken into account during AIMS audits.

In addition to audits, teams from the Group Safety and Environment department (DSEG) lead support initiatives at facilities whose performance needs improving or which have reported a specific issue. This support includes an analysis of the situation and continues with the development and monitoring of action plans. In addition, the DSEG has provided specific support to plants during their turnarounds and stepped up its participation in events organized by the Group's various businesses, plants (annual meetings with partner companies) and corporate departments (maintenance, R&D, etc.).

Another important tool in managing the deployment of the Group's HSEQ/S/En process is feedback on material incidents. It consists in sharing experiences on relevant incidents so that ways can be found to avoid recurrence. Feedback takes place across the global organization through various geographic, professional and technological networks. In the event of a material incident, the network issues an HSEQ alert that enables other Group facilities that may encounter a similar incident to take corrective measures. The feedback process helps improve the Group's HSEQ expertise and ensure the effectiveness of the deployed measures.

To harmonize the identification, assessment and analysis of environmental risks beyond its ISO 14001-certified sites, the Group is rolling out a methodology for application worldwide. A dedicated IT system known as STARMAP was implemented in Europe, the United States and Asia in 2016, as explained in section 4.5.2.2.2. In 2021, 72% of the Group's industrial sites had installed the system, and around 71% of these sites had used it to update their environmental assessment. At end-2021, 65% of the Group's sites had carried out an environmental assessment, whether integrated into STARMAP or not.

4.5.1.3 Safety and environmental culture

Instilling a culture of safety through employee training and development of hazard awareness

Behavior plays a critical role in managing and preventing risks. That is why a core aspect of the Group's safety process is the development of a common safety culture that raises everyone's awareness of his or her responsibility and the importance of his or her personal behavior. To develop a shared safety culture across the organization, the Group uses a variety of programs and initiatives, including:

- general training in HSEQ for new hires;
- the Safety in Action and Essentials programs;
- field initiatives, such as peer observations, flash audits, scheduled general inspections, safety tours, field safety audits, internal or process audits, general operating condition tours and construction site audits;
- dedicated training courses, such as "SafeStart®", "Managing Safely", "Transporting Hazardous Substances" and "Crisis Management"; and
- the Safety Culture program, which enables every employee to share the Group's safety challenges, policies and tools.

Several years ago, the Group also integrated the lessons learned from neuroscience to improve accident prevention. These programs and initiatives are detailed in this chapter.

In 2021, safety training (excluding e-learning) totaled 148,600 hours (*i.e.*, 11 hours per year per employee trained), and the number of employees who attended at least one safety training session totaled 12,974 (64% of the Group headcount) [(1)].

(1) *In entities at least 50%-owned and employing more than 60 people.*

In addition, 14,390 people (71% of the Group headcount) took e-learning courses on safety in 2021 [(1)]. This number rose sharply in 2021, with roll-out of the new "Essentials" set out in section 4.5.2.2.1.

Instilling an environmental culture through employee training and development of hazard awareness

Group employees are trained and made aware of the main characteristics of their plant, the real-world consequences of their actions, the operational management of all types of releases and emissions, the environmental impact of turnaround or start-up operations, and waste sorting.

A dedicated environmental training program is offered at industrial sites after an environmental risk analysis has been performed in each workshop. At an increasing number of facilities, feedback on environmental incidents is being tracked in a common system for reporting incidents and following up corrective actions. The training program is regularly repeated to maintain employee awareness of the importance of critical parameters.

Arkema organizes internal communication campaigns and other events to get employees involved in its new long-term objectives and to foster a culture of environmental awareness throughout the Group.

Details on employee training and the new-hire induction process may be found in sections 4.6.1.3.1 and 4.6.1.3.2 of this chapter. Environmental training totaled 14,913 hours in 2021 [(1)], or an average of 3 hours per employee. In the context of the pandemic, 4,524 employees attended at least one environment-related course during the year (excluding e-learning). This means that 22% of the Group's employees [(1)] attended environment-related training in 2021 (excluding e-learning).

In addition, 4,418 people (22% of the Group headcount) [(1)] took environment-related e-learning courses in 2021.

4.5.2 Health and safety information

4.5.2.1 Safety management

As part of its societal engagement, the Group places the management of personal and environmental risks among its top priorities. Its approach to industrial safety takes into account the potential risks at the Company level but also for the environment and other stakeholders, such as local residents.

The main risks associated with the Group's activities relate to personal safety, exposure to chemicals and process safety. For more information on these risks, see section 2.1 of this document.

The due diligence procedures and policies implemented to prevent, identify and mitigate these risks and the outcomes of such policies in the form of performance indicators are described in detail below.

The Group's commitment to safety has been materialized in two targets for 2030, which reflect the Group's willingness to continuously improve its performance in this area.

2030 TARGETS

Reduce the total recordable injury rate (TRIR) to 0.8.

Reduce the process safety event rate (PSER) to 2.0.

To contribute to achieving these goals, Arkema has also set a goal of extending the peer observation program to all of its facilities [(2)] by 2025.

By setting this strategic TRIR objective for 2030, Arkema is contributing to UN Sustainable Development Goals 3 "Good health and well-being" and 8 "Decent work and economic growth".

4.5.2.2 Employee health and safety

Arkema considers protecting the health and safety of its own employees and those of its subcontractors as a core value and believes that every occupational accident is preventable.

As part of a prevention and continuous improvement process, the Group is committed to ensuring a good working environment for everyone, in particular by analyzing workstation health and safety risks and studying accident typologies.

Regarding safety, the Group has the same level of expectation for subcontractors working on its industrial sites as for its employees. In particular, all of them systematically take part in awareness initiatives designed to develop a safety culture and in the Group's safety processes and programs. In addition, the injury rates for both employees and subcontractors are tracked as part of the safety performance management system.

Since the analysis of accident data shows the importance of human factors, Arkema has launched a series of programs designed to foster commitment to health and safety among all Group employees and subcontractors working on Group sites.

Another priority concerns the attenuation of arduous working conditions, with the deployment of a dedicated program comprising workstation ergonomics and other remedial actions. Workplace well-being and the quality of work life are also important factors in protecting employee health (for further details, see section 4.6.1.4 of this chapter).

4.5.2.2.1 Personal safety

The Safety in Action and Essentials programs

The Safety in Action and Essentials programs, which concern both Group employees and subcontractors working on Group sites, are deployed worldwide. Safety in Action is designed to promote and deepen everyone's safety culture, while the Essentials program defines a set of rules that must be applied without compromise in every situation.

(1) In entities at least 50%-owned and employing more than 60 people.
(2) For newly acquired companies' sites, the roll-out of this program takes place over a period of around three years.

FOCUS

Global rollout of the new Essentials

Ten years after their launch, Arkema decided to review its Essentials to account for progress made in safety, changes in accident typology, and developments in the industrial profile of its operations, which now focus more on downstream products. In 2021, all Arkema employees worldwide received training on complying with the rules associated with these 14 new Essentials, more than half of which remain unchanged. Each Group facility has launched a multi-year training program prioritizing Essentials according to the accident risks specific to the site ("one Essential per quarter").

Peer observation

Peer observation is aimed at raising risk awareness in ways that help to reduce the number of occupational accidents. It capitalizes on positive experiences and a joint search for solutions to improve practices. Using a structured observation process, each site implements the method, taking into account its own specific features (risks, operations). Initially based on observations between employees with similar qualifications, the program has now been extended to allow all employees to observe each other while carrying out their duties.

In 2021, 61% of Group sites were operating peer observation practices on safety improvement. This was slightly down on the 2020 figure of 63%, owing first to divestment of the PMMA business, where peer observation practices were in operation at seven sites, and second to the fact that this approach was suspended at Bostik sites in 2020, for resumption in 2021-2023, because of the health crisis. The 2025 target is to reach 100% of Arkema sites.

As an adjunct to peer observation, Arkema has put in place special programs, such as Smart Zone for rectifying shortfalls *versus* best practices, and SafeStart®, which involves observing oneself and others to identify the critical states that lead to more than 80% of all accidents (rushing, frustration, fatigue and complacency).

Progressively integrating the lessons learned from neuroscience to improve accident prevention

Since 2017, the Group has initiated a review with a neuroscientist of the mechanisms associated with human error, particularly among experts (which most of the Group's employees are in their respective roles).

The program is being rolled out gradually across the Group, furthering an understanding of behavioral approaches, and facilitating the adoption of safety tools and equipment by highlighting their relevance.

Using digital technologies to improve safety

Arkema's investigation initiated in 2018 into how new technologies can contribute to health, safety and security continued in 2021, in line with its intention to make this pursuit a long-term effort. The investigation involved conducting targeted experiments to test a Proof of Concept, or POC, such as the use of connected tools like vehicle-pedestrian detection to prevent collisions and 3D glasses for remote diagnostics. The Group is also gradually introducing other technologies, such as virtual reality for fall risk training, tablets for safety inspections and drones for maintenance inspections. Digital technology contributes to improving security management in three main areas: training using virtual reality, digitization of security processes and connected tools.

Getting stakeholders involved in safety

In France, many sites organize Safety Days once or twice a year with their subcontractors, which are attended by local HSE employees, the Group contract manager and the contractor's sales manager. During these days, the Group is represented by local executives, business executives and, as applicable, representatives from the Group Procurement and Safety and Environment departments. These events provide an opportunity to share best occupational health and safety practices. Already well established in Europe, this approach is being rolled out across the Group. It had to be adapted to the restrictions due to the global pandemic, but has maintained its momentum.

In addition, a certain number of initiatives are carried out in order to obtain employee feedback and measure their effective engagement in the area of safety:

- at the global level, World Day for Safety. As pedestrian accidents account for one-third of the Group's accidents, in 2021 each site was asked to organize events, focus groups and concrete actions on traffic accident prevention. As part of this event, the Group organized a competition for the most innovative site; and
- employee engagement surveys are run periodically in Europe, China and the Americas. In 2019, 93% of respondents in China and 97% in the U.S. responded positively when asked whether they fully understood the safety expectations and requirements in their jobs. In the latest survey in 2018, 97% of respondents in Europe confirmed that they "keep safety in mind".

For local residents, the Common Ground® initiative allows for open dialogue with local communities, notably addressing industrial risks stemming from the site's activity. This program is discussed in greater detail in section 4.6.6 "Community engagement" of this chapter.

Injury rates

The Group's safety performance ranks among the best in the global chemical industry, confirming the clear improvement dynamic underway for several years, driven largely by the active involvement of all employees.

2030 TARGET

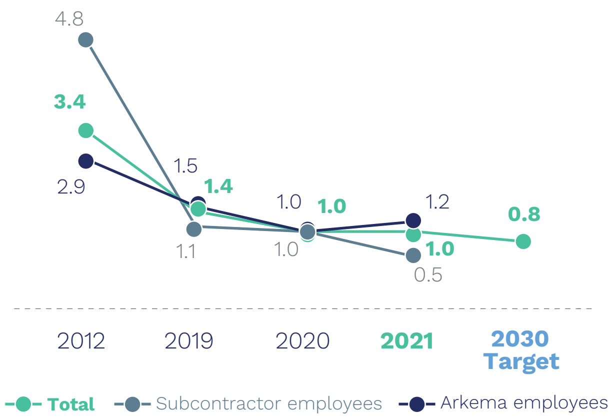
In light of the performance achieved in 2021, the Group has set a more ambitious target of achieving a total recordable injury rate per million hours worked (TRIR) of 0.8.

The improvement in the Group's results was consolidated in 2021, with a TRIR of 1.0 for the second consecutive year. This is the result of action plans over several years to raise awareness of the Group's safety requirements among contractor personnel and to develop a behavioral approach to safety.

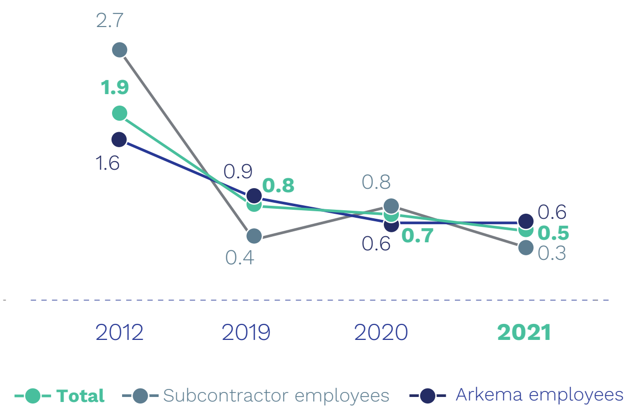
The Group also continued to make progress in its drive to reduce the number of lost-time injuries, thanks to the implementation of prevention initiatives. As a result, the lost-time incident rate (LTIR) declined to 0.5 in 2021 from 0.7 in 2020. An average of 43 days were lost per injury in 2021 across all Group and subcontractor employees. No fatal accident has been recorded since 2013 for all Group and subcontractor employees.

The following charts show consolidated injury rates for the 2019 to 2021 period, in number of injuries per million hours worked, calculated according to the methodology described in section 4.7.2 of this chapter. They also show data for 2012, the baseline year used to set the strategic safety target in the Group's CSR policy.

TOTAL RECORDABLE INJURY RATE (TRIR) (1) (2)



LOST-TIME INJURY RATE (LTIR) (3) (4)



In 2021, a total of 42 Group employees were victims of reported injuries recorded in the TRIR for the year, of which 20 resulted in lost time, out of a total worldwide workforce of 20,209 people. The rate also reflected the 6 incidents involving subcontractor employees reported during the year, of which 3 were lost-time injuries. The rate of potentially serious incidents remained unchanged in 2021 at 0.30, as did their number compared with 2020, at 13. The Group remains set on further reducing this number in the coming years by means of a program addressing the identification and analysis of potentially serious accidents, allowing it to focus primarily on these types of accidents so as to increase the efficiency of prevention.

4.5.2.2.2 Health at work

Arkema has undertaken continuous improvement initiatives to prevent health risks and enhance employee wellbeing.

Protecting health at the workplace

To consolidate all of the workplace health and safety initiatives, the Group is developing a workplace risk assessment application, named STARMAP, to prevent these risks more effectively by capitalizing on globally managed data libraries and best practices. The application is being rolled out worldwide, supporting the gradual harmonization of existing methodologies. At 31 December 2021, 59% of the Group's sites had carried out a workplace risk assessment in accordance with the general basic principles defined by Arkema (*versus* 53% in 2020), and 26% had entered the assessment data into the STARMAP tool based on Arkema's methodology (*versus* 24% in 2020). The increase is actually much more significant, since workplace risk assessments were in operation at all the facilities to be divested by Arkema in 2021, including the PMMA sites in particular.

Additional measures have been implemented to protect employee health during the Covid-19 crisis. For further details, see section 4.5.2.4 on crisis management of this chapter.

Integrating ergonomics and preventing arduous working conditions

Over the past decade, the Group has undertaken a process to integrate ergonomics and prevent arduous working conditions.

In France, a new agreement covering 2021 to 2023 on the prevention of arduous working conditions and the further development of the ergonomics program was signed in late 2020 with the labor representatives, following on from the previous one signed in 2016. Numerous initiatives have been undertaken to improve ergonomics in various work situations, including load handling, packaging, unloading, equipment control, facility maintenance, as well as laboratory and office work. Before implementing improvement initiatives, the Group organizes awareness sessions to improve understanding of ergonomics. On top of that, a network of ergonomics correspondents was set up to develop internal expertise, and workstation ergonomics has been integrated into industrial projects as of the design phase and into their respective HSE reviews.

In the United States, a workstation ergonomics program, based on a set of e-learning modules, has been in place for several years. In addition, several sites run a program called Ergonomics & Human Performance, under which a set of audits is carried out and guidance provided over several months in implementing the related action plans.

In China, targeted studies are being conducted to improve load handling.

(1) *The 2019 LTIR, announced in the 2019 URD as 0.7, was updated to include an injury that had not initially been taken into account.*
(2) *A "total recordable injury" refers to any injury causing bodily harm or psychological trauma to an employee in the course of his or her duties, whether or not it results in a day or longer off work.*
(3) *A "lost-time injury" refers to any injury causing bodily harm or psychological trauma to an employee in the course of his or her duties, and resulting in time off work.*
(4) *The 2019 LTIR, announced in the 2019 URD as 0.7, was updated to include an injury that had not initially been taken into account.*

Preventing stress and improving quality of work life

Arkema France has been conducting a physician-supported stress prevention program for individual employees for over ten years. Stress levels are determined by taking a standardized stress, anxiety and depression test (OMSAD) during employees' annual check-up with the occupational physician. In the United States, employees receive training through the stress management program It's Time to Stress Less.

The Group has undertaken a company-wide workplace stress prevention initiative to improve any working environment identified as being at risk, based on such proven indicators as an abnormally high percentage of employees diagnosed as being over-stressed.

In 2018, the initiative was strengthened in France with the signature of a "health and work" agreement covering stress prevention, ergonomics, disability and disconnection. The agreement aims to:

- ensure the relevance of the various measures taken in these areas by strengthening cohesion between the various parties involved and between the working groups set up under existing agreements;
- preserve and enhance the actions undertaken;
- anticipate changes to occupational health issues by gathering and sharing intelligence on these topics;
- strengthen the role of employee representatives by creating a Steering Committee; and
- protect health in the workplace.

In light of the Covid-19 health crisis, a series of measures was also taken at the global level to protect staff. These measures included remote working for a vast majority of employees, the distribution of masks and hand sanitizer, and vaccination programs, including in the workplace.

In France, a psychological support unit was set up for employees as well as for expatriates and their families worldwide. In the United States, employees benefited from the implementation and financing of video doctor visits.

4.5.2.2.3 Medical care

In 2021, 95% of employees benefited from regular medical check-ups.

The occupational health services participated in Covid-19 prevention initiatives again in 2021, which mostly involved vaccination programs, in compliance with local regulations.

4.5.2.2.4 Occupational illnesses

Toxic or hazardous substances have been and continue to be used in the manufacture of Arkema's products. Despite the safety and monitoring procedures in place Group-wide and in each production facility, employees may have been exposed to such substances and may develop illnesses arising from such exposure.

In this respect, like most manufacturers, Arkema has used a variety of asbestos-based insulating or heat-proofing materials at its production facilities in the past. Consequently, certain employees may have been exposed to such materials before they were gradually removed and replaced. Claims for occupational illnesses related to past asbestos exposure have been filed against the Group, mostly for periods before 1980.

The risk of exposure to chemicals is described in section 2.1.1 of this document.

With respect to industrial hygiene, beyond the use of:

- enclosed industrial processes limiting emissions as much as possible;
- protective systems such as source capture of residual emissions, general improvement works designed to minimize exposure; and
- the use of appropriate personal protective equipment at each workstation;

the Group requires risk exposure to be assessed at each workstation and that employees' residual exposure to hazardous chemicals be regularly measured in order to prevent the risk of occupational illness in the future. Measurement data are stored in conditions that guarantee their long-term integrity.

In addition, each HSEQ review relating to a new industrial project lists the products used, identifies those that may present a health risk and implements the measures necessary to prevent or limit employee exposure (finding an alternative, limiting quantities, setting up protection systems, etc.).

In 2021, 26 occupational illnesses were reported, of which 10 were related to exposure to asbestos and 9 to exposure to chemicals. These figures, which include diseases not listed to date in the tables of occupational illnesses, increased significantly compared with previous years.

The OIFR refers to the number of occupational illnesses reported per million hours worked for Group employees.

Occupational illness frequency rate (OIFR)	2021	2020	2019
Number of occupational illnesses reported per million hours worked	0.7	1.0	1.0

In France, the Group deploys traceability programs to track potential exposure to arduous working conditions in its facilities (including chemicals exposure), as part of its global risk assessment report. At the global level, the Group is working on digitizing its risk assessment data using the dedicated STARMAP tool described in section 4.5.2.2.2, which guarantees internal traceability.

Agreements on early retirement for employees in asbestos-contaminated facilities

In France, four Group sites have been included by ministerial decree on a list of sites whose current employees would be entitled to the early retirement provisions for asbestos workers. The Group cannot exclude that other Group sites may be added to the list in the future.

In this context, on 30 June 2003, Arkema France signed an agreement with all of the representative trade unions that improved the terms of retirement for employees qualifying for this provision, and adjusted their retirement dates to facilitate the transfer of their skills and knowledge within the organization. These measures were extended to all Group companies in France by an agreement signed on 1 September 2007 with all of the unions. For more information, please refer to note 6.3 to the 2021 consolidated financial statements in section 5.3.3 of this document.

4.5.2.3 Process safety

The Group carefully analyzes the industrial risks associated with all of its production, transportation, loading/offloading and storage processes and pays particular attention to both internal and external feedback concerning incidents, accidents and best industrial risk management practices.

The aim of the risk analysis is to identify and manage potential risks that may cause harm to people, goods or the environment. This enables the Group to seek out processes that are inherently safer and to implement risk management measures that focus on prevention. To prevent water and soil pollution, facilities are installed on sealed floor surfaces or containment areas designed to collect any accidental spills. They are monitored and maintained to ensure their reliability and integrity.

The analysis is carried out in compliance with applicable legislation, using systematic studies based on recognized methods, which are chosen in accordance with the type of process involved, the complexity of the operations and the size of the facility. The aspects taken into account include (i) the risks associated with the properties of the chemical products used, (ii) the risks associated with operating conditions, equipment characteristics and potential technical and human errors, (iii) the risks associated with the location of units on a site and their potential interaction and (iv) natural risks.

The risks identified in this way are prioritized using a semi-quantitative process developed and led by a network of experts located in the Group's three geographical regions (Europe – Middle East – Africa, Americas, and Asia-Pacific). The experts are also responsible for preparing the directives, procedures and guidelines required for effective risk management.

The risk analysis process and the corresponding measures are carried out prior to the implementation of new processes, of new facilities, of operations that require the use of new chemical products, and of extensions or modifications to existing facilities. The resulting risk analyses are updated periodically.

As a result, the Group regularly makes improvements to its existing production units. In 2021, Group capital expenditure allocated to safety, the environment and maintaining the production facilities to standard amounted to €281 million, *versus* €270 million in 2020.

At the same time, the Group is investing heavily to reinforce a culture of process safety among its employees. This involves not only technical training in process safety systems and methods, but also seminars in the United States, Europe and Asia for plant employees and managers, conducted by experts from the Center for Chemical Process Safety of the American Institute of Chemical Engineers, companies specializing in process safety, or the Group. In 2018, the DSEG published a booklet entitled "Process safety fundamentals" for plant employees and managers to inform, train and share information with them on process safety values.

In France, Technological Risk Prevention Plans (*plans de prévention des risques technologiques* – PPRT) put in place in accordance with environmental legislation help manage urban development around the Group's upper-tier Seveso facilities. As of year-end 2021, 16 facilities operated by the Group in France are subject to a PPRT, for which the Group is required to part-finance related measures. Furthermore, the French ministerial decree of 29 September 2005, requiring that the probability of occurrence, kinetics, impact intensity and severity of potential accidents be assessed and addressed in the hazardous impact studies performed for classified installations subject to authorization, also entails the introduction of risk management measures at all of the sites classified as such.

In Europe, at the date of this document, 32 of the Group's production facilities are subject to reinforced monitoring in accordance with the provisions of the Seveso III directive (directive 2012/18/EU of 4 July 2012) concerning major accidents involving hazardous substances. This directive requires, in particular, the deployment of safety management systems and the regular update of hazard studies.

In the United States, the management of industrial safety risks is primarily regulated by the Occupational Safety and Health Administration (OSHA) and its Process Safety Management of Highly Hazardous Chemicals standard and by the Environmental Protection Agency (EPA) and its Risk Management Plan (RMP) Rule, implementing section 112(r) of the Clean Air Act. In particular, these texts require companies to inform authorities if they use or store a quantity of a hazardous substance above a defined threshold and, if such a substance is stored, to implement specific risk management programs that include a heightened equipment inspection process, operator training and emergency plans. Other regulations at the federal, state or local level are applicable to the storage of chemicals, the safety of operators when handling stored products and the storage of highly hazardous substances.

For sites exposed to natural risks such as extreme weather events or earthquakes, risk scenarios are defined and regularly updated, together with the measures designed to mitigate their impact. For further details, see the risk of accidents at sites in section 2.1.1 of this document.

Process Safety Events (PSEs)

The Group is intent on minimizing the number of process safety events. In 2017, Arkema adopted the new process safety event criteria published by the International Council of Chemical Associations (ICCA) and introduced a process safety indicator, the PSER (number of process safety events per million hours worked) based on ICCA and CEFIC criteria.

2030 TARGET

In light of the performance achieved in 2021, the Group has set a more ambitious PSE target of 2.0.

The process safety event rate based on the international criteria defined by the ICCA came to 3.1 at the end of 2021, after remaining unchanged at around 4.0 over the last few years. This decrease is the result of concrete and targeted actions implemented following an analysis of process events by type and research into root causes. For example, technical measures involve reinforcing production line inspections (mechanical integrity program) and continuing the rollout of a risk based inspection approach. Actions to improve processes and protect people were also implemented, such as stricter processes to check equipment safety before work is carried out and circuit positions before they are put back into service.

An initiative to strengthen the Process Safety culture, promoted by the Executive Committee, was launched at Group level in 2021, with the definition of 10 Process Safety Must Haves.

Major process safety events (major PSEs) are reported as soon as possible to Executive Committee members and to the neighboring community in the event of nuisances, applying the procedures specified for managing such events.

The number of PSEs is reviewed monthly by the Executive Committee.

FOCUS

The 10 Process Safety Must Haves

Driven by the lack of progress noted in process safety performance, in 2020 Arkema's Executive Committee approved a training program specifically for facility Managing Directors and operating teams to review fundamental process safety principles, which were summarized in the form of 10 Process Safety Must Haves.

These Must Haves are defined as the main essential rules for preventing industrial accidents and protecting the Group's business. They cover aspects such as process risk analysis, security barrier management, change management or emergency preparedness.

In 2021, Industrial Vice-Presidents and all managers of Seveso or equivalent sites received training on these Process Safety Must Haves, led by the Group's Safety and Process Safety leaders. This program continues to be developed and adapted to each site's organizational structure.

Transportation-related events

Transportation-related events are events that occur during the transportation or handling of hazardous and non-hazardous goods at loading/offloading areas on Group and customer sites. The Group uses six criteria to distinguish between major and minor events, primarily based on the regulations in effect for the transportation of hazardous goods.

A new global indicator was introduced in 2020: the ratio between the number of events and the number of shipments for the scope in question. The aim is to identify and analyze the transportation modes, regions and businesses with the highest event rates, so that a corrective action plan can be implemented.

In 2021, the overall rate was 0.09%, down slightly from 0.1% in 2020.

Major events are communicated to the Executive Committee on a quarterly basis. Progress on the action plans for major events is checked after four months and until completion.

The analysis of these events was used to target points for improvement, such as impermeability checks on tanks, loading plans for outgoing vehicles and the use of forklifts for loading packages. The Group's global directive on warehouse facilities was revised in 2020. Warehouses are classified into three levels in accordance with the level of hazard and the quantities of Arkema products stored.

4.5.2.4 Crisis management

The in-plant crisis management procedures are broadly based on the Group Crisis Management directive, which covers the management of potentially critical situations in the areas of health, safety, security, cybersecurity and the environment on Group sites and during transportation. Crisis situations may be caused by internal or external events, including natural occurrences such as flooding.

A year-round on-call system enables the Group to manage crises by setting up a dedicated crisis management team. The Group regularly offers courses in "Crisis management and communication" and "Media training", and conducts simulations of crises and set-up of crisis management teams, especially at the highest risk Seveso sites in Europe. Some of these exercises may involve Group staff, as well as external stakeholders such as government employees, elected officials, the fire department and local residents.

The crisis management process also applies to events caused by Group products located at customer sites. An emergency number is indicated on shipping documents and Safety Data Sheets for Arkema. It is available *via* the country subsidiary for Bostik. Within this product line, a product recall exercise is organized every year for the "food contact" segment with products designed for the general public.

Health crisis

2021 was once again shaped by the Covid-19 health crisis but to varying degrees depending on geographic area. Against a backdrop of total and partial lockdowns in various regions, Arkema demonstrated its capacity to manage and limit the health impacts of the crisis while maintaining its industrial operations at the required level. A specific organizational structure was set up worldwide and adapted by region and country in order to manage the crisis in compliance with local regulations. Protective measures have been implemented and updated at each stage of the crisis, to help protect employee health and prevent the spread of the virus at Group sites.

4.5.2.5 Security

In the area of security, Arkema provides training and makes every effort to use the best technologies available in order to protect people and the facilities. The Group's action plans are notably based on recommendations by public authorities and on targeted audits.

To prevent and reduce the impact of possible malicious acts, Arkema has decided to strengthen its security policy in several key areas:

- **physical security:** guidelines defining the level of protection to be implemented in the event of an intrusion, depending on the site's criticality and the prevailing social conditions (particularly crime levels);
- **transportation:** C-TPAT certification in the United States and AEO certification in France, Brazil, Benelux, Germany and other countries, leading to additional measures being taken to enhance transportation security;
- **intellectual property:** heightened security measures at research centers, for example by introducing standards designed specifically to protect information on cybersecurity measures; and
- **travel:** increased employee protection during business travel.

4.5.2.6 Cybersecurity

In the area of cybersecurity, the Group has adopted a policy for protecting data and corporate and industrial information systems worldwide, as described in section 2.1.3 of this document.

To implement the policy, Arkema has appointed a Group Chief Cybersecurity Officer, who reports to the Group's Chief Information Officer. The CIO comes directly under the responsibility of the Chief Financial Officer, who is a member of the Executive Committee. Cybersecurity guidelines are approved by the Board of Directors, which also monitors their effectiveness. Operationally, they are implemented by a global committee made up of Executive Committee members and Vice-Presidents of Business Lines and corporate departments, which meets twice a year. In 2021, Arkema appointed three Information Systems Security Managers, who are responsible for adapting Arkema's cybersecurity policy to the local context in Asia, the Americas and Europe. A network of cybersecurity officers is also being rolled out at Group sites to ensure that cybersecurity issues are taken into account at the local level.

Arkema's cybersecurity strategy is based on the international framework defined by the National Institute of Standards and Technology (NIST) to identify threats and Arkema's assets, protect those assets, detect and respond to security incidents, and develop business continuity capabilities and incident recovery plans. Guidance issued by internationally recognized cybersecurity standards (*e.g.* ISO 27001, SWIFT, OWASP) is also incorporated into its strategy. Arkema ensures compliance with cybersecurity laws and regulations in all countries where the Group operates. The cybersecurity policy is formally set out in various documents, including the Users' Guide, which describes the rules to follow for anyone with access to the Group's IT resources. Failure to comply with these rules, which aim to protect Arkema's information and operations, may result in sanctions.

To roll out this safety policy to all employees, the Group-wide iSafe awareness program, launched in 2018, is based on the communication of best cybersecurity practices. Actions are led to raise awareness through various channels, such as webinars, messages on the corporate intranet or the enterprise social networking tool Yammer, on-site posters, awareness videos, and regular phishing tests.

The Group's Cybersecurity Operation Center works continuously to detect and respond to security incidents. Security audits by specialized external firms, along with reviews to detect vulnerabilities in IT systems and infrastructures, are performed periodically. Their findings are developed into improvement plans, which are monitored by the cybersecurity team.

To ensure business continuity in the event of a major incident that would permanently disable Arkema's information systems, a business continuity plan and procedures for degraded mode operations were defined and approved. The plan is currently being rolled out at Arkema's production sites, starting with the Group's most critical facilities. Regular training and testing in cyber crisis management is provided to support this plan. All sites will be covered by the end of 2022.

In the summer of 2021, Arkema became a shareholder in Cyber Campus, a project launched by the French President. By 2022, the Cyber Campus will be the benchmark of French cybersecurity, bringing together national and international cybersecurity leaders. This demonstrates Arkema's strong involvement in the cybersecurity community and its commitment to developing the maturity of cybersecurity models throughout its ecosystem.

FOCUS

Arkema assesses the cybersecurity maturity of its suppliers

Arkema uses the services of Cybervadis to assess how suppliers protect their IT systems. This initiative aims to ensure that Group suppliers allocate adequate resources to protecting their operations and their customers' information against cyber threats, and, in doing so, contribute to Arkema's Cyber Resilience.

4.5.3 Other environmental information

4.5.3.1 Environmental management

Reducing its environmental footprint is part of Arkema's commitment to being a responsible manufacturer. To achieve it, the Group is upgrading its manufacturing practices, especially through dedicated investments and operating expenses, to reduce emissions and to optimize the use of energy, water and raw materials. While rigorously monitoring their emissions to water and to air, the Group's industrial sites implement relevant actions to control the potential impacts on the Group's stakeholders.

The main environmental risks associated with the Group's activities relate to air, water and soil pollution, climate change and the use of resources (presented in sections 4.4 and 4.3 respectively of this document). The due diligence procedures and policies implemented to prevent, identify and mitigate these risks and the outcomes of such policies in the form of performance indicators are organized around the topics of climate change (see section 4.4), resource management (see section 4.3) and impact on biodiversity (presented in the following sections).

The materiality assessment conducted in 2019 and set out in section 4.1.6 of this chapter confirmed the importance that stakeholders attribute to environmental topics.

In addition to the goals of reducing its greenhouse gas emissions and energy consumption, presented in section 4.4 of this document, the Group has defined two environmental objectives for 2030 that aim to reduce emissions to air (volatile organic compounds) and to water (chemical oxygen demand). These two strategic indicators and their trends are covered in more detail below.

Beyond the evolution of these two strategic indicators, the Group reports absolute figures for every parameter used to track the Group's environmental footprint.

To meet its targets, the Group has undertaken initiatives at two levels:

- continuous improvement programs, based on employee training and an action plan deployed in every unit; and
- a certification process, completed by internal audits, to assess the performance of each plant's environmental management system.

Investments and operating expenses allocated to the environment

In addition to the overall consideration given to reducing its environmental footprint when making industrial investments, each year Arkema makes specific investments to prevent, reduce or control incidents or accidents that could impact the environment. In 2021, these specific investments totaled €32 million.

Environmental protection also requires operating expenses, which include the cost of external waste and water treatment, as well as personnel costs for HSE functions. In 2021, these operating expenses totaled €114 million.

Regulatory and compliance monitoring

The Group ensures that its HSE network properly understands the applicable EU regulations, such as the European Union Emissions Trading Scheme (EU ETS), the Industrial Emissions directive (IED), the reviewed Best Available Techniques Reference (BREF) documents, as well as the latest environmental data reporting rules which concern it, thanks to the organization of awareness-building sessions and dedicated network meetings. A regulatory monitoring and compliance audit system is in place in each region. A regulatory compliance review is carried out annually by the HSE network and compiled at Group level.

In 2021, the Group was served two notices for environmental violations with fines totaling over USD 10,000. One of these was in the United States and one in China.

Governance

The Industrial Ecology Steering Committee meets at least twice a year to direct and support the Group's progress towards meeting its environmental and climate goals. It is chaired by the Industry & CSR Executive Vice-President and comprises Executive Committee members in charge of the Group's businesses, the Sustainable Development, Safety and Environment Vice-Presidents, and Vice-Presidents of the actively involved functional units, such as processes and energy.

Also, each quarter, the Group Safety and Environment Vice-President provides the Executive Committee with overviews of the Group's environmental performance and the progress made in the key indicators towards the long-term targets.

The following documents are available to keep governance bodies informed about the results of environmental footprint reduction programs:

- each business' entire environmental footprint, including its energy footprint, reviewed annually in individual meetings with the business Managing Director and industrial Vice-President(s) and the Group Safety & Environment and Sustainable Development Vice-Presidents. During this process, the managers concerned are assigned an environmental target for the following year. This target is a criterion for their annual performance review and compensation; and
- the Group's annual environmental and energy reports presenting results for the reporting and prior years, along with historical environmental footprint data for the past six years, issued to all the departments concerned. These reports track the initiatives that helped to improve the Group's environmental performance. A total of 163 initiatives were undertaken in 2021. They covered the full range of environment-related topics, including water withdrawals, the reduction in water effluent releases, GHG and VOC emissions to air, soil contamination and waste production.

In addition to internally tracking the improvement plans deployed in each entity, the Group ensures alignment among the environmental management systems through an external certification process.

4.5.3.2 Other emissions and protecting biodiversity

Arkema has long been committed to reducing the environmental footprint of its production processes. The Group is working to protect biodiversity and help preserve fauna and flora by reducing its industrial facilities' effluent releases into the air, water and soil.

Periodic environmental assessments enable the facilities to identify their environmental impact and the species liable to be affected, define priority objectives for their environmental protection action plans, and measure the improvements. Additionally, new manufacturing units are designed to incorporate environmental footprint considerations into the choice of processes and equipment.

Initiatives being led by the Group, especially those taken to comply with regulations applicable in the countries where the Group operates, have enabled:

- a reduction in chemical oxygen demand (COD) in the effluent discharged into rivers, thereby preserving the dissolved oxygen that is essential to all aquatic life;
- a reduction in the amount of volatile organic compounds (VOCs) released into the air, thereby limiting the formation of ground-level ozone, a superoxidant harmful to flora and fauna;
- a reduction in SO_2 emissions, thereby helping to prevent the formation of acid rain which, in addition to its direct impact on plant life, can also alter soil and surface water characteristics;
- a reduction in NOx emissions; and
- continued soil remediation projects at sites with long-standing industrial operations, in order to protect the species that depend on the land, preserve the quality of local groundwater and control the impact of legacy pollution.

In this way, the manufacturing plants are reducing their emissions by optimizing their use of raw materials, energy or natural resources, so that they result in fewer emissions and less waste. In line with the Group's strategic environmental objectives, production units are also being constantly improved with process upgrades and the installation of effluent treatment facilities.

FOCUS

Arkema steps up its action to protect biodiversity and joins Act4nature international

Launched in 2018 by the French association of *Entreprises pour l'Environnement* (EpE), Act4nature is an alliance of businesses, public institutions, scientific bodies and environmental NGOs committed to protecting, enhancing and restoring biodiversity.

In 2021, Arkema signed Act4nature international's ten common commitments and defined eight individual commitments on the basis of its most significant impacts on biodiversity throughout its value chain. These commitments are detailed in eight objectives covering its industrial sites, upstream and downstream of its activity, but also its stakeholders.

4.5.3.2.1 Emissions to air

The Group's objective is to minimize its environmental emissions, particularly greenhouse gases (GHG), as described in section 4.4, volatile organic compounds (VOCs), acidifying substances (nitrogen oxides and sulfur dioxide) and dust.

Volatile organic compound (VOC) emissions

Group production facilities are reducing their VOC emissions in several ways, including:

- collecting and treating effluents containing VOCs, with the most common technique being the installation of a thermal oxidizer or vent scrubbing; and
- carrying out regular campaigns to detect and eliminate VOC leaks.

The Group is also reducing its emissions of acidifying substances by:

- fueling boilers with low or ultra-low sulfur fuels, or replacing fuel oil with natural gas; and
- installing new low-NOx burner technologies.

Absolute indicators for emissions to air

The indicators in the table below present air emissions from the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

Emissions to air	2021	2020	2019
Total acidifying substances *(t SO_2 eq.)*	2,880	2,690*	2,740*
• SOx *(t)*	2,020	1,730*	1,710*
• NOx *(t)*	970	1,110	1,200
Carbon monoxide (CO) *(t)*	806	906	950
Volatile organic compounds (VOCs) *(t)*	3,330	3,426	3,810
Dust *(t)*	188	217	203

* *Following a correction to the SO_2 release assessment method at Kerteh (Malaysia), the 2019 and 2020 values reported in the 2020 Universal Registration Document have been adjusted for consistency with the 2021 count.*

NOx emissions, primarily associated with combustion facilities, continued to decline in 2021. This decrease is driven by equipment modernization, as at the Taixing (China) site, which decommissioned an incinerator with significant emission levels.

SO_2 emissions, mainly associated with manufacturing processes involving sulfur products, increased by 290 t, chiefly as a result of higher production and adjustments to counting methods. An action plan to reduce these emissions is underway.

Volatile organic compounds were down despite the increase in activity. This decrease is mainly due to sustained efforts on process efficiency and reliability improvements, as at the Villers Saint-Paul and Carling sites in France and the Calvert City site in the United States, and, to a lesser extent, to removing the PMMA business from the reporting scope.

FOCUS

VOC reduction at the Mont site (France)

With connection of a vent to the site's thermal oxidizer, and more efficient operating stability, the Mont plant was able to reduce its VOC emissions in 2021 by 20% with respect to 2019.

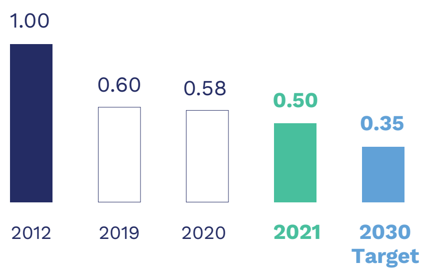
Intensive indicator for emissions to air

The chart below presents the VOC emissions EFPI from the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter. Emissions are calculated using the Group's biggest VOC emitters, which account for more than 80% of the consolidated total.

2030 TARGET

Reduce VOC emissions, expressed in EFPI terms, 65% compared with 2012.

VOLATILE ORGANIC COMPOUND (VOC) EFPI



The substantial improvement in this indicator comes from progress on absolute emissions, in a general context of rising production. Action plans will continue to be rolled out to achieve the 2030 objective.

4.5.3.2.2 Emissions to water

Reducing effluent and other water discharge is one of the Group's main environmental objectives, with particular attention paid to effluents with high chemical oxygen demand (COD) and/or suspended solids.

Initiated in 2016 to optimize the Group's water management, the Optim'O project also aims to reduce the amount of effluent discharged by the Group. It is helping to:

- optimize water use, the efficiency of the water treatment process, the initial design of installations and their daily operation, through the use of advanced technologies and the development of innovative solutions;
- ensure compliance with applicable legislation and regulatory developments, such as the Best Available Techniques reference document on Common Waste Water (CWW BREF) issued by the European Union; and
- implement the pretreatment of process effluent, where relevant, to reduce the COD content of effluent sent to wastewater treatment facilities.

Through detailed mapping of effluent treatment conditions at the Group's industrial sites, updated annually since 2017 under the Optim'O project, 39 priority sites were identified as having the greatest impact on the Group's COD EFPI, and submitted for monitoring through a specific audit program. 12 sites were audited in 2021.

The Optim'O program benefits from a special budget that can be used to speed up the implementation of the action plan.

Absolute indicators for emissions to water

The environmental indicators in the table below present effluent released from the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter.

Emissions to water	2021	2020	2019
Chemical oxygen demand (COD) *(t O_2)*	1,740	1,640	1,950
Suspended solids *(t)*	465	500	571

In 2021, COD discharges decreased significantly at the Beaumont and Clear-Lake (United States) sites, while performance at the Spinetta (Italy) and Chatham (United States) treatment units had a negative impact on overall performance. Corrective action has been taken at these units. Progress continued on reducing suspended solid releases at Pierre-Bénite (France).

FOCUS

Reduction in COD discharges

Through optimized unit operation and cooperation with the partner handling wastewater treatment, COD discharge at the Clear Lake plant (United States) fell by 47% from 2019 to 2021.

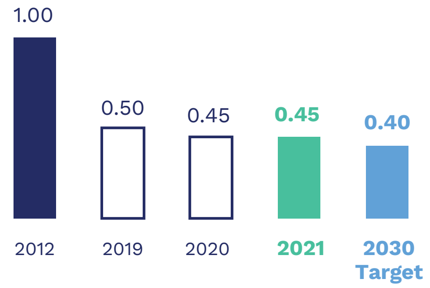
Intensive indicator for emissions to water

The following chart presents the COD effluent EFPI from the Group's operations in 2021, 2020 and 2019, calculated according to the methodology described in section 4.7 of this chapter. Emissions are calculated using the Group's biggest COD effluent emitters, which account for more than 80% of the consolidated total.

2030 TARGET

Reduce COD emissions, expressed in EFPI terms, by 60% compared with 2012.

CHEMICAL OXYGEN DEMAND (COD) EFPI



In 2021, the COD EFPI at 0.45 stabilizes the strong improvements of previous years at a level close to the 2030 target of 0.40. The Group is pushing ahead with actions toward reaching this target.

4.5.3.2.3 Other environmental measures

Other measures taken to reduce the impact on local residents

Another major focus of the Group's environmental policies is to ease the impacts from its operations on people living in nearby communities. Every year, projects are undertaken to attenuate such other nuisances as:

- odors, by upgrading treatment installations to cut emissions;
- noise, by improving air compressor soundproofing; and
- visual pollution (smoke), by firing boilers with natural gas rather than fuel oil.

The Group has put in place communication systems to alert stakeholders in real-time about any event likely to result in noise, odors, or visual pollution in and around a production site. In addition, most facilities now have a system for receiving and responding to complaints from local residents so that they can address the issues and minimize the impacts to the extent possible. Complaints are investigated and action plans defined accordingly in liaison with local authorities.

Other measures to develop biodiversity

Despite occupying only a limited amount of land, the Group is leading a number of initiatives to help enhance biodiversity on sites where part of the land is not allocated to industrial operations. One of the purposes is to encourage revegetation and the development of local species on and around the sites.

The Group promotes certain initiatives to improve biodiversity around production units. The Cerdato site (France) has been running environmental protection initiatives since 2019, such as a partnership arrangement whereby the nature club at a local school makes bird and insect nesting boxes on Arkema's behalf. A local environmental association conducted an ornithological survey in 2019, then organized guided tours to observe the birds at the site.

4.5.3.2.4 Managing legacy pollution and protecting the soil

Arkema responsibly manages soil and groundwater contamination caused by legacy pollution, including the storage of waste from operating facilities that have been operated, sold or acquired. The Group manages its environmental responsibility in such a way as to ensure that the health impacts and risks of its operations are managed in compliance with the applicable regulations, and that the environment is protected over the long term, with an appropriate allocation of funds.

In addition, Arkema implements prevention policies at all of the operating facilities, with mechanical integrity programs, dedicated incident reporting systems and experience sharing. When soil or groundwater contamination is suspected at a facility, an inquiry is conducted to determine the extent of the area concerned and ascertain the impact. The Group cooperates with the authorities to define the appropriate response, in line with applicable legislation.

The Group also implements a wide range of remediation initiatives using new techniques and looks for ways to reuse redundant industrial sites.

Site pollution risks are described in section 2.1.1 of this document.

Brownfield redevelopment

To redevelop certain vacant brownfield sites, the Group is partnering with local players, academics and specialized companies. For example, in 2019 Corsica Sole installed solar panels to repurpose parcels of land at Arkema's Saint-Auban (France) site. Covering 10 hectares, or 20% of the plant's surface area, the solar power facility plans for annual output of 19 GWh. The energy produced goes towards self-consumption to power the plant's operations.

Provisions for the management of legacy pollution

The amount of provisions for environmental risk at 31 December 2021 can be found in note 10.2.1 to the consolidated financial statements, in section 5.3.3 of this document.

4.6 Labor and stakeholder relations

FOSTER INTERACTION AND VALUE CREATION WITH STAKEHOLDERS THANKS TO OPEN AND CLOSE DIALOGUE

The Group's activities are part of a value chain and an ecosystem comprising numerous partners and stakeholders, as described in section 4.1.6 of this chapter. Open dialogue with its internal and external stakeholders is a cornerstone of Arkema's corporate social policy and a prerequisite for understanding their expectations, building relationships based on trust and cooperation, and ultimately minimizing social risks and creating value for all.

All of the international standards and principles that the Group upholds, and their transposition into Arkema's corporate reference documents, are presented in section 4.1 of this chapter.

In its dialogue with stakeholders, Arkema:

- respects Human Rights and fundamental freedoms and makes them central to its activities;
- places great importance on conducting its business in line with the principles and rules on ethics, integrity and compliance. Arkema therefore complies with prevailing laws and regulations and best business practices;
- fosters the individual and collective development of all its employees. Arkema's global human resources policy places a key focus on the development of skills, the promotion of diversity, and employee engagement and well-being;
- establishes open dialogue with its customers, suppliers and partners with a view to building a responsible value chain that creates shared value. In its choice of industrial and business partners, Arkema favors those that respect its social commitments; and
- helps develop lasting relationships based on trust and openness through its Common Ground® initiative, which is aimed at its neighbors and local host communities.

Governance

The CSR/Stakeholder Dialogue Steering Committee meets at least twice a year to guide and support the Group's progress, particularly in the areas of human resources, Human Rights and diversity, responsible procurement, philanthropy, stakeholder dialogue, sustainable finance and non-financial reporting. Its members include the Human Resources & Communication Executive Vice-President and corporate and operational Vice-Presidents, all of whom are actively involved in the CSR process. Every year, the Sustainable Development Vice-President presents the Executive Committee with an overview.

4.6.1 People

PROMOTE THE INDIVIDUAL DEVELOPMENT AND COLLECTIVE COMMITMENT OF ALL THE COMPANY'S MEN AND WOMEN

Like 2020, 2021 was impacted by the Covid-19 pandemic. The measures taken by the Group to protect employee health and safety while maintaining business continuity are described in section 4.5.2 of this chapter.

The context also greatly encouraged the use of new technologies across the Group, as described in section 4.6.1.2.

4.6.1.1 Talent management

Arkema considers each of its 20,209 employees as talents. Given the highly technical nature of its businesses, developing expertise and maintaining a high level of engagement among its employees are key objectives for Arkema, which must continuously evolve in order to meet business, technological, social and environmental expectations in a proactive manner.

The objectives of its talent management policy are to support the Group's growth in a multicultural environment, make sure it has the expertise it will need in the medium to long term, meet employees' goals in training and individual development, and enhance employee well-being at work. The actions taken to achieve these objectives are described below.

The objectives are based on two quantitative indicators that were updated in 2020 with more ambitious target values for 2030. They reflect the Group's commitment to equal opportunity and acknowledge the contribution of diversity to company performance.

2030 TARGETS

Percentage of women in senior management and executive positions: 30%.

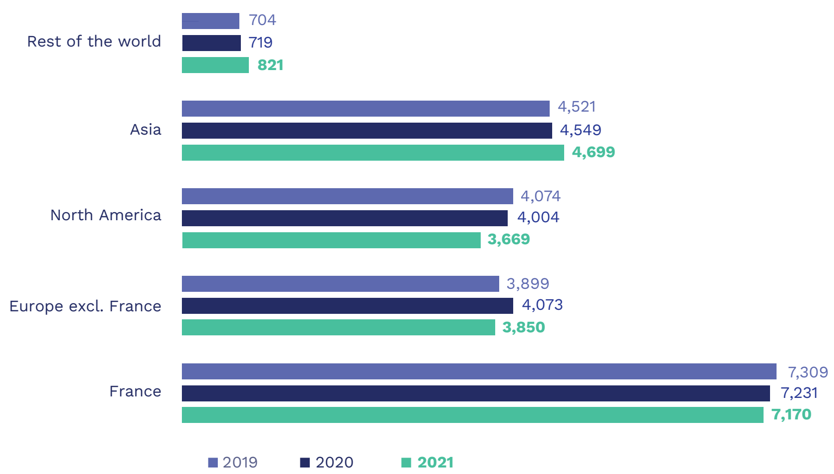
Percentage of non-French nationals in senior management and executive positions: 50%.

Talent management is based on the principles of workplace equality and non-discrimination. It is exercised in keeping with the Group's values of simplicity, performance, solidarity, empowerment and inclusion, while moving towards the UN's Sustainable Development Goals, as indicated in section 4.1.3 of this chapter.

To support the Group's development and its global strategy, the organization of the Human Resources (HR) function was adapted in 2020. It comprises both corporate and geographical HR departments. The heads of these departments report to the Human Resources and Communication Executive Vice-President, who is a member of Arkema's Executive Committee. Highlights and project advancement are communicated to the Group's Executive Committee on a monthly basis. Human resources issues and challenges are presented to the Board of Directors once a year.

The Group clearly states that it consistently complies with the constitutional texts, treaties, conventions, laws and regulations in force in the countries and regions in which it operates, as detailed in section 4.6.2 of this chapter.

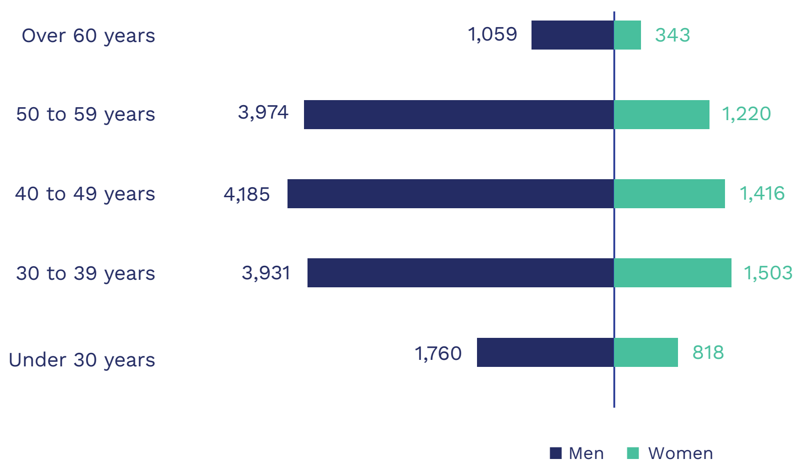
TOTAL HEADCOUNT BY REGION OVER THE PAST 3 YEARS



Total headcount stood at 20,209 at 31 December 2021, compared with 20,576 at 31 December 2020 and 20,507 at 31 December 2019.

The 1.8% decrease in headcount with respect to 2020 is mainly due to changes in the Group's scope of consolidation, in particular with the divestment of the PMMA business. In addition, personnel arrival and departure rates are up as a result of the dynamic labor market.

GROUP EMPLOYEE AGE PYRAMID



The age pyramid shows a balanced distribution in the various deciles between the ages of 30 and 60, reflecting the loyalty of employees. The Group has an internal talent pool sufficient to cover part of the replacement of employees expected to retire over the next ten years. The training and individual development programs implemented and described in section 4.6.1.3 of this chapter will allow for the necessary transfer of skills.

The low proportion of employees under 30 is explained by the high level of qualification required by the Group's businesses.

4.6.1.2 An agile and collaborative organization

Work organization

In every country where Arkema operates, it organizes employee work time to enhance engagement and performance, with the approval of employee representatives and in accordance with local regulations.

Given the specific features of its industrial operations, some employee categories may work on regular continuous or on-call shifts. These requirements are taken into account in a special remuneration scheme and adapted work schedule. For employees on shift rotations, the number of employees assigned to a given position and daily shift planning are determined in such a way as to safeguard employees' quality of life.

Work is organized within the Group so as to provide for full-time positions. Part-time employees accounted for 3.8% of the workforce at 31 December 2021. In the majority of cases, these employees have chosen to work part time.

In response to a sudden demand increase or unusual difficulties, the Group may make use of fixed-term employment contracts, overtime, subcontractors or temporary employment agencies, in compliance with local legislation and depending on the local labor market.

Any overtime worked results in compensatory time off and/or pay, in compliance with the regulations applicable in each country.

Initially implemented at the Group's head offices in the United States and France, teleworking was extended to all French sites in 2019, for certain positions. In 2021, the proportion of employees who could benefit from this arrangement reached 9.5% of the total headcount in France.

At the Group level, in 2021, 20% of employees telework, either regularly or occasionally, regardless of the health context. This represents a high proportion given Arkema's business.

Faced with the Covid-19 health crisis, the Group's industrial sites continued to operate uninterrupted, while taking all the necessary measures to protect the health and safety of employees. Teleworking was encouraged wherever possible, primarily for services sector employees, and the policy on teleworking frequency evolved throughout the year in line with the recommendations issued by local health authorities. These organizational changes, made possible by the Group's robust and powerful information networks and by the flexibility and commitment of its employees, enabled the Group to continue operating.

The period also led to greater adoption and use of new tools enabling the organization of creative meetings and opportunities for virtual collaboration. Managers were made aware of the importance of maintaining ties and interacting regularly with their teams.

Lastly, a psychological support unit was set up for employees in France and for expatriates and their families worldwide.

Employee engagement

The SMART project is part of the Group's Operational Excellence program. This project aims to bring all employees together under a shared vision, by eliciting their ideas for improvement and helping make active contributions towards progress.

Problem-solving and joint decision-making are two essential focuses of the program.

SMART offers work methods and a collaborative environment to foster and apply ideas and contributions from field staff to benefit from their extensive skills and experience.

This is not a one-off project but a new approach designed to transform the organization and change its culture. Since 2017, 52 sites on three continents have joined the movement in different areas (maintenance, production, supply chain, laboratory, human resources).

Digital transformation

New digital technology is completely transforming the work environment. To keep up with these changes, Arkema supports its employees to help them adapt to this transformation, which can create new performance drivers such as collaborative work within an international organization. The digital transformation is mainly understood in light of two aspects: employee experience and collaborative methods.

Employee experience

Employee experience covers all measures taken to help employees in their everyday tasks and optimize their use of tools.

The Human Resources Information System (HRIS) deployed since 2018 helps to standardize and share processes and data and facilitates access to organizational information.

FOCUS

Employees at the helm of their professional visibility within the Group

The MyCareer digital platform gives employees access in just a few clicks to all the services and information they need to actively participate in managing their career at Arkema, in particular by updating and personalizing their profiles, consulting their performance reviews, developing their networks and accessing vacancies throughout the Group.

In terms of training, new technologies have enabled the Group to offer a range of training modules and types (presentations, videos, games, etc.) that employees can choose from, according to their needs, learning methods and preferred pace. A preliminary self-assessment helps employees develop their training plan. The feedback collected via satisfaction questionnaires allows the relevant expert to adjust the module's content.

ArkemaNews, the Group's intranet, which is translated into eight languages, has for many years informed employees whatever their location, of Group news in real time. An additional version is also in place in the main countries where Arkema operates to provide more specific information on the local environment.

Lastly, the enterprise social networking tool Yammer is widely used within the Group to further contribute to creating an agile, spontaneous work environment. The service is used by members of a group to discuss various topics and share experience. In 2021, more than 450 groups were in place, bringing together more than 10,000 employees to discuss cross-cutting issues such as safety, tips on new digital tools, communication on major projects, and even sport.

Since 2018, the Work Together, Work Clever program, co-developed by the IT and Human Resources functions, has been helping employees get to grips with new digital practices and the resulting changes to ways of working. In 2021, nearly 5,000 employees in 15 countries took part in this program, and notably participated in the 350 webinars run by some 20 "user coaches" from regional IT functions. After an initial phase on using office automation and remote working systems, with widespread use of Teams, first for videoconferencing and then for collaborative work, the program has been further developed and now supports emerging practices in document sharing, collective intelligence and visual management.

FOCUS

Working clever by harnessing collective intelligence

To develop ways of working that harness collective intelligence, Arkema is deploying a number of digital solutions for visual management and collaboration during meetings or on projects. With the Klaxoon tool, for example, employees can interact simply and freely in real time, submitting as many ideas as they wish. This increases productivity and fosters creativity in remote meetings, enabling participants to share post-it notes and collaborative sketches, for example, during industrial project reviews or progress plan seminars.

Collaborative work methods

Digital technology offers opportunities to improve the performance of industrial sites by boosting the added value of human capital, as people play a fundamental role in the value chain of the production process.

Digital manufacturing project managers are supported by a network of about 50 digital champions in the various businesses and corporate departments. Their primary role is to identify areas where the use of digital technology makes the most sense based on practical experience culled from the field.

They then conduct a Proof Of Concept (POC), a short-term feasibility exercise, to test the value of an idea rapidly before approving a prototype and, where applicable, moving on to industrial scale production. Dozens of POCs have been launched, in operations, maintenance and engineering.

This agile method also relies on the involvement of operational staff to approve the relevance of ideas, therefore identifying promising projects more quickly. Operational staff contribute to each step in the POC, from testing to industrial production.

These examples illustrate the measures Arkema has taken to enhance collaborative work methods and encourage its teams to embrace digital technology.

FOCUS

Connected smart glasses in industrial environments

Using a pair of specially developed augmented-reality glasses, users can view data remotely in real time on a high-resolution micro-screen. Clipped onto a safety helmet, this 100% hands-free device with voice command lets users navigate through menus, view documents, take photos or videos, fill in form fields, dictate reports, etc. Glasses of this kind, linked to Teams, can be used for sharing expertise in real time with local teams, for example.

4.6.1.3 Personal development and training

Arkema emphasizes the three fundamental areas of recruitment, training and talent development to ensure employee development and the Group's sustainable growth.

4.6.1.3.1 Recruitment/Employer brand

The Group's recruitment policies are designed to attract talented, highly skilled individuals to support its growth and workforce renewal. In keeping with its values of simplicity, performance, solidarity, empowerment and inclusion, Arkema attaches a great deal of importance to finding applicants with cultural awareness, teamwork skills, a solutions-driven approach and an entrepreneurial spirit.

BREAKDOWN AND CHANGE IN THE NUMBER OF RECRUITMENTS BY REGION

	2021	2021	2020	2019
France	17%	345	322	366
Europe (excluding France)	14%	282	262	260
North America	33%	691	329	437
Asia	30%	629	326	431
Rest of the world	6%	123	71	99
GROUP TOTAL	**100%**	**2,070**	**1,310**	**1,593**

In 2021, Arkema hired 2,070 people under permanent contracts, compared with 1,310 in 2020 and 1,593 in 2019. The significant rise in recruitment despite the health crisis reflects the Group's vigor and proactive approach to achieving sustainable growth.

The geographic distribution of recruitments shows that Asia and North America remain the most active regions, in line with the Group's expansion in Asia and the higher employee turnover in both regions.

To achieve its goals and enhance its reputation while enlarging its international perspective, Arkema designed a global employer brand that is heightened through local actions. The slogan "Go Beyond Your Discoveries" establishes the Company's talent acquisition strategy on three main pillars.

1. Gaining recognition from young talent as a responsible, preferred employer

In order to strengthen its reputation worldwide and continuously replenish its pool of potential job candidates, the Group nurtures special relationships with the best educational and training institutions for all its professions.

Arkema's teams participate in forums and organize visits to its industrial sites and research and development centers, particularly in France, China and the United States.

In 2021, as in 2020, these relationships were maintained, and some 30 forums were held, either remotely or gradually in person, in France, China and the United States.

FOCUS

Online Campus Talk, revisiting remote job dating

In spite of the health situation, Arkema has untiringly continued to engage with young graduates by diversifying its means of reaching them, with China standing as a good example. Very early on, the Human Resources project team used a flagship local video conferencing solution to run virtual recruitment forums such as Online Campus Talk. As well as making it easier to meet young graduates seeking an internship, a work-study program or a first job, the solution also breathes new life into recruitment practices, compensating for the lack of traditional forums considered a key confluence in student life. It effectively meets the need for interaction and continued recruitment in high-demand sectors, and sets the stage for the post-health crisis period.

Arkema made it into the HappyIndex® Trainees France ranking for the third year in a row in 2022. Based exclusively on feedback from interns and work-study trainees, the "Happy Trainees" label is awarded to organizations where students are motivated by their tasks and happy with their experience.

2. Attracting the best talent through employer branding

In 2021, Arkema ranked 102nd out of 750 on Forbes' list of the World's Best Employers.

Survey participants rated their employers on image, economic footprint, talent development, gender equality and social responsibility.

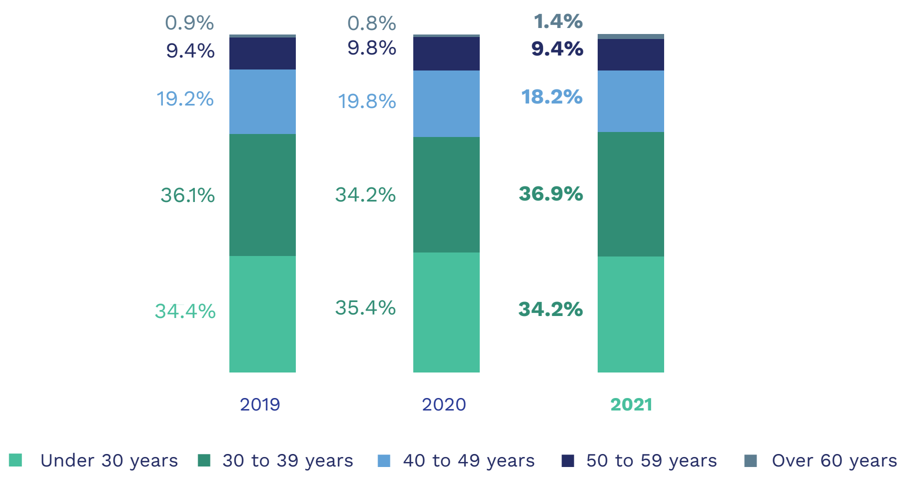
To support its growth, Arkema takes a proactive approach, in line with its diversity policy, to attract talent from a variety of backgrounds, and promote gender diversity. The Group uses various channels, including social media, to communicate externally about the Group, its products and its wide range of jobs.

Rolled out at the global level, the visuals highlight the value of Arkema employees at every level in the organization, to provide an accurate picture of their job and encourage different types of candidates to apply. These images are also a way to combat stereotypes and convince potential applicants from diverse backgrounds that they could enjoy a rewarding career at the Group.

These actions are carried out on social media such as LinkedIn, Facebook and Twitter, giving the internal network of ambassadors the opportunity to interact directly with applicants. On Glassdoor, the Group's international rating had risen from 3.8 to 4 out of 5 at the end of 2021.

Arkema takes steps to ensure the global coordination and centralized management of job applications. By implementing its new HRIS (Human Resources Information System) worldwide, recruiters can coordinate their actions to bring the Group top skills and diverse profiles that can support Arkema in its long-term development.

RECRUITMENTS UNDER PERMANENT CONTRACTS BY AGE GROUP



Recruitment practices within the Group are designed to provide the skills and expertise that the technical, sales and administrative professions need. People under 40 have accounted for an average of more than 70% of total recruitments over the last three years. This illustrates the initiatives that have been in place for several years to proactively respond to the wave of retirements projected over the next ten years.

RECRUITMENTS UNDER PERMANENT CONTRACTS BY AGE GROUP AND GENDER IN 2021

	Male	Female
Under 30 years	487	220
30 to 39 years	579	184
40 to 49 years	288	88
50 to 59 years	144	50
Over 60 years	25	5
GROUP TOTAL	**1,523**	**547**

3. Welcoming and integrating new employees

Arkema guides its new employees, which accounted for around 10.2% of the Group's headcount in 2021, through the integration process so that they can rapidly become operational.

The onboarding tool developed at Group level in 2020 has been rolled out in several languages. The two-hour, interactive webinar is held every quarter for the benefit of new arrivals. It includes an interactive presentation of the Group with a quiz, a virtual tour of Arkema's showroom (Workshop 4.20) and a discussion with a member of the Executive Committee.

Managers are highly involved in integrating new members of their team. Resources presenting the Group and its organization are made available to them and complete the integration process organized by the new employee's unit.

Managing departures

The actions described above have been implemented to hire new employees and help make up for departures. The action plans outlined in sections 4.6.1.3.2 and 4.6.1.3.3 of this chapter on training and talent development round out the recruitment policy.

The breakdown of Group employees by age group in section 4.6.1.1 of this chapter shows that a significant number of Arkema employees will retire over the next few years.

CHANGE IN THE NUMBER OF DEPARTURES BY REASON

	2021	2020	2019
Resignations	1,089	693	945
Retirement	357	310	285
Dismissals	439	331	342
Other reasons (including divestment)	1,022	286	169

In the event of a reorganization or restructuring that leads to the closure of workshops or sites, Arkema endeavors to offer the staff members concerned adapted solutions, such as internal or external redeployment and retraining. This is outlined in section 4.6.1.7 of this chapter.

In 2021, there were 165 dismissals on economic grounds arising from workshop closures and organizational adjustments.

Dismissals for personal reasons represented approximately 1% of the total workforce.

CHANGE IN EMPLOYEE TURNOVER

(as a %)	2021	2020	2019
Turnover	5.6%	3.5%	4.8%

Employee turnover, *i.e.* the percentage of resignations among employees on permanent contracts, stood at 5.6% in 2021, a figure that is higher than in the two previous years. This increase mainly concerns North America, in the context of a highly dynamic job market stimulated by economic recovery.

Moreover, note that resignations concern the managerial and non-managerial categories in proportions close to their respective weighting in the workforce as a whole.

4.6.1.3.2 Training policy

Arkema seeks to offer training that meets the needs of the Company and its employees. It also strives to ensure the relevance and effectiveness of the resources provided, in order to optimize the time and money invested. Group-wide training hours in 2021 totaled 446,509, including close to 100,000 hours on an exceptional program addressing around a hundred operators at the Changshu site (China) under a government program. Excluding exceptional items, training hours group-wide showed little change with respect to 2020.

In 2021, safety, health, environment and quality (SHEQ) training and business training accounted for 48% and 39% of the training hours provided in the Group, respectively (excluding exceptional training). The hours of training on essential job skills accounted for 62% of all training, while the other hours of training focused on career development for employees.

CHANGE IN TRAINING HOURS (EXCLUDING E-LEARNING)

	2021	2020	2019
Percentage of employees having attended at least one training course during the year	80%	80.6%	86.1%
Average number of training hours per employee per year	24	18	25
Average number of training hours per manager	24	16	24
Average number of training hours per non-manager	24	20	25

Professional training concerns all employees regardless of their job, level of responsibility or age. This is why the Group has reaffirmed its desire to provide every employee with access to lifelong learning in the course of their career at Arkema, as shown by the number of training hours in each job category.

At corporate level and in France, the quality of training modules is assessed by means of questionnaires completed by participants at the end of each session.

In addition to these qualitative evaluations, some training courses include a test to gage the skills acquired.

For example, production line operator training is carried out in stages under a formal process that covers both the program content and subsequent validation of results. This specific practice develops skills and can facilitate employee access to promotions and internal mobility, allowing the Group to enhance its performance while retaining employees. This approach also meets the standards required by the Arkema integrated management system.

Some training programs may:

- be conducive to career advancement (changes in profession, grade or coefficient); and
- develop employee skills in line with transformation underway in a given profession (as with the Supply Chain Academy).

At corporate level, global programs are deployed under the Arkema University label. These include:

Business Academies

These academies offer employees personal and strategic development programs aligned with transformation in their professions, consistent with Group strategy, and create knowledge-sharing communities of experts. Sessions are co-developed and coordinated by internal and external instructors allowing for experience and best practices to be shared.

The following Business Academies are currently operational:

- Supply Chain Academy

  This academy was opened in 2018. After an initial phase addressing country supply chain managers and Business Line supply chain directors holding global or regional responsibility, it has been rolled out to reach supply chain managers at European facilities since 2021.

- Procurement Academy

  This academy, inaugurated in 2020, addresses all Group buyers in supply chain and purchasing departments (goods & services, raw materials, energy). Its aims are to support transformation in this profession, facilitate exchanges, build bridges between these departments, and develop a global community of buyers.

- IT Academy

  This academy was opened in 2021 to help professionals from this field keep up with technological and digital developments. It is also open to digital marketing teams and employees involved in digital projects.

The establishment of new academies addressing transformations in other professions is currently under consideration.

Management and Leadership Academies

The Group has established three management programs:

- the Arkema Leadership Academy is designed for middle managers with high development potential. Training focuses on leadership, allowing managers to analyze their profile individually and take an active role in their professional development. This training is provided by HEC for Europe and Asia, and by Cornell University for America;
- the Arkema Executive Academy is aimed at experienced managers capable of taking on positions of responsibility within the Group. In a single session bringing together employees from around the world, the aim is to provide participants with the resources necessary to develop their skills as future leaders; and
- the Top Executive Academy, created for around 100 executives, is based on 11 masterclass modules covering core subjects relevant to the Group's policies or programs (internal control, digital technology, finance, legal affairs, CSR, talent management) and the development of soft skills in creativity, international relations, negotiation, leadership (decision-making, confidence) and the executive mindset. Since 2021, this program has been rolled out in the form of virtual classes.

These programs contribute to promoting executives to positions with greater responsibility: in 2021, 87% of vacancies for senior management and executive positions were filled *via* internal promotions.

The Group's training offer is rounded out by local programs addressing specific needs.

> **FOCUS**
>
> **iTeam Academy: skills development in service of digital transformation**
>
> Digital transformation has a profound impact on our ways of working. The Group's IT department teams are in the front line of this revolution, which is why developing the relevant talents is so important.
>
> This is the purpose of iTeam Academy, which runs six introductory modules to share the fundamentals of six aspects of the digital transformation: agile concepts and methods, user experience, cybersecurity, data, architecture and new cloud technologies. The courses take the form of e-learning provided to the 350 employees of the IT department worldwide, along with others involved in Arkema's digital transformation.

Internally developed training programs

The Group encourages employees who are experts in their field to become an in-house authority and instructor. These initiatives promote the transfer of skills and highlight the value of instructors' expertise. Group business academies have been developed with this in mind, as have local programs in the United States, France and China.

This type of training provides a way for the Group to offset the risk of losing skills due to the high number of retirements expected in coming years.

FOCUS

An educational web series on Arkema's materials

Arkema's Inside Materials web series, hosted by the Group's scientific mediator, provides original and educational insights into Arkema's specialty products, designed for a more sustainable approach to improving everyday life. This discovery-oriented program is also used for employee onboarding purposes.

It is a great way to encourage employees around the world to take on an ambassador role among their peers, the general public and potential customers.

Number of employees who took an e-learning course

Arkema's development of digital tools for use by employees resulted, very early on, in the expansion of its training offer to include easy-to-use e-learning modules, particularly for courses on safety and facility maintenance. The training offer currently consists of about 15 modules in French and English and sometimes in Chinese, German or Italian, depending on the topic. These training courses are easily accessible to nearly all employees, most of whom now have a log-in and access to a computer, which makes enrollment easier.

FOCUS

Immersive reality training on pedestrian risk awareness

How can the impact of pedestrian risk awareness messages be increased? By using a high-fidelity immersive experience device.

The concept behind the device is to enhance skills acquisition by creating a real-life experience where best practices are adopted, because it is the human factor that determines the most effective opportunities for improvement. At three production sites in France, close to 300 people trialed virtual reality headsets for an immersive experience in four scenarios depicting risk situations, filmed on-site in first-person and in 3D.

Evaluations confirmed the effectiveness of this immersive tutorial. Six months after its introduction, 80% of the users reported remembering all the topics mentioned in the awareness module.

E-learning is used to provide employees with a basic set of behaviors, benchmarks and practices to adopt worldwide in fundamental areas such as business conduct and safety.

CHANGE IN NUMBER OF EMPLOYEES WHO TOOK AN E-LEARNING COURSE

	2021	2020	2019
Number of employees who took an e-learning course	15,422	10,247	9,517
Percentage of employees having taken at least one e-learning course during the year	76%	55%	51%

The health context encouraged the use of e-learning. The sharp increase in the number of employees reached by e-learning training can be attributed primarily to roll-out of programs on safety and Code of Conduct and business ethics.

4.6.1.3.3 Talent development

Talent development is a key strategic mission for broadening the experience that employees acquire along their career paths, thereby cultivating new skills, this being an essential factor in the Group's development.

In this respect, talent development focuses on both:

- ensuring that the Group has the expertise it needs to meet its strategic challenges and secure development, both today and over the medium-term future; and
- helping employees build their careers, thereby enabling them to increase their skills and realize their career goals depending on the possibilities and opportunities available within the Group.

The talent development policy is based on the same principles, regardless of employee category, country, age or gender, as follows:

- providing each employee with the resources and support he or she needs to manage every phase in his or her career;
- leading a proactive promotion-from-within policy;
- identifying and developing high-potential individuals to encourage them to take on greater responsibilities and support career development;
- encouraging mobility between subsidiaries and geographical areas; and
- enabling every employee to move up in the organization and enrich his or her experience and skills, while ensuring organizational flexibility.

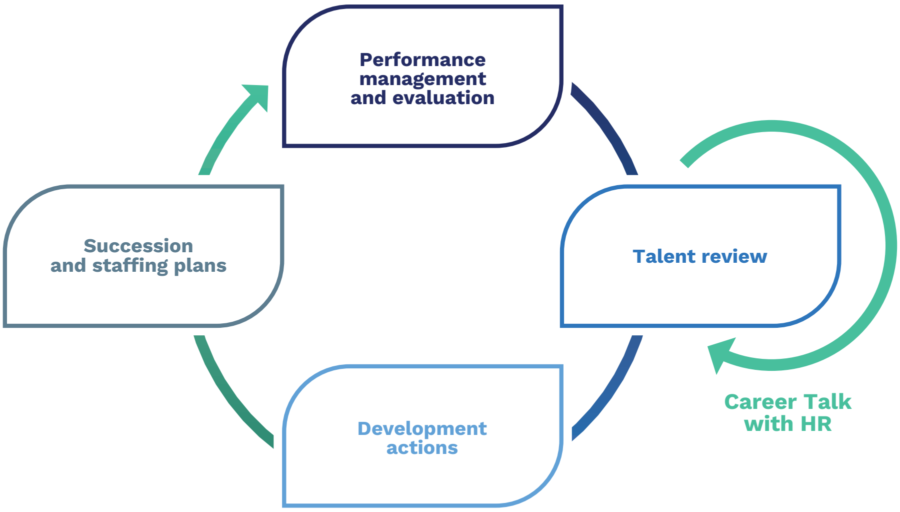
There are two key employee positioning prerequisites for talent management at Arkema:

- a cluster of professions within which jobs are identified by the main type of duties; and
- job evaluation (based on the Hay methodology), for structuring the Group's organization using a common frame of reference, and to support career development and a coherent salary policy. This approach also contributes to the harmonization of positions worldwide.

In 2021, the Group carried through a worldwide overhaul of employee management systems and processes to improve identification and promotion of internal talent throughout the company.

Talent Management Cycle

The Group's new Talent Management Cycle has four major stages:



Annual performance reviews

All Group employees are entitled to an annual performance review, to discuss the past year's performance with their managers and set objectives for the coming year. Employees are provided with feedback following a self-assessment. This system provides input for preparing personalized action and improvement plans involving specific guidance or training.

The Human Resources Information System (HRIS) tool rolled out worldwide at Arkema in 2018 is used to perform these reviews using an electronic format, meaning that information can more easily be shared between employees, management and human resources.

Employees working in matrix organizations receive a review from both their direct and functional supervisors. The HRIS application is used to structure this practice.

Career talk

Career talk meetings with talent managers provide employees with an opportunity to review their career paths, expectations and how they could advance their career in other Group professions. In France, the Motiva tool is used to help employees identify deeper motivations and clarify career plans.

Talent reviews

Annual talent reviews cover all professions and levels. A talent review begins at site level, then is consolidated and analyzed by profession, country, region, Business Line and corporate department, ultimately resulting in a summary shared with the Executive Committee.

This collaborative approach brings together a committee of HR managers and representatives. It involves observing performance to identify potential, map out career projections for each individual and determine action plans accordingly.

Succession and staffing plans

Succession and staffing plans, across all professions and company levels, ensure continuity in key positions and help to retain expertise throughout the Group.

The various career projections from Talent Reviews provide input for the succession plans in the form of candidate pools by profession, in line with short- and medium-term development outlooks.

Career committees

Drawing upon data from the various meetings forming the Talent Management Cycle, profession-specific career committees are formed to organize internal mobility consistent with the Company's changing needs in the short- and medium-term future.

The committees include HR managers and representatives, and they cover all employees in the scope concerned.

FOCUS

A globally aligned Technical Community to improve talent engagement and recognition

The three technical centers, in France, the United States and China, manage investment projects for Arkema's plants worldwide. The assignment of engineering project managers is now planned globally. Resources are managed as closely as possible to meet needs, using project characterization and a common skills framework. The aim here is to ensure the best match between the managerial capacities of each person and the demands of each project. As well as facilitating international mobility for project managers, this organization also enables them to progress individually, harnessing their respective areas of expertise within the Group.

International experience

International talent is developed through:

- the global dimension of many projects and responsibilities, offering employees day-to-day experience in a multicultural environment; and
- expatriation, which aims to enrich employees' skills and experience with a perspective of individual development. It enables the Group to strengthen local skills in the context of strategic projects, while ensuring the capitalization of know-how.

The number of Group employees working as expatriates, for an average of three to five years each, is around 80, reflecting the Group's priority focus on promoting or hiring locally whenever possible, including for executive or high responsibility positions, as outlined in section 4.6.1.6 of this chapter.

4.6.1.4 Employee engagement and well-being

Arkema maintains its proactive approach to employee engagement and workplace well-being, key factors contributing to the Group's performance. The materiality assessment conducted in 2019 and described in section 4.1.6 of this chapter confirms the importance that both internal and external stakeholders attribute to this area. The Group firmly believes in sustaining open dialogue with employees to continuously improve the quality and safety of the work environment and the work/life balance, along with workplace atmosphere and organization.

In 2020, Arkema initiated a worldwide process to develop a global policy on quality of life at work (QLW) based on four key areas:

- Health and work: mental health, health and fitness, work/life balance;
- Working conditions and environment: teleworking, working environment, ergonomics and working conditions;
- Living in the digital age: acculturation, things to look out for, breaks and digital project deployment; and
- Working relations: management in line with the Group's values, attentiveness to employees.

The project involves HR teams across all countries, and Sustainable Development representatives. A global QLW committee has been set up, and the initiatives planned and introduced will be assessed by means of employee engagement surveys.

FOCUS

Setting the standard for a great place to work

The *Bien-être en ligne* (Well-being online) scheme earned Arkema a Better Living in the Workplace award in France in 2021. During the first lockdown in 2020, a daily online program, involving employees from France and abroad, was set up, with meetings, serious games and workshops hosted by philosophers, osteopaths, soft skills experts, sports coaches to name a few.

Employee engagement and satisfaction

Arkema periodically carries out internal surveys in particular to assess employee satisfaction and engagement and to identify appropriate action plans.

In 2021, Arkema launched Arkema Cares 2021, its first worldwide internal engagement survey, with more than 85% of employees in 49 countries responding. The survey covered 11 topics: working conditions, global vision, occupational safety, working relations, advancement prospects within the Group, well-being at work, governance and decision-making, management, work organization, values and ethics, and work/life balance.

The response rate was 52.6%, representing a very satisfactory level of coverage.

Findings showed an 82% employee engagement level and an NPS [(1)] of 24. The very high score achieved by Arkema reflects employees' attachment to the Company.

The results were analyzed for each of the Group's entities, shared with employees, and reported by geographic area.

Work/life balance

Arkema intends to remain a great place to work. This is essential to employee well-being and performance, but also in retaining talent and increasing the Group's attractiveness for candidates, which all contribute to Group performance.

The main ways in which the Group helps employees achieve better work/life balance are flexible work arrangements, support for working parents, and improvement of the work environment.

Arkema uses collaborative working methods, thus encouraging teleworking to provide employees with greater flexibility in their work/life balance. As stated in section 4.6.1.2 of this chapter, 20% of the Group's employees teleworked in 2021, which is a high proportion in view of its industrial activity. As in 2020, many Arkema employees teleworked in 2021 because of the health situation.

Another advantage, offered to young parents to safeguard their work/life balance, is paternity leave granted at the birth or arrival of a child. Arkema confirms the importance it gives to parenting by maintaining the employee's full pay during the leave period. This measure applies to many employees across Europe.

Mobile technology has significantly changed the Group's work methods and practices. Keenly aware of the importance of using these devices responsibly to promote the well-being of people within the organization, Arkema has taken measures in France to raise employee awareness about how to use mobile technology, such as:

- information on good teleworking practices, including remote management, ergonomics, and a reminder of the right to disconnect;
- awareness-raising initiatives for all employees, under the Work Clever banner, with webinars, expert insights, practical advice; and
- awareness training for managers.

(1) *The NPS (Net Promoter Score) is an index measuring satisfaction with a brand, product or service.*

FOCUS

Emotional well-being evaluation, and support on better understanding and improving health

The Wellness Matters program developed by Arkema's Human Resources team in the United States gives employees and their family members the option of receiving support to have a clearer idea of their health so that they can better manage life's challenges. As well as providing support on reducing psychological or financial stress, it tackles the specific aspect of emotional well-being, during a health crisis that is stressful for all. Employees can request a confidential screening to assess their emotional well-being. Support is available on the ResourcesForLiving website, where employees can request online consultations. Mental health apps such as MyStrength and TalkSpace are also available on smartphones. The program also offers deductions on health insurance contributions.

Actions taken to prevent psychosocial risks and to improve working conditions

Going beyond the legal requirements, the Group has implemented stress prevention policies in its key countries, including France, China and the United States.

These policies provide for the assessment of stress levels among employees or for particular positions, as well as training and awareness initiatives to reduce workplace stress.

Lastly, an ergonomics program was initiated in France in 2015 to improve different aspects of working conditions in both manufacturing and services.

In recent years, major changes have been made to the work environments of employees at the head office of Arkema China Investment in Shanghai and those at the Bostik head office in Colombes, near Paris. These projects were carried out with input from the employees concerned, to ensure a comfortable work environment adapted to their needs. Pleasant workspaces significantly contribute to employee well-being.

The Social Club launched in China is another example of initiatives taken to improve well-being in the workplace. A wide range of sports and leisure activities is available for employees. This contributes to their fulfillment and well-being, while encouraging them to talk to each other as equals, without regard for their position in the hierarchy. These actions reinforce employees' feeling of belonging and make a positive contribution to the subsidiary's social life.

Absenteeism

Absenteeism, which includes sickness, accident and maternity leave, as well as strikes and unpaid leave, stood at 4.5% for 2021, down compared with 2020 (5.1%). This is still higher than the 2019 figure of 4.2%.

Absenteeism for medical reasons was also down, from 3.3% in 2020 to 2.8% in 2021, marking a return to the pre-pandemic level of 2.8% in 2019.

Benefit schemes

In most countries in which the Group operates, employees are covered by mandatory public schemes addressing risks related to death, disability, work incapacity, pensions and healthcare costs.

In addition to this statutory coverage, Group entities in France and abroad are responsible for implementing and updating health, welfare and employee benefit schemes, with a preference for defined contribution plans in line with local requirements and practices. In 2021, 95% of Group employees accordingly had supplementary life cover, 94% supplementary disability cover, and 78% health insurance cover.

4.6.1.5 A motivating and competitive compensation system

A key component of the Group's human resources policies, total compensation is designed to recognize and equitably reward each employee's contribution to Arkema's success.

The compensation structure comprises a fixed base salary, an individual bonus and a collective bonus, which are applied differently depending on the position and the country. This structure fulfills a number of objectives:

- compensate individual and collective performance;
- enhance each employee's awareness of his or her responsibilities and involve everyone in meeting objectives;
- offer fair compensation consistently across the organization; and
- manage costs.

41% of employees receive some form of individual bonus, the amount of which depends on their fulfillment of personal objectives and their contribution to the collective performance of a business, a country organization or the Group. The main factor behind the increased percentage is that variable portions reach a wide population. A significant portion of their bonus depends on safety or other CSR objectives.

73% of employees are eligible for some form of collective bonus, which gives them a stake in the Group's expansion and financial performance. This is the case for the incentive and profit-sharing schemes in effect in France.

Group companies regularly participate in compensation surveys organized by specialized structures. They have access to benchmarks used to position themselves on their geographic market against other industrial groups or within the chemical industry, and to measure compensation attractiveness.

All employees benefit from minimum compensation guarantees, and are paid on time, in full and without any deductions.

Total payroll costs for 2021 and previous years are presented in note 6.2 to the consolidated financial statements, in section 5.3.3 of this document.

Equal pay between men and women

With an average proportion of women on its payroll of 26.2% at 31 December 2021, which is steadily increasing, the Group did not wait for mandatory regulations to make equal pay a key factor in annual salary and career reviews at all Group companies.

In France, Arkema France and Bostik publish their gender equality scores, as required by law. For 2021, the figure was 83 for both companies.

In addition to equal pay, Arkema has for many years ensured that women enjoy the same career development opportunities as their male counterparts.

Its policy aims to meet the following four objectives:

- strengthening the principle of non-discrimination in the hiring process;
- ensuring equal pay for equal work;
- encouraging and facilitating career development; and
- taking parenthood into account in the career management process.

Employee share ownership

Since its creation, Arkema has encouraged employee share ownership, with plans offered every two years in the Group's main host countries to enable employees to purchase Company shares on preferential terms.

At 31 December 2021, 6% of outstanding shares were owned by employees, collectively making them one of the Company's leading shareholders.

For further details, see section 6.2.7 of this document.

Performance shares

Performance shares are granted, as decided each year by the Board of Directors, to executives and employees who have demonstrated remarkable performance or whom the Group wishes to incentivize and involve more closely in its long-term development. In 2021, performance shares were granted to some 1,500 beneficiaries, representing 7.4% of the total headcount. 32% of these beneficiaries are women.

For more information, please refer to section 3.5, section 6.2.6 and note 6.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

4.6.1.6 Diversity, inclusion, equal opportunity and equal treatment

Diversity and equal treatment policy

As part of its policy of non-discrimination, workplace equality and diversity, the Group commits to promoting the elimination of all forms of discrimination in its operations, and to hiring people solely on the basis of its needs and each applicant's personal qualities, as defined in its Business Conduct and Ethics Code and its human resources policy memo. These principles feature in the Group's recruitment charter.

Workplace equality is one of the major priorities of the Group's human resources policy, along with the prevention of discrimination in general. Special attention is given to ensure gender equality in the workplace, facilitate the integration of employees with a disability and prevent discrimination on the basis of age, nationality or mandate as employee representative. Measures brought in by the Group to ensure equal opportunity and obtain quantifiable results include:

- a program that periodically revises job descriptions to ensure that they are non-discriminatory and consistent across each profession, with a particular focus on accurately describing the related tasks and responsibilities. In addition, the positions, job titles and requisite profiles are reviewed once a year, department by department;
- recruitment policies based on the sole criterion of suitability for the job. In the United States, for example, Arkema Inc. (i) gives training to people involved in the recruitment and hiring process, (ii) provides them with job descriptions and applicant profiles, and (iii) remedies any situation where there is a significant underrepresentation of minorities or women in the workforce. In France, human resources managers receive training on the prevention of discrimination during the recruitment process; and
- an annual review of compensation to ensure equal pay.

The strategic objectives set by the Group for 2030, to increase the percentage of women and of non-French nationals in senior management and executive positions, reflect its efforts to support diversity in carrying out its business activities.

In 2021, the Diversity Steering Committee was replaced by a Group Diversity and Inclusion Committee, whose composition was reviewed to include more international profiles. This committee includes Business Line Vice-Presidents, corporate Vice-Presidents and the Sustainable Development Vice-President along with HR and Communication representatives, and regional and Group diversity-inclusion representatives. The topics covered by this committee have been extended to include gender equality, promotion of cultural diversity, equal opportunity and inclusion.

Running alongside this committee is a junior diversity and inclusion committee, comprising 11 international multidisciplinary representatives in the early stages of their careers or on lower managerial levels. This junior committee addresses the same issues as its counterpart. By putting the contributions from these two complementary committees to use, the Group seeks to have a fuller grasp on the matters at hand.

The work of the two committees in 2021 resulted in the development of the Arkema Diversity and Inclusion Charter and a number of action plan proposals.

Measures to promote female employees' access to positions of responsibility

Although historically not an issue that has been given much importance in industry as a whole, the proportion of women in the Group's total headcount has steadily increased to 26.2% at 31 December 2021. Women accounted for 26.4% of new hires across all levels in the organization.

2030 TARGET

5 GENDER EQUALITY

To strengthen its commitment in terms of diversity, the Group set an ambitious target in 2020: 30% of senior management and executive positions to be held by women.

The Group has also set an intermediate target of positions in this category being 26% held by women by 2024.

In 2021, women accounted for 24% of all senior managers and executives across the Group, a one-point increase on 2020. The change is primarily the result of the support program introduced in 2016 to promote equal opportunity and gender diversity.

High-responsibility positions (senior managers and executives) account for around 10% of all managerial positions across the Group. Senior managers account for about 2% of all management positions.

The Group confirms that Arkema France (the only company concerned) is working to comply with French legislation on targets of 30% by 2026 and 40% by 2029 for women in senior management positions, as defined in the company's collective agreement.

More generally, the Group encourages women to move up to senior positions. At 31 December 2021, the Group management committee had twenty-five members, including the ten Executive Committee members, along with Vice-Presidents of Business Lines, support functions, regions and countries. The Group management committee includes six women, 24% of the total.

During the annual review of human resources issues carried out by the Board of Directors, the number of women on the governing bodies is always examined very closely. The goal of increasing the proportion of women in senior management and among managers by 2030, defined as a priority in 2015, is the response given to this challenge. Within senior management and among managers, which constitute a pool for governing body members, support for women's careers is regularly examined by *ad hoc* committees.

Within the scope comprised of France, the United States and China, women hold 39% of lower management positions and about 35% of middle management positions.

The action plan to reach the targets involves:

- annual monitoring of the proportion of women in senior management and executive positions is now included in the collective objectives used for calculating variable compensation;
- a mentoring program run by senior executives to help women move into positions of responsibility. Since its creation in 2016, the program has benefited 75 women in France and is now being expanded internationally. Nearly 90% of them have enjoyed career development since their mentoring, for the most part a promotion to a position with greater responsibility;
- introducing career workshops designed in particular to encourage women to maintain their career goals. The workshops were introduced in 2018 and provide a forum for managers seeking to reflect on their career paths;
- identifying women in key positions in other businesses or organizations to create a pool of female talent for future recruitment needs; and
- carrying out communication and awareness campaigns within the Group.

Initiatives to foster international diversity

Developing the percentage of employees of non-French nationality in management positions is a key component of the Group's geographic growth strategy.

2030 TARGET

To strengthen its commitment in terms of diversity, the Group set an ambitious target in 2020: 50% of senior management and executive positions to be held by non-French nationals.

In 2021, 40% of senior managers were non-French nationals, compared to 41% in 2020. This decrease is mainly due to a change in the scope of consolidation, with the divestment of the PMMA business.

In every country where Arkema operates, local skills and capabilities are developed in every aspect of the business, including top management. This was the case in 2021 with the appointment of the heads of the China, Japan and Korea entities, and the Chief Financial Officers of the Korea and Brazil entities.

The action plan involves:

- expatriation programs (for further details, see section 4.6.1.3.3 of this section);
- the international mentoring program designed to help participants advance in their careers was run for a second time in 2021, supporting 19 "mentee" participants in nine countries (Brazil, Argentina, China, Germany, India, Japan, Singapore, the United Kingdom, the United States). The program gives talented young employees the opportunity to benefit from the support of a mentor and to increase their visibility within the Group; and
- training for managers on "working in an intercultural environment" and "managing in diversity" (since its creation in 2019, 300 managers in France, Italy and Germany have taken part in this program).

In addition, some 3,000 employees in North America completed an e-learning program on diversity, equality and inclusion that provides the key definitions of these concepts and raises awareness on the topics of identity, bias, and micro-aggressions, along with suggestions on courses of action. It is included in the on-boarding schedule for new employees.

FOCUS

A network promoting diversity and inclusion

Ensuring a fair and inclusive environment for all employees is a key focus of Arkema's policy.

A diversity and inclusion network has been set up in the United States to promote diversity, provide different insights on the subject, and form bonds between participants. Participant employee profiles, information articles and content on diversity, equality and inclusion topics are shared online.

This approach is unique in that it is the product of Arkema's US Leadership Development program, in which participants together discuss the issues faced by the Company and work to implement solutions.

Initiatives to promote the employment of people with disabilities

The Group contributes to the integration and continued employability of people with disabilities through dedicated training programs and workstation modifications. The Group's recruitment procedures make it possible to offer disabled talents various job opportunities.

The measures taken in France illustrate the approach implemented by the Group. For the other regions, similar measures have been implemented taking into account local conditions and legislation.

A new, three-year agreement was signed by Arkema France in 2020 reaffirming the Group's commitment to hiring, integrating, training and retaining disabled employees, raising awareness of the issue and increasing the use of social enterprises and work centers.

At the end of 2021, disabled employees accounted for 4.8% of the Group's workforce in France.

In the United States, to encourage diversity in hiring, Arkema Inc. vacancies for outside applicants are posted on job search sites designed for people with a disability and emailed to local community organizations that help people with a disability find employment.

Initiatives to hire and retain seniors

In France, the issue of recruiting and retaining seniors is included in the strategic workforce planning (SWP) agreement. "Seniors" are defined as people over 50 years old. The Group pledged to undertake initiatives in the following areas:

- recruitment: 10% of permanent contracts for people aged 50 and over;
- retaining senior employees;
- supporting career-endings;
- transitioning to retirement; and
- knowledge transfer.

In 2021, 22 of the 345 people hired under permanent contracts in France were over 50 years old, representing 6.4% of the total.

4.6.1.7 Active social dialogue with employee representatives

The Group respects the fundamental freedoms of its employees, such as the freedom of association and expression, as defined in its Business Conduct and Ethics Code.

On 1 July 2020, a Group Labor Relations Vice-President was appointed to coordinate all labor relations policies worldwide.

Among the fundamental principles and rights at work, the right to freedom of association and to collective bargaining is a vector of social progress that the Group encourages wherever it operates. These principles are stated in Arkema's Human Rights Policy, outlined in section 4.6.3 of this chapter.

Accordingly, in addition to complying with host country legislation, the Group facilitates employee representation in order to support suitable collective bargaining processes. In countries where the law does not provide for employee representation, specific bodies can be set up locally. A consultation and dialogue structure has been implemented at the European level with the European Works Council.

In France, awareness-raising initiatives on trade union presence and rights are run every two years jointly by management and representative trade unions, designed for all employees. Depending on their positions, managers' training programs include sessions on labor relations and union rights. Lastly, in France, the Group provides trade unions with dedicated intranet sites where they can inform employees about their activities.

Arkema pledges to enforce a non-discrimination policy with regard to employee representatives, and to respect and protect their rights. In France, Arkema's collective agreements include provisions guaranteeing that the careers of employee representatives be monitored, to ensure equal treatment with respect to non-mandated employees. Elsewhere, a training program is offered to newly elected employee representatives.

The social dialogue organization

As part of its employee relations policy, the Group fosters ongoing dialogue with employee representatives in every entity, in accordance with local cultural norms and legislation.

At the European level

The social dialogue body is the 25-member European Works Council, which holds a one-day plenary meeting every six months to discuss issues within its remit, including:

- business issues: market trends, commercial situation, activity level, main strategic priorities, growth outlook and objectives;
- financial issues: review of the consolidated financial statements, annual report and investments;
- labor issues: human resources policy and the employment situation and outlook;
- environmental issues: Group policy and emerging European regulations; and
- organizational issues: significant changes in the Group's organization, developments in the businesses and the creation or termination of operations affecting at least two European Union countries.

In 2021, five plenary meetings were held *via* videoconference, including an information and consultation procedure on the proposed divestment of the Group's PMMA business. Insights into the Group's future development were shared, with a statement from the Chairman and Chief Executive Officer, and the practice of teleworking within the Group in Europe and prospects in the fluorinated products sector were also discussed.

In the United States

Employees at unionized facilities are covered by collective bargaining agreements negotiated with local and national trade unions for an average period of three years. They deal with such issues as compensation, the safety of people and processes, and quality of work life.

In China

An Employee Representatives Congress of Arkema China Investment Co. Ltd, the Group's main local subsidiary, is in place. It currently has 34 members. The ERC has a broad remit, ranging from pay negotiations to safety and training. It complements the labor unions already in place at the Group's local production plants.

Around the world, a high percentage of employees were represented by elected bodies or unions in 2021, as shown in the following table.

PERCENTAGE OF EMPLOYEES REPRESENTED BY ELECTED BODIES AND/OR UNIONS, BY REGION

	2021*
GROUP TOTAL	**90%**
France	100%
Europe (excluding France)	95%
North America	71%
Asia	84%
Rest of the world	100%

* *Data corresponding to sites employing more than 60 people, which accounts for 93% of the Group's total workforce.*

Employee relations with regard to the Group's development

The Group pays a great deal of attention to the social impact of the changes it experiences. Prior to any reorganization within the Group, the Executive Committee carefully examines the social consequences of projects and factors them into its decision-making process.

Reorganization projects also give rise to in-depth discussions with employee representative bodies as part of information and consultation procedures, both at corporate level and locally. The reorganization of MLPC in France, with the resulting job cuts, prompted negotiations with sector-specific trade unions in 2021 with a view to avoiding any redundancies. The resulting voluntary departure measures included early retirement schemes, internal redeployment and support for external mobility.

With external growth and divestment transactions, specific commitments may also be made to take account of their social implications. As part of the divestment of the Group's PMMA business, the purchaser undertook, at Arkema's request, to maintain the jobs of the employees transferred and ensure their status and compensation at Arkema were carried over on an equivalent basis. With the acquisition of Ashland's Performance Adhesives business, the Group also undertook to ensure that the employees' status and remuneration at Ashland were carried over, if not surpassed, thereby ensuring optimal transfer conditions.

A Group Human Resources Vice-President for acquisitions/divestments and labor law was appointed on 1 July 2020 to oversee the social aspects of divestments and acquisitions worldwide. He reports to the Group Human Resources and Communication Executive Vice-President, a member of Arkema's Executive Committee.

Collective agreements

Since the Group was founded, its collective bargaining policy has led to the signing of a wide range of agreements in each facility or company.

In France, some agreements are Group-wide and therefore applicable to every Group company in the country, while others have been negotiated only for a given company or facility.

The implementation of social and economic committees in France was completed in 2019.

In other countries, collective bargaining procedures are aligned with national employee representation practices and legislation.

Negotiations are designed to raise the social status of employees in correlation with the Group's development and with the macroeconomic and legal environment.

In recent years, health and well-being in the workplace have been extensively discussed with labor representatives. For example, teleworking was extended to industrial sites, for certain positions, in 2019. An occupational health framework agreement was signed at Arkema France to continue to improve employee health and implement a coordinated policy covering commitments made during negotiations. Shared indicators are monitored at the Company and entity level by multidisciplinary committees.

Digital systems were used to ensure continued labor relations dialogue and the work of the bodies during the health crisis. Therefore, in 2021, 68 agreements were signed worldwide, including 13 in France. These agreements cover issues such as health and safety at work, quality of life at work, social protection, pensions, working hours and conditions, gender equality, disability, compensation, forward-looking management of jobs and skills, and training.

4.6.2 Compliance and ethics

The Group places great importance on conducting its business in line with the principles and rules on compliance and ethics. As such, Arkema complies with prevailing laws, regulations and best business practices. Failure to respect these policies would expose the Group to legal or reputational risks.

In addition to complying with international conventions and host country legislation, Arkema is committed to complying with competition rules and to rejecting all forms of corruption and fraud. It also condemns and works to prevent fraud and corruption in business transactions with its partners.

4.6.2.1 The Code of Conduct and Anti-Corruption Policy

The Group's Business Conduct and Ethics Code (also known simply as the "Code of Conduct"), which includes the Anti-Corruption Policy, sets out Arkema's best business practices expected of all employees at all times.

The Code of Conduct covers the following main points:

- employees must not offer, provide or accept, directly or indirectly, any undue advantage, be it pecuniary or otherwise, in order to secure business relations or any other business advantage. The counterparties who may be concerned include people in positions of public authority, business intermediaries, client employees and political parties;
- employees must scrupulously comply with all applicable laws relating to antitrust legislation in every country in which the Group operates; and
- employees must comply with import and export regulations.

Laying down the Group's directives on influence peddling and corruption, the Anti-Corruption Policy:

- defines corruption and influence peddling;
- provides concrete examples of behaviors to avoid that could be construed as acts of corruption or influence peddling; and
- outlines the basic set of rules relating to gifts and hospitality offered to employees.

The Code of Conduct and Policy were translated into the 12 languages of the main countries in which the Group operates and sent to all Group employees by the Chairman and Chief Executive Officer in October 2018. These documents and their translations are available on the Group's website:

www.arkema.com/global/en/arkema-group/ethics-and-compliance/.

Since 2021, Group employees have committed, as part of their annual performance review, to respect Arkema's business compliance and ethics program, which includes the Code of Conduct and the Anti-Corruption Policy (see section 4.6.2.2 of this chapter). The compliance statement was signed either *via* the annual performance review electronic form or by email.

4.6.2.2 Measures for reducing the risks of anticompetitive practices, corruption and fraud

The Group's business compliance and ethics program primarily covers antitrust, export control and anti-corruption laws, defines and describes related guidelines, procedures and risk management processes.

To ensure that the program runs efficiently, the following resources have been implemented:

- classroom training to build employee awareness of the need to comply with competition, export control and anti-corruption rules;
- a practical guide to competition covering rules and recommended behaviors issued to employees;
- the verification of business intermediaries prior to appointment, according to the business intermediary procedure, to minimize the risks of corruption-prone situations arising;
- systematic prior approval required for any export to countries subject to commercial or financial restrictions, according to the export control procedure; and
- e-learning modules on the Code of Conduct, anti-corruption and antitrust legislation, with the latter primarily aimed at employees who are most exposed to these risks. As of 31 December 2021, 13,238 employees had completed the e-learning course on corruption.

4.6.2.3 Control procedures and disciplinary action

Application of the compliance program is overseen by the Compliance Committee. This committee, whose members are appointed by the Chairman and Chief Executive Officer and which reports to the Executive Committee, is made up of representatives from the following departments: Internal Audit and Internal Control, Human Resources, Sustainable Development, Industry Environmental Safety, Legal Affairs, Finance & Treasury, Taxation. It also includes a member of the Executive Committee.

It is responsible for monitoring compliance Group-wide in the following areas: antitrust laws, business intermediaries, fraud, business practices and integrity, work environment integrity and environmental stewardship. The Compliance Committee met four times in 2021.

For all practical questions regarding an ethical issue in general, and any problem in applying the Code of Conduct in particular, the Compliance Committee can be consulted either by executive management or by an employee.

In the various regions where the Group operates, the regional Vice-Presidents are appointed as correspondents to the Compliance Committee.

As part of the global risk management process, the Internal Audit and Internal Control department regularly performs audits in the subsidiaries. These include an analysis of the management processes to help detect possible risks of fraud and to define, where appropriate, the necessary corrective measures. For more information on the global risk management process, see section 2.2 of this document.

The corruption risk map, mentioned in section 2.1.2 of this document, is updated regularly.

Disciplinary actions are provided for in the Code of Conduct and the Anti-Corruption Policy in the event of a breach of policy therein. The details are described in the internal rules of each entity. Of the alerts submitted in 2021, allegations were founded in seven cases and resulted in disciplinary action. Regarding business integrity, one employee was dismissed for conflict of interest and three for attempted fraud, and a contract with one intermediary was terminated for attempted fraud. And in the area of respect for employees, two employees were dismissed for harassment.

4.6.2.4 Personal data protection

Arkema takes steps to comply with personal data regulations in all the countries in which the Group operates. A network of local representatives, supervised by the Data Protection Referent was set up in 2021 to enable consistent, global management of personal data protection within the Group.

The Data Protection Referent works closely with cybersecurity teams to implement IT security measures in line with the General Data Protection regulation (GDPR) that will protect data handled by the Group.

4.6.2.5 Whistleblowing system

The Group's whistleblowing procedure has been translated into 12 languages and is available on the Group's website: https://www.arkema.com/global/en/arkema-group/ethics-and-compliance/whistleblowing-procedure/. The procedure was submitted to the Central Works Council of Arkema France in June 2018, and extensive communication has been deployed (email addressed to subsidiaries, signage at sites and subsidiaries, intranet posts) to strengthen the awareness of employees at all levels of the organization to these issues. The whistleblowing system enables any Group employee (or equivalent) or anyone working with the Group on an external or occasional basis (subcontractor, intermediary, supplier, customer) to report any suspected wrongdoing that might involve Arkema. It can be used to report any issues relating to the Code of Conduct, in particular social impacts, including health, safety and Human Rights violations, environmental impacts and corruption.

The reports are handled by the Whistleblower Committee, which acts in the strictest confidentiality. The Whistleblower Committee, whose members are appointed by the Chairman and Chief Executive Officer, comprises representatives from the following departments: Internal Audit and Internal Control, Sustainable Development, Legal Affairs and Institutional Affairs.

The whistleblowing system supplements the disclosure mechanisms already available at certain subsidiaries.

Eight alerts were received through this system in 2021, and most of these concerned suspected conflicts of interest. Only one of the suspicions was found to be warranted, resulting in dismissal of the person concerned.

4.6.2.6 Tax policy

Arkema conducts industrial, commercial and service operations in many countries and communities around the world. The Group aims to contribute to the development of these communities through the payment of a tax related to the activities and functions it performs within them.

Arkema complies with the tax laws and regulations of the countries in which it operates, as well as international tax standards, in particular those developed by the OECD. To do so, Arkema relies on a tax department that has tax professionals in the countries where its challenges are greatest. In other countries, the Group's tax department calls on recognized external consultants whenever necessary to validate its practices.

The main objective of tax policy is to provide the Group with long-term legal certainty. Arkema condemns and seeks to prevent all forms of tax evasion. As such, it does not implement aggressive tax planning geared towards transferring tax bases without justification to countries with low tax rates. Neither does it create legal structures devoid of substance for fiscal reasons in such countries. As of 31 December 2021, none of the Group's subsidiaries was located in tax havens included on the European Union "black list" dated 1 January 2022.

Arkema applies transfer pricing policies endorsed by the OECD to its inter-company flows, and believes its policies to be reasonable for the risks and functions of the entities that constitute the Group, and compliant with the arm's length principle. These policies and the corresponding practices are applied within the Group by the tax department, first, *via* training for the employees responsible for applying them, and second, by making documentation available to tax administrations in a timely manner, either spontaneously or on request, depending on the regulations of the country in question.

Arkema cooperates with tax administrations with integrity and transparency when being audited, and ensures the implementation of any corrective measures when the audits are completed. Tax risk reporting is integrated into the risk management process and is presented annually to the Group Audit Committee.

4.6.3 Human Rights

Arkema respects Human Rights and fundamental freedoms, as defined in the Universal Declaration of Human Rights, and makes them central to its activities. The Group therefore makes every effort to prevent and identify Human Rights violations against its employees, partners and other stakeholders, and to remedy any violations that do occur.

The Group opposes all forms of forced labor, child labor, human trafficking, discrimination and harassment, and asserts its commitment to upholding the fundamental rights of a decent minimum wage, health and safety for its own employees and those of outside companies working at its sites, equal opportunity, equal pay, respect for private life, freedom of association, the right to strike and the right to collective bargaining.

The Group's vigilance in the area of Human Rights extends throughout its own operations, across its value chain, with particular regard to suppliers and subcontractors, and throughout audit engagements carried out for the evaluation of potential acquisitions.

Arkema's commitments are formalized through its Human Rights Policy, which highlights four areas that are monitored particularly closely:

- health, safety and security: programs, initiatives and results are presented in section 4.5.2 of this chapter;
- health and safety of customers and end users: programs and initiatives on responsible product stewardship are presented in section 4.2.4 of this chapter;
- suppliers and subcontractors: programs, initiatives and results are presented in section 4.6.4 of this chapter; and
- promotion of diversity and equal opportunity: programs and achievements are described in section 4.6.1.6 of this chapter.

Arkema's Executive Committee is responsible for drawing up the Group's Human Rights Policy and disseminating it across all entities, while the regional entities are tasked with implementation, in compliance with applicable laws and regulations. The CSR/Stakeholder Dialogue Steering Committee regularly takes stock of the situation, and risks relating to Human Rights fall within the scope of the Group's Risk Review Committee. The two committees comprise Executive Committee members, the Vice-Presidents of certain corporate departments, as well as managers involved in the Group's CSR policy and risk management process. The Sustainable Development Vice-President is a member of both committees and reports on the Group's CSR activity at least once every year to the Executive Committee, the Audit and Accounts Committee and the Board of Directors.

The risk identification process is based on a review of internal feedback, general risks presented in the International Labour Organization's (ILO) Declaration on Fundamental Principles and Rights at Work and the International Bill of Human Rights, risks specific to the chemicals industry, such as risks concerning the health and safety of employees, local communities, customers and end users, the management of major industrial incidents, the transportation of hazardous goods and the commitment of suppliers and subcontractors, which covers the sourcing of conflict minerals. Identified risks are assessed in light of a combination of factors that includes their impact and likelihood of occurrence and the level of control provided by existing prevention and management measures.

To meet stakeholder expectations, keep risk analyses up-to-date and remedy any violations, the Group leverages a number of resources:

- the integration of Human Rights issues into internal control checklists and internal audit assignments;
- an annual inventory of risks carried out across the Group's main entities by the Internal Audit and Internal Control department;
- continuous dialogue with local communities *via* the Common Ground® initiative; and
- a whistleblowing system for both internal and external stakeholders.

Arkema's commitment is reflected in its compliance with international standards and the applicable laws in the countries in which the Group operates, identification and regular assessment of the risks that may be generated by the Group's activities, the implementation of corrective action when necessary, a policy of continuous improvement of the Company's practices through ongoing process improvements and training initiatives, an assessment and dialogue program with suppliers and subcontractors, aimed at promoting respect for Human Rights, and transparent communication on the Group's efforts in this area.

Awareness-raising initiatives are undertaken to enable employees, and particularly those in management positions, to respect and protect Human Rights in the performance of their duties. These awareness-raising initiatives are designed to give all employees a better understanding of the concept of Human Rights and enable them to apply the associated principles both internally and in their relations with third parties.

Human Rights compliance is an integral part of the commitments expected of suppliers and subcontractors, expressed through their adherence to the Supplier Code of Conduct, as well as one of the criteria for assessing and managing suppliers. For further details, see section 4.6.4 of this chapter.

When preparing its duty of care plan in compliance with article L. 225-102-4 of the French Commercial Code, Arkema did not identify any serious risks of Human Rights violations.

In 2021, the Group used the available internal audit data to identify and analyze any potential Human Rights violations related to its activities. The results confirmed the absence of any serious violations and did not show any regional differences. Even so, to prevent such violations, improvement measures, chiefly concerning safety and personal data protection, were taken at recently acquired businesses to ensure alignment with Arkema best practices.

Actions relating to the whistleblowing system are described in further detail in section 4.6.2.5.

4.6.4 Responsible procurement

Arkema is primarily involved in the transformation of raw materials and works with a large number of subcontractors and service providers. Poor performances by these subcontractors and service providers in any area, including those related to social and environmental issues, could therefore have an impact on the Group's performance and on its ability to serve its customers.

The Group has integrated employee, environmental and social issues into its procurement process and strives to build long-term, balanced and sustainable relationships that are based on trust with its suppliers and subcontractors. These relationships are managed transparently and in accordance with negotiated contractual terms, including those related to intellectual property. In its choice of industrial and business partners, Arkema favors those that respect its social commitments.

Purchasing functions are managed globally at Group level. A Responsible Purchasing Steering Committee meets at least three times a year, bringing together representatives from the Procurement departments (Goods and Services/Logistics/Raw Materials and Energy) and the Sustainable Development department. The key items discussed during its meetings are reported to the CSR/Stakeholder Dialogue Steering Committee, and points covered by the vigilance plan concerning suppliers and subcontractors are submitted to the Risk Review Committee. To reduce risks and promote long-term relations with suppliers and subcontractors, Arkema deployed the resources described in the following sections.

Subcontracting

The Group subcontracts for two main purposes: for investment programs and industrial services, and, to a very limited extent, for the production of certain finished products. Subcontracting therefore accounts for part of the €281 million in capital expenditure dedicated in 2021 to safety, the environment and the maintenance of industrial units.

4.6.4.1 The supplier Code of Conduct

The Group's responsible procurement process is guided by the ethical principles expressed in the Code of Conduct described in section 4.6.2.1 of this chapter. The Group has also signed the national inter-company charter of the French purchasing managers' organization and the state-sponsored inter-company mediation initiative *(Médiation interentreprises)*, which is based on ten responsible procurement commitments. As part of this process, a dedicated Supplier Code of Conduct summarizing all of the related CSR aspects has been issued and circulated to all Group entities.

The Supplier Code of Conduct's guidelines particularly cover human and employee rights, respect for the environment, the quality and safety of the products and services provided, and compliance and ethics. As part of the focus on business integrity and transparency, suppliers must comply with laws governing competition, corruption, conflicts of interest, confidentiality and the transparency and accuracy of reported information. The code can be accessed on the Group's website.

When selecting a new supplier, the Group looks for the bid that offers the best combination of performance, cost and quality, while also taking into account the supplier's CSR performance. All new suppliers and subcontractors are informed of the code's provisions and are expected to comply with these provisions in addition to general purchasing conditions.

4.6.4.2 Responsible procurement training and awareness

Group buyers are all trained to apply the Supplier Code of Conduct and the CSR performance assessment process, with regular follow-up meetings to inform and maintain awareness. In 2021, sessions were held to present the responsible procurement approach to buyers from all departments and regions. These sessions were followed up with reminders, updates and discussions about implementing the Together for Sustainability supplier assessment initiative. Accordingly, around 80% of buyers attended training or brush-up sessions in 2021.

In 2021, Arkema also set up the Procurement Academy, an ongoing training program to harmonize rollout of procurement best practices throughout the Group. This program includes training in CSR requirements and Arkema's commitments, and all Group buyers will receive training on this matter over a period of three years. By 2021, 41% of buyers had completed the training.

4.6.4.3 Selection of suppliers and subcontractors

The procurement departments carry out preliminary assessments before entering into any business relationships with suppliers or subcontractors, as part of the selection process. These assessments are based on robust criteria that notably include corporate social responsibility issues. Two sources of information are used for these assessments:

- questionnaires that cover performance and aspects of compliance, enabling Arkema to assess the supplier or subcontractor's ability to meet Group requirements, particularly in terms of ethics, safety and the environment, corporate social responsibility and product quality. These questionnaires come with certificates and other supporting documents provided by the supplier or subcontractor; and
- external databases that provide information and assessments of companies' financial solidity, performance and compliance. For corporate social responsibility, the Group uses the Ecovadis ratings platform. As for cybersecurity, the Group began using Cybervadis assessments in 2021.

Logistics services contracts are awarded to transporters and warehouse operators on the basis of their safety, security and environmental performance, while highway hazardous materials transporters are selected based on third-party assessments, such as the Safety and Quality Assessment System (SQAS) in Europe and the Road Safety and Quality Assessment System (RSQAS) in China. Similarly, vessels chartered worldwide for the bulk transportation of Group products are first vetted by a third party.

For purchases of goods, services and trade products, Arkema includes social, environmental and ethical criteria in its supplier evaluation and selection process, in line with the Group's CSR policy.

Raw materials suppliers are questioned by the Group about their management system, their compliance with the principles of the chemicals industry's Responsible Care® program, their certification to ISO-type standards and their ability to manage the transportation of raw materials to Group sites in line with the safety requirements. In 2021, the questionnaires were extended to query suppliers on the carbon footprint and the proportion of renewable or recycled content in their products.

Conflict minerals policy

Since the 2010s, key concerns have emerged about minerals from politically unstable areas. Some illegal minerals operations are used to fund violent activities that maintain or encourage conflict in these areas.

Regulations passed in the United States (2010 United States legislation, Dodd-Frank Wall Street Reform and Consumer Protection Act, section 1502) and the European Union (regulation (EU) 2017/821 of the European Parliament and of the Council of 17 May 2017) urge organizations to source materials responsibly, by applying reasonable care to due diligence and compliance measures for the specified minerals (tin, tantalum, tungsten and gold) coming from conflict-affected and high-risk areas, such as the Democratic Republic of Congo (DRC) and adjoining countries.

The Group does not directly purchase "conflict minerals", as identified in these regulations. Arkema is nevertheless committed to responsible sourcing.

If the products it buys contain conflict minerals, as defined by the regulations, Arkema requests its suppliers to provide information about the origin of these minerals. In its concern to uphold responsible sourcing practices, the Group makes every effort not to purchase raw materials that Arkema has reason to believe could originate from the DRC or neighboring countries, unless they are certified "conflict-free". Arkema also supports its customers in complying with regulations, by answering their inquiries as to whether the products purchased contain conflict minerals.

In 2013, Arkema implemented a conflict minerals program utilizing tools and recommendations developed by the Responsible Minerals Initiative (RMI) and set up a framework with its partners along the supply chain. This program is deployed throughout the Group and aims in particular to facilitate the commitment and reporting of suppliers, to automate the generation of Conflict Minerals reporting Templates (CMRTs), to answer quickly to customers' requests and to coordinate activities between the different functions of the company.

In this way, the conflict minerals management program enables Arkema to meet its regulatory obligations and handle customer requests, while reducing critical risks on its supply chain.

4.6.4.4 Assessment of suppliers and subcontractors

In the context of relationships with suppliers and subcontractors, and in order to drive continuous improvement in safety performance, environmental impact, business ethics, quality and innovation, the Group's three Procurement departments have introduced continuous assessment processes *via* two complementary systems:

- the first is a periodic assessment based, in particular, on the supplier or subcontractor's observed performance in terms of its commitments, the number, type and management of any complaints, and the CSR assessment conducted *via* the Together for Sustainability initiative described below; and
- the second system is based on targeted audits. The audit schedule is defined annually by each Procurement department, giving priority to suppliers and subcontractors whose performance requires improvement. Under the Supplier Code of Conduct, suppliers and subcontractors agree to meet all of the Group's CSR expectations and to cooperate with its audits of their compliance with the code.

In line with Arkema's HSE policy, the Goods and Services Procurement department regularly assesses the employee safety performance of the leading contractors working on Group sites. The results of these assessments are systematically discussed during contract reviews. As explained in section 4.5.2.2.1 of this chapter, the safety of contractor employees is considered just as important as that of Arkema personnel, and their incidents are included in the Group's safety performance.

Supply chain service providers are regularly audited with visits to transportation companies and outside warehouses and assessments of their performance. These audits are supported by third-party assessments, such as the Safety & Quality Assessment System (SQAS) for overland transportation, the Chemical Distribution Institute for maritime shipping, and the European Barge Inspection Scheme for river shipping. Inventory requirements on warehouse operators ensure real-time availability of an itemized list of the Group's products in stock, along with their exact location.

In addition, every year, the Internal Audit and Internal Control department audits subsidiaries by conducting a range of tests on supplier approval and assessment processes and on the practices and risks associated with raw materials and goods and services procurement.

FOCUS

Arkema's Responsible Procurement program: operational excellence to reduce the Group's environmental footprint

Under the Optim'O project on improved water management at Arkema's production units, a worldwide consultation was conducted to select a small number of suppliers capable of providing water treatment services for boilers and cooling circuits.

In addition to technical, economic, organizational and location criteria, the CSR performance of the candidates was analyzed *via* their Ecovadis evaluations, along with performance on the safety of people. The four global suppliers selected obtained an Ecovadis CSR performance rating of "certified".

Through its Responsible Procurement program, Arkema identifies the best partners from a technical, commercial and CSR standpoint, the latter being an essential element in the GASP qualification process, especially important in the water management sector.

4.6.4.5 Membership of the Together for Sustainability (TfS) initiative

To base its requirements on accepted standards and avoid the need for duplicate supplier assessment procedures, in 2014 the Group joined the Together for Sustainability (TfS) initiative, founded by six European chemical companies. This global program is designed to encourage social responsibility across the chemical industry service chain, and is based on the principles of the United Nations Global Compact and the Responsible Care® Global Charter. It enables member companies to share the findings of assessments or audits of CSR performance of their suppliers or subcontractors conducted by Ecovadis or independent third parties. Ecovadis analyzes supplier documents and questionnaires on the basis of CSR criteria in line with international standards, and ensures a 360° watch on information reported by external stakeholders.

A procurement representative is specifically designated to lead the TfS drive within the Group. A TfS Steering Committee has been set up, bringing together representatives from the Procurement departments (Goods and Services/Logistics/Raw Materials) and the Sustainable Development department. The issues discussed during its meetings are reported to the CSR/Stakeholder Dialogue Steering Committee and the Risk Review Committee.

At the end of 2021, more than 1,700 of the Group's suppliers and subcontractors had been assessed according to CSR criteria over the last three years. Thanks to these assessments, the Group has identified certain suppliers or subcontractors whose CSR performance is below standard and has requested that they improve their practices in this area. The resulting initiatives are tracked over time by the Group's procurement teams in liaison with the suppliers and subcontractors in question. The results of these assessments are also taken into account by procurement teams during the supplier selection process.

During the year, CSR scores rose for 66% of suppliers whose assessments were updated.

2025 TARGET

To continue its efforts in the area of responsible procurement, the Group has set the following strategic target: 80% of purchasing spend from relevant suppliers covered by a TfS assessment.

In 2021, the percentage of purchasing spend from relevant suppliers covered by a TfS assessment stood at 71%, up from 68% in 2020. Relevant suppliers are suppliers accounting for 80% of the Group's recurring purchasing spend, as defined in the methodology note in section 4.7.

At-risk suppliers

The Group's three Procurement departments defined criteria for identifying at-risk suppliers and subcontractors, which are those most likely to present a risk in terms of Human Rights, personal health and safety, corruption, or compliance with international labor and environmental standards. The three departments organize the supplier assessment and audit process so that recurrent at-risk suppliers are systematically assessed and then contacted and audited if their assessment reveals unsatisfactory practices.

4.6.4.6 Collaborative programs for a responsible value chain

A responsible approach to castor oil harvesting

As a producer of high performance materials made from renewable resources, Arkema is participating in the Pragati initiative, alongside industrial partners BASF and Jayant Agro-Organics Ltd. and NGO Solidaridad. Launched in Gujarat, India in 2016, the initiative aims to provide a framework for the sustainable production of castor beans by taking into account all of the related social, environmental and economic issues. To date, Project Pragati has trained 5,800 farmers and awarded them with official project certificates. The results have been very positive and notably include a higher crop yield, improved health and safety conditions for farmers, and judicious use of fertilizers and irrigation water since the adoption of best agricultural practices in 69 villages. Phase 2 of the project aims to train more than 7,000 farmers by the end of 2022. The Sustainable Castor Association, an independent secretariat, was established to promote SuCCESS (Sustainable Castor Caring for Environmental and Social Standards), on which Project Pragati is based.

Suppliers working with Arkema to reduce their carbon footprint

To combat climate change, commitment is required across the whole of the value chain.

Suppliers from whom purchases account for the highest emissions in Scope 3 category 1 (purchased goods and services) are encouraged to set SBTs consistent with the Paris Agreement. In view of this, in 2021 Arkema asked more than 100 suppliers to complete the CDP Climate Change questionnaire and commit to an SBT climate trajectory. More than half responded. Based on the responses received, the proportion of suppliers that have already expressed this commitment or that plan to do so within two years represents 31% of the Group's Scope 3 category 1 emissions. Arkema will continue this effort, targeting 82% by 2025.

In 2021, Arkema also outlined and launched the Low Emission Supply Chain program, aimed at reducing the carbon footprint caused by its transportation activities (Scope 3 category 9 GHG emissions). This program sets quantifiable targets in line with the Group's Scope 3 commitments (19% reduction *vs.* 2015 for Scope 3 categories 3, 4, 5 and 9 by 2030. See section 4.4.3.3 of this document). It empowers Business Lines by providing them with measurement tools and a range of reduction drivers. It involves logistics service providers, who are invited to collaborate on joint initiatives to reduce CO_2 emissions, such as optimizing means of transport and loading practices, and using alternative fuels and engines.

FOCUS

Grey is smart

Ahead of forthcoming regulatory changes, Arkema launched an initiative on the gradual incorporation of PCR (Post Consumer Recycled) plastics into certain packaging, such as pails in the construction adhesives market. This packaging has a specific color (gray), which distinguishes it from packaging made of new material and facilitates proactive communication on this sustainability initiative.

4.6.5 Institutional relations initiatives

As a responsible chemicals producer, the Group is in contact with public authorities in every country where it operates, in particular to contribute to the development of legal and regulatory frameworks that are favorable to the growth of its businesses, in full accordance with its values and social responsibility commitments. As part of this process, it may take part in public debate on issues directly related to its businesses, while maintaining a position of strict political neutrality.

These public initiatives fully comply with the lobbying rules in each host country. For example, Arkema has been entered in the European Union Transparency Register and has pledged to comply with the related Code of Conduct. Similarly, in France, Arkema reports on its business annually to meet its disclosure requirements as a registered lobbyist in the national digital registry of lobbyists set up in 2017, which is managed by France's High Authority for Transparency in Public Life (HATVP).

The Group is also active in several business federations or associations, such as the French Association of Private Enterprises (Afep) and France Industrie in France, and numerous chemical and material industry trade associations, such as France Chimie in France, CEFIC in Europe, the American Chemistry Council in the United States, as well as the Association of International Chemical Manufacturers and the China Petroleum & Chemical Industry Federation in China. In addition, the Group is a member of close to 50 other specialized industry associations worldwide whose objectives are closely related to its businesses.

Employees in charge of institutional relations, or contributing to this function in Business Lines and functional departments, are tasked with monitoring local, national and international public initiatives liable to impact the Group, and with defending or promoting Group interests accordingly. The priority issues addressed concern: responsible product stewardship; the circular economy; the energy and climate change transition; and business competitiveness, both globally (*i.e.*, at Group level, on issues such as taxation, particularly on output, payroll taxes, employment law, regulation in general, etc.) and locally (*i.e.*, at plant level, on issues such as health, safety and environmental legislation, and support for expansion projects and reorganizations). On the energy and climate change transition, the Group's roadmap and positions are in line with the Paris Agreement objectives. In reducing its carbon footprint and adapting its solutions, the Group strives to contribute to the national and European 2050 carbon neutrality target.

In the United States, Arkema Inc. files quarterly activity reports with both houses of Congress, as required under section 5 of the Lobbying Disclosure Act of 1995. Three Arkema Inc. employees have been registered as lobbyists to Congress.

In 2021, out of a total of €5.1 million, the Group paid €3.7 million in membership fees worldwide to general or specialized industry associations, the two highest amounts being to France Chimie (29% of total fees) and CEFIC (7% of total fees). Approximately 20% of the fees paid to industry associations support lobbying efforts. Responsible product stewardship and climate change accounted for 24% and 14% of total expenditure respectively, including the proportions of industry association membership fees, consultancy costs and internal expenses.

The Group expressly confirms that it does not finance any political party or organization in the countries where it operates with the aim of influencing their position or obtaining special treatment that could be interpreted as acts of corruption.

4.6.6 Community engagement

In the 54 countries where it operates, the Group positions itself as a company contributing to the social development of the communities in which it operates, by creating and maintaining direct and indirect jobs, developing local skills and expertise, purchasing local goods and services, forming business partnerships and paying taxes.

In particular, the Group focuses on hiring locally at every level of the business, including the senior management teams of its non-French subsidiaries.

As seen in this document, and particularly in chapter 5, the Group's economic contribution to surrounding communities covers many items (sales, capital expenditure, operating expenses, wages and salaries and payroll taxes, income and other business taxes, dividends, etc.), which come together to shape the Group's economic and social footprint.

In addition to contributing to the local economy, the Group deploys a policy of revitalizing regional labor markets and supporting scientific research upstream from industrial innovation.

Lastly, as a responsible company in an increasingly interconnected world, the Group is particularly attentive to the need to nurture close ties with all its stakeholders. Around the world, the Group is deploying local communication initiatives to foster high-quality relationships with host communities that are based on trust. This open dialogue also helps the Group to better understand the expectations of people living in nearby communities and ensure that they are properly addressed in its CSR strategy.

4.6.6.1 Supporting local communities through innovation

The Group has a policy of supporting innovative small and medium-sized enterprises (SMEs) in related business areas through joint projects and equity investments. Each research center, for example, works closely with neighboring universities or research institutes as part of clusters while creating possibilities for partnerships with local SMEs. The Group is a founding member of Axelera, a world-class competitiveness cluster in the field of chemistry and the environment that brings together and coordinates players from industry, research and education in the Auvergne Rhône-Alpes region in France.

Support for small and medium-sized businesses

These kinds of local partnerships contribute to stimulating innovation, while deepening the Group's local roots. For example, at the Lacq site in France, we provide technical and infrastructure support to innovative young businesses setting up in the Chemstart'up business incubator.

It is also positioned as a key early-stage player in strategically crucial industries such as thermoplastic composite materials, renewable raw materials, circular-economy-derived materials, new energies and 3D printing. In 2021, Arkema launched the Start-up Connect program, which invites advanced materials start-up around the world to approach Arkema with a view to establishing a dedicated research collaboration and benefiting from the Group's technological support and experience, in the form of technical or financial assistance for their innovations.

In 2019, Arkema inaugurated a new Global Center of Excellence for 3D printing at its Cerdato Research and Development Center in Serquigny, Normandy in the north of France. With the Normandy Region authorities as its partner, this center of excellence was created to manufacture additive powders made with high performance polymers. It will benefit companies and training organizations in the region, as part of a collaborative initiative striving for swift adoption of these new production methods. Dedicated to printing by powder bed fusion, the center complements the Group's existing network, which comprises a center based in Exton (Pennsylvania, US) for photocure liquid resins inaugurated in 2018, and another in King of Prussia (Pennsylvania, US) for filament extrusion.

Also in 3D printing, Arkema aims to forge partnerships with players in the additive manufacturing ecosystem, particularly in the United States:

- a collaboration agreement entered into in 2019 with Idaho-based Continuous Composites was followed up in 2020 with the acquisition of an interest in the SME in order to speed up the development of its continuous fiber 3D printing technology; and
- in 2021, Arkema made an equity investment in Erpro 3D Factory, a French company specializing in mass production through additive manufacturing, founded in 2017 and with which Arkema entered into a partnership as early as 2018.

Academic partnerships

Under its ambitious innovation policy, the Group maintains close ties with the scientific and educational ecosystems in its host regions worldwide, in particular through a wide variety of partnerships with universities and public and private research laboratories, such as the CNRS and the CEA in France and several universities in France, the United States, Canada, Belgium, Japan, South Korea and Malaysia. Further information on these partnerships is provided in section 1.1.5 of this document.

In 2016, Arkema opened an innovation center in South Korea within the HanYang university in Seoul. The center is specialized in high performance polymers and renewable energies, areas in which the university excels. More recently, Arkema forged a partnership in 2018 with Monash university in Malaysia, which is located just outside Kuala Lumpur. The aim of this collaborative research center is to enhance understanding of biocatalysis, a discipline that could lead to more sustainable processes than those achieved with traditional chemistry or the identification of new avenues for producing sulfur products.

Promotion

In France, Arkema took part in the Big Tour 2021, an initiative led by Bpifrance aimed at promoting French innovation expertise to the general public, while also raising awareness about climate change and career opportunities. On this 24-stop summer tour, Arkema spotlighted four flagship innovations: energy solutions, Pebax® material and sport, water treatment and Kynar® PVDF, and Bostik sealants.

4.6.6.2 Corporate citizenship

As part of its commitment to societal issues, Arkema undertakes corporate sponsorship and philanthropy initiatives that are aligned with its CSR policy and values, particularly the value of solidarity, and focus primarily on education, workforce inclusion, diversity and environmental protection, as well as health. These initiatives are overseen at Group level by the Human Resources and Communication Executive Vice-President, who is a member of the Executive Committee. They are deployed worldwide and are supported at the local level by the Common Ground® initiative.

4.6.6.2.1 The Common Ground® initiative

Formalized and introduced over 15 years ago, the pioneering Common Ground® initiative takes community relations beyond the legal minimum requirements by actively encouraging local dialogue and exchange with stakeholders in every host country.

Designed to improve the social acceptability of chemical plants and develop understanding about the Group's business, it is based on the following key principles:

- listening to understand expectations: understanding the concerns of people living in nearby communities is key to effectively addressing their concerns about industrial and chemical risks; and
- engaging in dialogue and informing communities about the Group's activities: at the core of the initiatives are workshops that enable neighbors to discover what the plant does, the products it makes and the processes it uses, and get a first-hand view of how the site runs and what its projects are.

In addition to these discussions about the Group's activities, Arkema also contributes to the social and economic dynamics of local communities through philanthropy initiatives.

Operational implementation of the Common Ground® initiative is overseen by the Group's site managers, who are supported by human resources or communication managers. Employee participation, on a voluntary basis, is also a key component.

4.6.6.2.2 Initiatives relating to priority issues

In line with its history, businesses and core values, and more particularly the values of solidarity and inclusion, the Group takes action both globally and locally to address social challenges that it sees as a priority.

Education and workforce integration

Determined to support education right from the start of the Common Ground® initiative, Arkema created a fund for education on its 10th anniversary, in line with its CSR commitments. The aim is to finance projects submitted by employees who volunteer on education-related initiatives. The fund is a way for the Group to support the volunteer work carried out by its employees, as well as their engagement and commitment to non-profit organizations. Since its creation, 56 educational projects carried out by non-profit organizations have been selected for sponsorship in 15 countries. The employees sponsoring these projects come from ten of the Group's host countries.

Around the world, the Group gives priority attention to strengthening its ties with schools and universities.

Since 1996, the Arkema Inc. Foundation in the United States has been working to improve the quality of life in local communities around the Group's sites, promote science and support science education at all levels. The foundation's flagship Science Teacher Program aims to make teachers experts in science education and to get elementary school students interested in science. Teachers take part in an intensive session taught by Arkema engineers and scientists, and use innovative science experiment kits to learn compelling new ways to illustrate scientific concepts. Since its inception, the Science Teacher Program has benefited hundreds of school teachers and thousands of students. In 2021, around 20 teachers completed this module.

In France, the Group has been a sponsor of the CGénial Foundation's program to promote science among middle and high school students since 2016 and provides its support to spotlight science and technical-related disciplines and careers. The aim is to build bridges between business and academia by taking part in the Foundation's flagship programs. In 2021, despite the Covid-19 pandemic, more than 950 middle and high school students have benefited from the experience of Arkema's volunteer speakers through presentations in classrooms or online.

In the same vein, Arkema took part in the French Fab Tour in 2021, spearheaded by Bpifrance and the *Union des Industries et Métiers de la Métallurgie* (UIMM), which gives schoolchildren and students an insight into the industry and its professions. During the 13 stages of this tour, the Group demonstrated its know-how in four of its areas of expertise: sports, resource management, energy and sustainable housing.

For five years now, volunteer employees in China have been running regular sessions with students from middle and high schools in the vicinity of Group plants as part of the educational project Arkema ChemArt Green Innovation Class. The initiative's aim is to advance the teaching of science subjects, promote chemical industry professions and educate the younger generation on environmental issues. In 2021, the focus was the conservation of biodiversity. Circular economy initiatives included support for a new Green IT Classroom, and the donation of dozens of recycled computers.

In addition to educational initiatives, the Group also provides its support to cultural projects.

In France, Arkema has been a patron of the *Théâtre des Champs-Élysées* in Paris since 2017, and in 2019 furthered its involvement by supporting the theater's youth program. This initiative aims to provide disadvantaged children aged 6 to 12 with greater access to music and opera and is aligned with Arkema's focus on education as well as youth inclusion and with the values of solidarity and empowerment championed by the Group. In 2021, despite the health crisis, some 1,000 students in the priority education zone of Colombes enjoyed a participatory opera experience, with a DVD version of a performance shown in a closed screening with audio description and French sign language available.

Diversity and social inclusion

In keeping with its internal policy of promoting gender diversity and equal opportunity, Arkema signed a three-year deal with the French Football Federation in 2019 to become the main partner of the division 1 Women's Football League in France, now known as *D1 Arkema*. The partnership offers an invaluable opportunity to showcase the role of women in sport and business. The aim is to illustrate that women have an important role to play in industry – including in the chemicals sector – just as they do in football, despite the fact that both are still viewed as male domains. This support for women's soccer has been extended outside France through local actions with amateur clubs near our sites, for example in the United States where Arkema works with a team of young women in New York.

Since 2019, the Group has also become a partner of Sport dans la Ville, a French non-profit that runs the "L dans la Ville" program, which is designed to help girls from disadvantaged neighborhoods find their place in society, in particular through sports and cultural activities. The program offers specific opportunities (sports, cultural activities, visits to companies, training workshops, etc.) to more than 1,000 girls to give them the same chance at success as boys. Initiatives are rolled out locally by the Group's various sites in France.

Environment and biodiversity

The Group is committed to protecting the environment and preserving biodiversity, above and beyond its regulatory obligations, and carries out a diverse array of initiatives worldwide. Participating in community awareness campaigns on waste management and recycling, planting trees, installing beehives or birdhouses, and rehabilitating wastelands both on and off Group sites are just some examples of the actions taken to protect the environment.

The Cerdato site (France) has been running environmental protection initiatives since 2019, such as a partnership arrangement whereby the nature club at a local school makes bird and insect nesting boxes on Arkema's behalf. A local environmental association conducted an ornithological survey in 2019, and this is being extended with sessions to discover the birds present on the site.

Health

In China, with the support of its subsidiary ArrMaz, Arkema launched the Clean Water Project in 2020. The aim of the project is to provide drinking water to children at primary schools located in priority regions in Yunnan Province. Thanks to more than €50,000 in funding from the Group, Chinese NGO One Foundation was able to distribute five water filtration units in 2020 and five more in 2021. In a region where tap water is unsafe and bottled water is not a financially viable option, these filtration units improve the living standards of both the children and their teachers.

Arkema also stepped up its commitment to health during the year by supporting non-profit Ruban Rose during breast cancer awareness month, alongside its partner the French Football Federation. The 12 *D1 Arkema* clubs organized various events during October 2021 to raise public awareness of this health issue. The Group pledged to donate €150 for every goal scored during D1 matches throughout the month, resulting in a total donation of €10,000.

Employee giving: participatory sponsorship

In 2018, Arkema introduced a "salary rounding" system in France. This participatory sponsorship system proposed by solidarity economy company MicroDon allows employees to donate the cents from their monthly salary, with Arkema donating the same amount as its employees. Over the past four years, more than €115,000 has been raised for the six non-profit organizations selected, which take action in areas that are aligned with the Group's CSR policy.

Innovation

A partnership with the world of sailing enables the Group to demonstrate and explain its performance-oriented innovation approach to the general public. Arkema has been supporting the construction of highly innovative sailing boats and their race programs since 2013. Its innovative materials have been used to design and improve the performance of a 50-foot multihull and a Mini 6.50 monohull. Further high performance solutions developed by Arkema were used in the construction of the Arkema 4 next-generation Ocean Fifty trimaran, completed in 2020.

At the start or finish of a race, in France and the United States, the Group invites its stakeholders to tour the boats and meet the skippers. This gives employees and their families, students from partner schools, customers and technical partners the opportunity to discover and discuss the direct ties between innovation and performance that exist thanks to Arkema's Specialty Materials. In 2021, some fifteen young people from the non-profit Médoc Enfance Handicap were given the chance to get up close and personal with the boats taking part in the *Transat Jacques Vabre* race, at the Le Havre harbor. The crews competing in the race were given 100 "kits to go" comprising Bostik and Arkema products.

4.6.6.3 Economic contribution

The Group commits funds and resources in support of local involvement initiatives. Examples include:

- corporate philanthropy initiatives, such as the Arkema Education Fund, the Arkema Inc. Foundation, and support for the *Sport dans la ville* organization;
- Arkema product donations;
- academic partnerships; and
- collaborative programs such as the Pragati initiative outlined in section 4.6.4.6.

Because of information availability schedules, the economic data is for 2020. Total contributions of €5.25 million broke down as 85% in financial contributions, 4% in employee time donations, 9% in product donations and 2% in time spent by employees on program management.

4.7 Reporting methodology

4.7.1 Reporting organization

The CSR reporting organization is designed to enable the Group to manage and measure the effectiveness of its social responsibility policy.

Reporting scope and period

The reporting scopes for employee, environmental and climate data are presented below. To optimize the organization, coordination and integration of the financial and CSR reports, these data are reported on a calendar year basis.

Reporting organization and protocol

The Group has defined directives governing the reporting of safety, environmental and climate, employee and social data for all facilities. Data are generally reported once a year, but for certain specific issues, interim data are reported quarterly so as to identify trends and implement required corrective measures on a timely basis. The interim data are not published.

Compliance and standards

The Group publishes employee, environmental and social information in compliance with articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code, as amended and created by French Law no. 2020-1142 of 16 September 2020, and with articles R. 225-105 and R. 225-105-1 of said code, as amended by French Decree no. 2017-1265 of 9 August 2017. Arkema also follows the recommendations of ISO 26000. In compliance with the abovementioned articles L. 225-102-1 and L. 22-10-36, this information is reviewed by an independent third-party auditor, who issues a report attesting to the consistency and fairness of the CSR information. The report is presented in section 4.7.8 of this chapter.

The reporting process follows the GRI Guidelines. The GRI content index can be found in section 4.7.5 of this chapter.

4.7.2 Methodological note on sustainable solutions indicators

4.7.2.1 Details on sustainable solutions indicators

Sustainable development patents

Number of original patent applications filed in the reporting year by the Group in response to sustainable development issues and contributing to at least one UN Sustainable Development Goal.

R&D expenditure

R&D expenditure is expressed as a percentage of consolidated revenue for the year.

ImpACT+ solutions

Percentage of third-party sales of ImpACT+ solutions. Solutions in the ImpACT+ category include those that, on the basis of a decision tree reflecting the three sets of criteria mentioned above, simultaneously (i) meet the basic requirements, (ii) are aligned with regulatory trends and market expectations, (iii) have a positive impact compared with the market standard on at least one of the SDGs, and (iv) do not generate a significant negative impact on the other SDGs.

Percentage of sales from products made from renewable or recycled raw materials

Sales from renewable or recycled raw materials correspond to sales of products that use renewable or recycled raw materials in the proportion of more than 25%. Until 2020, this threshold was 20%. This change of threshold did not impact the value of the indicator.

Renewable content is calculated by determining the proportion of raw materials of renewable origin (biomass, plant or animal) using the biogenic carbon ratio, the renewable material mass ratio, or the certified Mass Balance method. Recycled content is calculated by determining the proportion of raw materials of recycled origin, using the mass ratio or the certified Mass Balance method. Recycled materials are materials that are transformed into new products instead of being disposed of as waste. Scrap materials reused within the same production process are excluded.

Results are becoming increasingly precise with growing understanding on the renewable and recycled content of raw materials, and with improvements in calculation methodologies.

Percentage of sales covered by a life-cycle assessment (LCA)

Percentage of sales of solutions for which a full life-cycle assessment is available. Life-cycle assessments are conducted by Arkema experts or through professional associations.

They are reviewed approximately every five years, or earlier if needed or in the event of significant change. They cover one or more environmental impact categories, with at least cradle-to-gate scope, and may be validated by independent third parties.

4.7.3 Methodological note on environment, climate and safety indicators

4.7.3.1 Environment and climate reporting tools and scope

Absolute data

The Group's absolute environmental data are compiled by its Reporting of Environmental and Energy Data (REED) system, which is accessible worldwide *via* the web platform of a service provider.

The values of the absolute indicators, once published after review by the independent third-party auditor, are not amended in the REED system. Any subsequent retroactive modifications made due to a change in the estimation method or a correction are addressed in section 4.3.3 (Circular economy in transformation processes) and sections 4.4 (Climate) and 4.5 (Safety and environment) of this chapter.

The data are entered by the plant Health, Safety and Environment (HSE) departments and validated at two levels, geographic and corporate.

The scope of consolidation for environment and climate reporting covers all active Group industrial sites for which operating and emissions permits were held in the name of the Group or a majority-owned subsidiary at 31 December 2021, excepting certain sites acquired recently. In 2021, the scope covered industrial operations accounting for 98% of the Group's sales. Given its contribution to the climate, American Acryl's Bayport facility, 50% owned by the Group, has been included in the scope of the greenhouse gas emissions strategic indicator since 2019. In addition, since 2019, when the new SBT climate target was set, the Group has included all of its sites (industrial sites operated by the Group or by its majority-owned subsidiaries, head offices and research and development centers) in calculating its carbon footprint (Scope 1 + ODS, Scope 2, Scope 3).

The scope of consolidation for energy reporting covers all of the sites operated by the Group or by majority-owned subsidiaries, including plants and research and development centers with an operating permit as at 31 December 2021, excepting certain sites acquired recently.

Operations sold or discontinued in 2021 were removed from the scope of reporting for the year but remain in prior-year data.

Newly acquired sites are integrated at the end of the first full year. The activities of CMC, Poliplas, Edge Adhesives Texas and Agiplast are therefore not included in the environmental and climate reporting for 2021, and neither are some small sites acquired in previous years. These activities accounted for less than 2% of Group sales in 2021.

Operations that started up in 2021 reported data from their start-up date.

Intensive data (EFPIs)

To manage its environmental performance more efficiently and report consolidated data that more accurately track this performance year by year, Arkema uses a methodology that enables production facilities to report relative indicators, known as Environmental Footprint Performance Indicators (EFPIs). This method of calculating the intensity of emissions or resource consumption relative to production volumes, compared with 2012 as a baseline year, minimizes the impact of any changes in the business base and plant output, as well as any changes to the method used to estimate or calculate environmental footprint variables.

These relative environmental data are compiled by the same REED environmental reporting system, which is accessible worldwide *via* the web platform of a service provider.

EFPI data are entered by facility HSE departments and validated first by the factory manager then at Group level. They are subject to a large number of consistency tests.

The scope of consolidation for EFPI reporting covers Group sites for which operations (and emissions) permits were held in the name of the Group or a majority-owned subsidiary at 31 December 2020 and which are among the biggest contributors of the Group's sites. In all, these sites account for at least 80% of the Group's prior-year emissions or consumption.

Any activities sold or terminated in 2021 are not included in the scope of EFPI reporting for 2021, but are still included for previous years.

Operations started up in 2020 will be included in the EFPI reporting in 2022 compared with their 2021 performance.

Operations acquired in 2021 will be included in the 2023 scope of EFPI reporting for all of their 2023 activities, compared with their 2022 performance.

The EFPI methodology allows new reporting units to be included in prior-year performance data. Should the inclusion of a large number of new units result in a significant change to the confidence interval in the calculation of the Group's EFPIs, consideration will be given to whether an adjustment factor should be applied or whether the use of a new baseline year should be used.

4.7.3.2 Safety data reporting tools and scope

Safety data:

- are compiled by the proprietary Reporting of Environmental and Energy Data (REED) system, which is accessible worldwide *via* the web platform of a service provider;
- are entered by the reporting units and validated at corporate level; and
- cover all of the production facilities operated by the Group or by majority-owned subsidiaries, head offices and research and development centers. The accident figures for newly acquired sites are integrated into the TRIR and LTIR indicators within three years. Some of the sites acquired in 2019, 2020 and 2021 are not included in accident safety reporting. The reporting for 2021 covers 97% of the Group's workforce as of 31 December 2021. New sites are included in the calculation of the peer observation indicator within three years of their acquisition or start-up date.

4.7.3.3 Choice of indicators, measurement methods and user information

The Group has designed indicators to track the emissions and consumption levels that concern its operations, in accordance with the information required by articles R. 225-105 and R. 225-105-1 of the French Commercial Code. These indicators enable the Group to assess the impact of its policies and monitor changes over time for certain types of emissions and uses that have been identified as risks.

They were introduced at the time of the Group's creation in 2006 and have been tracked ever since, in compliance with the social and environmental reporting requirements set out in the French New Economic regulations Act (the "NRE Act") of 15 May 2001.

The environmental reporting system is governed by an Environmental reporting directive, an EFPI reporting directive and an Energy reporting directive issued by the Group Safety and Environment (DSEG), Sustainable Development (DDD) and Raw Materials and Energy Procurement (DAMPE) departments and accessible to all employees on the corporate intranet.

Calculation and estimation methods are subject to change, for example due to changes in national or international legislation, measures to improve consistency among regions, or problems with their application.

The directives may then be expressed in guidelines and handbooks, which are supported by training sessions in each region as required.

The safety reporting process is covered by a Monthly Safety reporting directive issued by the Group Safety and Environment department and accessible to all employees on the intranet.

SBT setting method for the target to reduce greenhouse gas (GHG) emissions

Targets adopted by companies to reduce GHG emissions are considered "science-based" if they are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to limit global warming to well below 2°C above preindustrial levels and pursue efforts to limit warming to 1.5°C.

The methodology is based on a breakdown over time of the carbon budget in choosing a global GHG emissions scenario adapted to a trajectory well below 2°C (2018 report of the Intergovernmental Panel on Climate Change, or IPCC). Next, an allocation mechanism is applied taking the approach of a contraction of absolute emissions, in line with Science Based Targets recommendations and based on a 41% to 72% reduction in GHG emissions between 2010 and 2050. For the Group, this comes out to an annual reduction in GHG emissions of 2.5% for Scopes 1 and 2.

4.7.3.4 Details on environment, climate and safety indicators

The following information is provided to clarify the definition of the indicators applied by the Group.

Total acidifying substances

This indicator is calculated using sulfur oxide (SOx), ammonia (NH_3) and nitrogen oxide (NOx) emissions converted into tonnes of sulfur dioxide (SO_2) equivalent.

Volatile organic compounds (VOCs)

The list of products regarded as VOCs may vary from country to country, in particular between Europe and North America.

The VOC definitions used by the Group are those recommended in Europe by directive 2010/75/EU on industrial emissions, known as the Industrial Emissions directive (IED).

Emission figures for US sites are therefore obtained by adding figures for products such as fluorinated organic compounds to national reported data.

Chemical oxygen demand (COD)

For reporting purposes, COD is measured in effluent released into the natural environment.

In cases where wastewater from a Group facility is treated in an external plant, the reported data takes into account the effectiveness of the treatment process.

In cases where a Group facility takes in COD-laden water, the reported data concern the net COD load effectively produced in the ecosystem by the Group (outgoing less incoming).

Waste

The distinction between hazardous and non-hazardous waste may vary from one region to another. The definitions used by the Group are those of the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Wastewater transported to treatment plants, which returns to an aquatic environment after treatment, is excluded.

By-products that are sold to third parties for reuse without processing at a Group site are not counted as waste.

Water use

All sources of water are included in the reported data, including groundwater/wells, rivers, the sea, public or private networks and drinking water, excluding rainwater collected in separate networks.

Energy use

Reported use corresponds to net energy purchases.

It does not include self-generated energy, which corresponds to the energy produced by exothermic chemical reactions and therefore does not draw down the planet's energy resources.

Sales of energy are deducted from purchases of energy. This is the case, for example, for facilities fitted with combined heat and power plants that generate steam and electricity from purchased gas (reported), then sell the electricity (deducted).

In cases where sites do not have any December data due to late reporting by energy providers, the values for the year are extrapolated from the data at end-November.

Direct greenhouse gas (GHG) emissions

For reporting purposes, direct GHG emissions correspond to those defined in the Kyoto Protocol, while HCFC emissions are those targeted by the Montreal Protocol.

Their impact is calculated in equivalent tonnes of carbon dioxide (t CO_2 eq.).

In this report, 2021 emissions have been calculated using the Global Warming Potential values published in 2007 by the Intergovernmental Panel on Climate Change (IPCC).

For the GHG emissions produced by American Acryl's Bayport facility, the estimate is based on the net consumption of natural gas reported in REED, this being the site's sole combustion activity. The readings are compared with those of prior years with a good degree of reliability (data available from 2007 to 2010), in proportion to the quantity of acrylic acid produced. For process-related emissions, estimates are made based on past data in proportion to the production of acrylic acid. Since assessments have been conducted, the most penalizing data have systematically been used.

Indirect greenhouse gas (GHG) emissions

For the purposes of this report, indirect Scope 2 CO_2 emissions were calculated using electricity and steam consumption and emission factors in tonnes of CO_2 equivalent per input unit (MWh or tonnes of oil equivalent) reported by suppliers. Where this was not possible, they were calculated using figures provided by local authorities, such as those available in the EPA e-grid database for 2019 in the United States, the 2013 Baseline Emission Factors for Regional Power Grids issued by China's National Development & Reform Council (NDRC) for China, and SEMARNAT data issued by Mexico's Federal Environmental Agency for Mexico. In the absence of specific regional values, calculations were made using national energy-mix emission factors published by the International Energy Agency in 2017.

Indirect Scope 3 CO_2 emissions were estimated using the default scenarios in the GHG Protocol guidance for the chemical sector, issued by the World Business Council for Sustainable Development (WBCSD). Indirect Scope 3 emissions relate to the Group's value chain, including both upstream and downstream emissions, and have been estimated for ten categories (see section 4.4.3.3 of this document). A detailed explanation of the calculation methodology is available to stakeholders upon request.

- Category 1 – Purchased goods and services: emissions are estimated based on purchases of raw materials, industrial gas and packaging. An initial estimate is made on the basis of volumes for which information is processable, *i.e.* more than 85% of the amount of such purchases. Emissions corresponding to the remaining 15% are then estimated by extrapolation. For processable volume figures, an emission factor specific to each chemical product is applied (in CO_2 equivalent per tonne) where available. Otherwise, an emission factor of 1.8 t CO_2 eq./t is assumed (that for organic chemicals in the EcoInvent database, version 3.5). The specific emission factors applied come from life-cycle assessments conducted by the Group or by professional organizations such as Plastics Europe, or from the EcoInvent database (version 3.5), or from the Base Carbone®.

Category 2 – Capital goods: emissions are estimated based on the amount of capital expenditure split into 14 categories (Development, R&D, Maintenance, Arkenergy, etc.). An emission factor from the 2019 Carbon Base is assigned to each investment category (in kg CO_2 eq./€k).

- Category 3 – Fuels and energy-related activities: emissions are estimated applying the default rule set out in the WBCSD guide. These emissions include (i) losses expressed in CO_2 equivalent in relation to electricity and steam transmission and distribution networks in each of the countries in which Arkema has industrial operations, (ii) upstream emissions for fossil fuel, steam and electricity consumed in each country by Arkema industrial sites, and (iii) upstream emissions for fossil fuels, steam and electricity sold by certain Arkema industrial sites. Emission factors for losses on the electricity and steam transmission and distribution networks in each country, and upstream of fossil fuel, steam and electricity are as given in the 2017 version of the DEFRA database (1), except for electricity in France, for which values are as given by the EDF utility for 2020.
- Category 4 – Upstream transportation and distribution: estimated emissions are based on the list of main raw materials representing at least 80% of purchasing volumes (see Scope 3 – category 1), an average journey of 1,000 km by truck and a factor of average emissions for road transport (in kg of CO_2 per t.km). For the main raw material, actual transportation modes are considered. The resulting emissions are then extrapolated in proportion to the total volume of raw materials transported. The average emission factors by mode of transportation are the same as those used to estimate category 9 emissions.
- Category 5 – Waste generated in operations: the emissions calculated are those related to the waste generated during the Group's operations. The WBCSD rule is applied, with emission estimates based on the Group's waste treatment breakdown and the emission factors given in the EcoInvent base (version 3.5) for incinerated, landfilled and recycled waste. Calculations are based on the actual quantities of waste from each site that is treated in the various ways. As a first step, all of the landfilled waste was considered as organic waste and therefore totally decomposed.
- Category 6 - Business travel: the emissions calculated correspond to Group employees' travel and hotel accommodation. Emission values are provided by the travel agencies the Group works with.
- Category 7 – Employee commuting: emissions were estimated using the least favorable scenario, assuming that all 20,209 employees use their own cars to get to work, traveling an average distance of 33km per day in France (2), 26km in the United States (3), and 50km in other countries. The emission factors applied correspond to the average CO_2 emissions per kilometer by vehicle type and fuel type given in DEFRA database (2019 version).

(1) UK department for Business, Energy and Industrial Strategy.

(2) Source: National Transportation and Travel Global Survey (2008) by the Observation and Statistics department (SOeS) of the French Ministry of Ecology, Energy, Sustainability and the Sea (MEEDDM).

(3) Bureau of Transportation Statistics.

- Category 8 – Upstream leased assets: emission figures in this category are for energy consumption at leased real-estate assets (head offices, sales offices and research centers), except for those already included in Scope 2 reporting. Where site energy consumption data are not directly available, estimates are made working from the energy consumption ratio (all usages) per employee and by type of establishment, mainly offices and research centers. Emissions were then calculated by applying the emission factor for the national electricity mix in the country where each site is located.
- Category 9 – Downstream transportation and distribution: the emissions were estimated using Group company logistics data, which account for more than 99% of consolidated shipments. The Group defines a shipment as the transportation of products to customers, as well as any post-production logistics. Since 2019, the calculation has been made by EcoTransIT, whose methodology (https://www.ecotransit.org/methodology.en.html) is based on the EN 16258 standard (Methodology for calculation and declaration of energy consumption and greenhouse gas emissions of transport services [freight and passengers]). In particular, the standard emission factors for road transport are based on the EURO I to VI standards in Europe, the 1994 to 2010 EPA standards in the USA and the 1994 to 2009 JP standards in Japan. For maritime transport, the method is based on the data and methodology developed by the Clean Cargo initiative (https://www.clean-cargo.org/). This method covers 97% of transported volumes. For the remainder, average distance and emission factors were applied. The reporting period runs from 1 October to 30 September of the following year.
- Category 12 – End-of-life treatment of sold products: the products sold by the Group have been classified into 15 different categories based on their chemical composition and, by extension, the GHG emissions that they may generate. A scenario was applied to define the end-of-life treatment method for each product category: incineration, landfilling or recycling. Emission factors were then applied in accordance with the WBCSD guide. For this estimate of Category 12 emissions, all of the Group's products were taken into account except fluorogases, for which a reliable methodology has not been identified. For Bostik products, a special scenario for end-of-life treatment was applied to account for the nature of these products and their applications. Emission calculations take into account the end of life of packaging used for products sold.

Commitment from raw materials suppliers accounting for 82% of Scope 3, category 1 emissions to set SBTs for their Scope 1 and 2 emissions by 2025

On the basis of Scope 3 Category 1 emission calculations (see definition above), Arkema asks its most emissions-intensive suppliers to complete the CDP Climate Change questionnaire and take up a climate commitment to an SBT trajectory. Supplier response is analyzed to calculate the proportion of suppliers already taking up such a commitment or planning to do so within two years.

Accidents

Total recordable injury rates (TRIR) and lost-time injury rates (LTIR) are calculated for both Group and on-site subcontractor employees on the basis of US standard 29 CFR 1904. The average number of days lost per injury mentioned in section 4.5.2.2.1 is estimated in mid-January N+1 for the reporting on year N. This figure may be re-evaluated in N+1 depending on the actual average number of days lost. For 2021, these accident-rate figures exclude activities at certain acquisitions made in 2019, 2020 and 2021, as detailed in section 4.7.3.2 of this chapter.

Process safety

The safety performance of a plant's production processes is assessed by means of performance indicators that measure and analyze process safety incidents. The Group reports and classifies these indicators in accordance with European Chemical Industry Council (CEFIC) guidelines. Until the end of 2016, the definition used for process safety events was the one proposed by CEFIC. During 2016, the International Council of Chemical Associations (ICCA) proposed new criteria to be used globally. Like CEFIC, Arkema decided to use these new criteria to measure its process safety event (PSE) rate, starting in 2017.

AIMS-audited sites

The Group tracks the increase in the percentage of facilities that have been audited in accordance with the AIMS standard. Three protocols are used, depending on the facility's size and specific needs: Full AIMS, which is combined with ISO certifications, for the largest sites or sites that present major risks, Simplified AIMS for smaller sites with low risks, and Light AIMS, for very small sites with low risks and facilities that have been recently acquired.

4.7.4 Methodological note on employee, social and responsible procurement indicators

4.7.4.1 Social and employee reporting tools and scope

Employee data are taken from several different reporting processes.

The employee data presented in section 4.6.1 of this chapter:

- are recorded in the AREA 1 application, accessible *via* the corporate intranet;
- are entered by the human resources managers or company Managing Directors (depending on their size);
- are validated at the Arkema, ArrMaz, Bostik, Coatex and MLPC group levels; and
- cover all companies in which the Group has at least a 50% interest.

The quantitative and qualitative data concerning other employee and social information:

- are recorded in the AREA 2 application, accessible *via* the corporate intranet;
- are entered by human resources employees of the companies or regional organizations;
- are validated by the regional Human Resources directors or subsidiary managers; and
- cover all companies of 60 or more employees in which the Group has at least a 50% interest at 30 June of the reporting year, which accounts for 93% of the Group's total headcount.

Any changes or corrections to prior-year data are noted in section 4.6.1 of this chapter.

4.7.4.2 Choice of indicators, measurement methods and user information

The Group has defined and tracks indicators relevant to its activities and its main risk and opportunity challenges.

The indicators relating to employee numbers have been tracked since the Group's creation in 2006.

Additional employee information and indicators and social data have been reported since 2012 *via* the AREA 2 compilation system, in particular the number of training hours.

Employee data reporting is covered by different procedural documents in the form of AREA 1 and AREA 2 guidelines, which have been provided to all of the contributors and validators.

The calculation methods may have limitations and be subject to change, for example due to varying national labor legislation and practices, difficulties in reporting certain information in some regions, or the unavailability of certain data in some countries.

Food waste, food security and the responsible, equitable and sustainable production of food are not considered as risks for Arkema. As a result, this registration document does not include any information about combating food waste, ensuring food security or promoting the responsible, equitable and sustainable production of food.

4.7.4.3 Details on employee indicators

Headcount

For reporting purposes, the headcount includes employees on payroll (employees present and employees whose employment contract, of any type, has been suspended) at 31 December of the reporting year.

Permanent employees are defined as employees that have signed an employment contract for an indefinite period of time. Outside France, employees hired on fixed-term contracts for periods of more than 12 months and renewed more than once are also included among permanent employees.

To remain consistent with financial reporting, Australia and New Zealand are included under Asia, rather than "Rest of the world". Employee data for 2019 were restated for comparisons over the three-year period.

Employee categories

Data are presented by professional category. In France, manager status *(cadre)* is determined by the collective bargaining agreements governing the company concerned. Outside France, employees with a Hay job level of 10 or more are considered managers.

Recruitment

These data cover only the hiring of employees under permanent contracts, including the transformation of contracts (fixed-term into permanent contracts in France, for example).

Compensation

Collective bonus components are defined as components that vary depending on overall business criteria and the business and financial results of the employee's Company. In France, these take the form of incentive and profit-sharing schemes.

Average employee compensation for men and women covers France, China and the United States, which together account for 66% of the Group's workforce. Comparisons are against the base salary.

Health and welfare

Health and welfare cover refers to benefits from a collective or mutual insurance plan providing cover for incapacity/disability/death risks.

Training

The data relate to training hours recorded for Group employees excluding e-learning courses.

Absenteeism

The absenteeism rate corresponds to the total number of hours of absence in the year (due to sickness, injuries, maternity leave, strikes and unpaid leave but excluding paid leave) divided by the total number of hours worked in the year.

Departures

Since 2016, departures are recorded only when the person leaves the Group, so that reported data no longer include inter-subsidiary transfers.

Percentage of non-French nationals in senior management and executive positions

Regulations do not allow the nationality of employees to be entered in information systems in all the countries where the Group operates. This is notably the case in the United States. In the absence of data on nationality, by convention, it has been assumed that the employees exercising their activity in these countries are not French nationals. This statement does not apply to expatriate employees.

4.7.4.4 Details on responsible procurement indicators

Percentage of purchasing spend from relevant suppliers covered by a Together for Sustainability (TfS) assessment

Relevant suppliers are suppliers representing 80% of the Group's recurring purchasing spend.

Purchases are considered recurring if made from the same supplier over the last three reporting years. TfS supplier evaluations are considered valid if performed within the last three years.

4.7.5 Indicators [1]

		2021	2020	2019
SUSTAINABLE SOLUTIONS				
Innovation				
Number of patent applications filed during the year relating to sustainable development		200	158	149
Percentage of patent applications filed during the year relating to sustainable development	%	90	78	67
R&D expenditure as a percentage of consolidated revenues	%	2.6	3.1	2.8
Management of the solutions portfolio				
Percentage of ImpACT+ sales [2]	%	51	50	46
Responsible product stewardship				
Number of substances with REACH registration		425	425	425
Circular economy				
Percentage of sales from products made from renewable or recycled raw materials [3]	%	10	10	9
Percentage of sales covered by a life-cycle assessment [4]	%	27	22 [4]	nc [4]
SAFETY, CLIMATE AND ENVIRONMENT				
Safety, environment and maintenance expenditure	€m	281	270	279
Management system				
Percentage of sites audited according to Arkema Integrated Management System (AIMS) standards	%	86	82	80
Percentage of ISO 45001-certified sites	%	59	57	57
Percentage of employees covered by ISO 45001 certification	%	48	48	47
Percentage of ISO 45001-certified sites in Europe	%	60	56	59
Percentage of ISO 45001-certified sites in the Americas	%	46	52	47
Percentage of ISO 45001-certified sites in Asia	%	73	65	65
Percentage of ISO 14001-certified sites	%	58	54	53
Percentage of ISO 14001-certified sites in Europe	%	71	64	65
Percentage of ISO 14001-certified sites in Asia	%	79	76	76
Percentage of ISO 14001-certified sites in the Americas	%	20	18	18
Safety				
Total recordable injury rate (TRIR)	per million hours worked	1.0	1.0	1.4
Lost-time injury rate (LTIR)	per million hours worked	0.5	0.7	0.8 [5]
Percentage of sites practicing peer observation	%	61	63	62
Process safety event rate (PSER)	per million hours worked	3.1	4.0	3.7

		2021	2020	2019
Climate				
Greenhouse gas (GHG) emissions (6)				
Direct greenhouse gas emissions corresponding to the Kyoto Protocol	kt CO_2 eq.	1,822	2,268	2,698
• of which CO_2	kt CO_2	1,436	1,495	1,490
• of which HFC	kt CO_2 eq.	349	742	1,174
• of which others	kt CO_2 eq.	37	31	34
Direct greenhouse gas emissions corresponding to the Kyoto Protocol, by region				
• Europe	%	32	32	30
• Americas	%	55	56	56
• Asia and rest of world	%	13	12	15
Direct greenhouse gas emissions corresponding to the Montreal Protocol	kt CO_2 eq.	234	257	247
Scope 2 indirect greenhouse gas emissions	kt CO_2 eq.	1,061	1,103	1,142
• of which Europe	kt CO_2 eq.	221	245	290
• of which Americas	kt CO_2 eq.	297	352	401
• of which Asia and rest of world	kt CO_2 eq.	543	507	451
Climate indicator: Scope 1 and Scope 2 GHG emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol	kt CO_2 eq.	3,117	3,628	4,087
Scope 3 indirect greenhouse gas emissions (7)	Mt CO_2 eq.	12.24	11.19	12.56
Energy				
Net energy purchases	TWh	7.39	7.84	8.05
• of which Europe	TWh	3.58	3.97	4.26
• of which Americas	TWh	2.67	2.69	2.57
• of which Asia and rest of world	TWh	1.14	1.17	1.22
Energy EFPI		0.85	0.90	0.91
Net energy purchases by type				
• fuel	TWh	3.98	4.29	3.98
• electricity	TWh	2.46	2.57	2.71
• steam	TWh	0.94	0.98	1.36
Natural gas in net purchases of fuels	%	98	98	98
Low-carbon electricity in net energy purchases	%	22	22	22
Number of Arkenergy investments		52	66	51
• of which Europe		29	42	28
• of which Americas		13	6	12
• of which Asia and rest of world		10	18	11
Number of ISO 50001-certified sites		31	34	33
Adapting to the consequences of climate change				
Number of sites exposed to climatic risks		26	28	25
Other environmental information				
Emissions to air				
Acidifying substances	t SO_2 eq.	2,880	2,690 (8)	2,740 (8)
Carbon monoxide	t	806	906	950
Volatile organic compounds (VOCs)	t	3,330	3,426	3,810
Volatile organic compound (VOC) EFPI		0.50	0.58	0.60
Dust	t	188	217	203
Emissions to water				
Chemical oxygen demand (COD)	t O_2	1,740	1,640	1,950
Chemical oxygen demand (COD) EFPI		0.45	0.45	0.50
Suspended solids	t	465	500	571

		2021	2020	2019
Resources management				
Waste				
Total hazardous waste	kt	181	183 [9]	178 [9]
Hazardous waste recycled into materials	%	15	11	14
Hazardous waste burned as fuel	%	35	32	32 [10]
Non-recovered hazardous waste	kt	91	103 [9]	95 [9] [10]
• of which landfilled	kt	3.8	2.5	3.8
Total non-hazardous waste	kt	210	204 [9]	203 [9] [11]
Non-hazardous waste recycled into materials	kt	58	48	54 [11]
Non-hazardous waste burned as fuel	kt	8	9	8
Non-recovered non-hazardous waste	kt	144	147 [9]	141 [9]
• of which landfilled	kt	25	26	26
Water withdrawals				
Total water withdrawn	millions of cu.m	104	114	116 [12]
Water withdrawals as a percentage of Group sales	cu.m/€k	6.9	9.7 [13]	9.0 [13]
LABOR AND STAKEHOLDER RELATIONS				
People				
Headcount				
Total headcount at 31 December		20,209	20,576	20,507
• of which permanent employees		19,305	19,692	19,783
• of which fixed-term employees		904	884	724
Total headcount at 31 December by geographical area				
• France		7,170	7,231	7,309
• Europe (excluding France)		3,850	4,073	3,899
• North America		3,669	4,004	4,074
• Asia		4,699	4,549	4,521
• Rest of the world		821	719	704
Managers in the total headcount	%	28.6	28.1	27.9
Diversity				
Women in the total headcount	%	26.2	25.6	25.3
Women in the total headcount by region				
• France	%	28.3	27.5	27.2
• Europe (excluding France)	%	26.4	25.3	25.7
• North America	%	24.5	23.2	22.7
• Asia	%	25.1	25.5	25.2
• Rest of the world	%	21.6	21.4	20.6
Percentage of women managers (all levels)	%	31.1	30.1	29.9
Percentage of women in executive positions (Hay grade 17 or higher)	%	18	16.4	16.7
Percentage of women in senior management and executive positions (Hay grade 15 or higher)	%	24	23	23
Non-French nationals in senior management and executive positions (Hay grade 15 or higher)	%	40	41	40
Percentage of women who hold performance shares	%	32	30	28
Percentage of women in lower management (France, United States, China)	%	39	37	
Percentage of women in middle management (France, United States, China)	%	35	33	
Percentage of women in business-related positions (France, United States, China)	%	26	25	
Percentage of women in technical positions (STEM: Science, Technology, Engineering and Mathematics)	%	19%	19%	
Equal pay between men and women (women's average base salary/men's average base salary):				
Lower management	%	96	95	
Middle management	%	91	92	
Senior management and executive positions (excluding Executive Committee)	%	97	95	

		2021	2020	2019
Recruitment				
Recruitments during the year		2,070	1,310	1,593
• France		345	322	366
• Europe (excluding France)		282	262	260
• North America		691	329	437
• Asia		629	326	431
• Rest of the world		123	71	99
Manager recruitments		521	338	494
Non-manager recruitments		1,549	972	1,099
Women recruitments	%	26.4	28.9	28.2
New hires aged 50 and over	%	10.8	10.5	10.3
New hires aged under 30	%	34.2	35.4	34.4
Departures				
Departures during the year		2,907	1,620	1,741
• of which resignations		1,089	693	945
• of which dismissals		439	331	342
• of which retirement		357	310	285
• of which following a divestment/merger		887	109	27
• of which other reasons		135	114	142
Work organization				
Full-time employees	%	96.2	96.2	96.3
Part-time employees	%	3.8	3.8	3.8
Employees who telework	%	20.0	16.5	13.8
Absenteeism				
Overall absenteeism rate	%	4.5	5.1	4.2
Absenteeism rate on medical grounds	%	2.8	3.3	2.8
Training				
Number of training hours	thousands	447	346	463
Average number of training hours per employee		24	18	25
Average number of training hours per manager		24	16	24
Average number of training hours per non-manager		24	20	25
Number of employees who received training, excluding e-learning		15,032	15,105	15,997
Number of employees who took an e-learning course		15,422	10,247	9,517
Number of safety training hours	thousands	149	163	182
Number of safety training hours per employee trained		11	14	13
Number of employees who received safety training (excluding e-learning)		12,974	11,879	14,142
Number of employees who took safety-related e-learning courses		14,390	7,852	6,684
Number of environment-related training hours		14,913	7,571	10,210
Number of environment-related training hours per employee trained		3	2	2
Number of employees who received environment-related training (excluding e-learning)		4,524	3,217	4,686
Number of employees who took environment-related e-learning courses		4,418	5,593	4,863
Breakdown of training hours by topic:				
• Technical expertise	thousands	235	133	203
• HSEQ	thousands	167	181	196
• IT/digital technology	thousands	17	15	19
• Management	thousands	28	17	45
Percentage of apprenticeships (Arkema France)	%	4.7	4.2	4.4
Proportion of Group employees benefiting from annual performance reviews	%	100	100	99

		2021	2020	2019
Health and welfare				
Percentage of employees benefiting from regular medical check-ups	%	95	95	94
Occupational illness frequency rate (OIFR)	per million hours worked	0.7	1.0	1.0
Employees benefiting from supplementary disability cover	%	94	90	90
Employees benefiting from supplementary life cover	%	95	95	95
Employees covered by death benefits representing at least 18 months' salary	%	85	85	84
Compensation				
Employees benefiting from minimum compensation guarantees	%	100	100	100
Employees benefiting from collective variable compensation components	%	73	73	73
Employees benefiting from individual variable compensation components	%	41	37	36
Representation				
Percentage of employees benefiting from personnel representation and/or trade union representation	%	90	90	91
Responsible procurement				
Percentage of purchasing spend from relevant suppliers covered by a TfS assessment	%	71	68	68

(1) Indicators are defined in detail in the methodological note in sections 4.7.2, 4.7.3 and 4.7.4 of this chapter.

(2) The percentage of sales contributing significantly to the United Nations SDGs (ImpACT+) was calculated on the basis of an assessment of 85% of the Group's third-party sales in 2021, 72% in 2020 and 44% in 2019.

(3) The percentage of sales from products made from renewable or recycled raw materials covers products with a renewable or recycled raw material content of at least 25% in 2021 and 20% for previous years (the threshold increase did not impact the value of the indicator).

(4) From 2021, the proportion of sales covered by a life-cycle assessment is measured as a percentage of revenues. The 2020 value was recalculated and is now expressed as a percentage of revenue.

(5) The 2019 LTIR, announced in the 2019 Universal Registration Document as 0.7, was updated to include an injury that had not initially been taken into account.

(6) Since 2019, GHG emissions have included those of American Acryl's Bayport facility (United States).

(7) The Scope 3 categories covered by this estimate are detailed in section 4.4.3.3 of this chapter.

(8) Following correction to the method used for measuring SO_2 release at Kerteh (Malaysia), the 2019 and 2020 values reported in the 2020 Universal Registration Document were adjusted for consistency with the 2021 count.

(9) Waste quantity figures have been adjusted to remove water sent to treatment plants. This water, which returns to the aquatic environment after treatment, is not considered as waste in the legislation of several countries.

(10) The breakdown between recycled and non-recycled hazardous waste in 2019 was corrected following a historical classification error.

(11) The 2019 figure for non-hazardous waste recycled into materials has been corrected, after a co-product was erroneously included in its calculation.

(12) Following a correction of the 2019 metering methodology at the Pierre-Bénite site (France), the 2019 value communicated in the 2019 Universal Registration Document was reassessed by 2.8 million cu.m (corresponding to 0.32 cu.m/€k), consistent with the metering methodology of the other years.

(13) The values for water withdrawal in 2019 and 2020 were corrected following a change in the definition of the indicator, which now considers gross volumes less regulated withdrawals and volumes sold to third parties.

4.7.6 GRI content index

Declaration of GRI compliance

The Group follows the GRI Sustainability reporting Standards and applies their ten principles (GRI 101). Reporting for 2021 was conducted compliant with GRI Standards: Essential Compliance Option (GRI 102-54 GRI Standards Compliance reporting Statement).

In order to ensure a good quality approach, in line with GRI standards expectations, Arkema ensured the implementation of the tests indicated for each reporting principle by MATERIALITY-reporting, a GRI standards expert.

The GRI content index below presents the general and specific items of information, in accordance with their materiality for the Group.

GRI standard	Disclosure	Description	Location or omission
GRI 101: Foundation – 2016			
GRI 102: General disclosures – 2016			
ORGANIZATIONAL PROFILE			
	102-1	Name of the organization	6.1.1 – Information about the Company Cover
	102-2	Activities, brands, products and services	1.2 – Business overview
	102-3	Location of headquarters	6.1.1 – Information about the Company 5.4.2 – Parent company financial statements/SUBSIDIARIES AND INVESTMENTS
	102-4	Location of operations	6.1.2 – Subsidiaries and shareholdings of the Company 5.4.2 – Parent company financial statements/SUBSIDIARIES AND INVESTMENTS
	102-5	Ownership and legal form	6.1.1 – Information about the Company 5.4.2 – Parent company financial statements/SUBSIDIARIES AND INVESTMENTS
	102-6	Markets served	PROFILE 1.2 – Business overview
	102-7	Scale of the organization	PROFILE Key figures Our business model 1.2 – Business overview 6.1.1 – Information about the Company
	102-8	Information on employees and other workers	4.6.1 – Group's People
	102-9	Supply chain	1.4 – Material contracts 4.1.6 – Stakeholders and materiality assessment 4.2.1 – Management of sustainable solutions 4.2.3 – Management of the solutions portfolio
	102-10	Significant changes to the organization and its supply chain	2.2 – Global internal control and risk management procedures
	102-11	Precautionary principle or approach	2.1 – Main risks
	102-12	External initiatives	4.1.1 – CSR policy 4.1.7 – CSR key performance indicators
	102-13	Membership of associations	4.6.6 – Community engagement
STRATEGY			
	102-14	Statement from senior decision-maker	Message from the Chairman and CEO in the introduction of this document
	102-15	Key impacts, risks, and opportunities	AMBITION 4.1.3 – Key impacts, risks and opportunities TABLE OF THE GROUP'S CONTRIBUTION TO THE UNITED NATIONS SDGS 4.1.5 – Duty of care plan
ETHICS AND INTEGRITY			
	102-16	Values, principles, standards and norms of behavior	4.6.2 – Compliance and ethics 4.2.4.4 – Animal welfare
GOVERNANCE			
	102-18	Governance structure	4.1.2 – CSR governance 3.2 – Composition of administrative and management bodies

GRI standard	Disclosure	Description	Location or omission
STAKEHOLDER ENGAGEMENT			
	102-40	List of stakeholder groups	4.1.6 – Stakeholders and materiality assessment 4.6 – Labor and stakeholder relations
	102-41	Collective bargaining agreements	4.6.1.7 – Active social dialogue with employee representatives
	102-42	Identifying and selecting stakeholders	4.1.6 – Stakeholders and materiality assessment 4.6 – Labor and stakeholder relations
	102-43	Approach to stakeholder engagement	4.1.6 – Stakeholders and materiality assessment
	102-44	Key topics and concerns raised	4.1.3 – Key impacts, risks and opportunities/Priority issues, action plan and associated objectives 4.1.6 – Stakeholders and materiality assessment
REPORTING PRACTICE			
	102-45	Entities included in the consolidated financial statements	4.7.3.1 – Environment and climate reporting tools and scope 4.7.3.2 – Safety data reporting tools and scope 4.7.4.1 – Social & employee reporting tools and scope
	102-46	Defining report content and topic boundaries	4.1.6 – Stakeholders and materiality assessment
	102-47	List of material topics	4.1.6 – Stakeholders and materiality assessment
	102-48	Restatements of information	1.2.1 – Adhesive Solutions 1.2.2 – Advanced Materials 1.2.3 – Coating Solutions 1.2.4 – Intermediates
	102-49	Changes in reporting	4.7 – Reporting methodology
	102-50	Reporting period	4.7.1 – Reporting organization
	102-51	Date of most recent report	Page 1 footnote
	102-52	Reporting cycle	4.7.1 – Reporting organization
	102-53	Contact point for questions regarding the report	8.2 – Person responsible for the information
	102-54	Claims of reporting in accordance with the GRI Standards	4.7.6 – GRI content index
	102-55	GRI content index	4.7.6 – GRI content index
	102-56	External assurance	4.7.8 – Independent third-party opinion pursuant to articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code
SPECIFIC ITEMS			
GRI 200: Economic standards			
GRI 103: Management approach – 2016	103-1	Explanation of the material topic and its boundary	4.1.1 – CSR policy 4.1.6 – Stakeholders and materiality assessment
	103-2	The management approach and its components	4.6 – Labor and stakeholder relations
	103-3	Evaluation of the management approach	4.7.5 – Indicators
ECONOMIC PERFORMANCE			
GRI 201: Economic performance – 2016	201-1	Direct economic value generated and distributed	4.6.6.2 – Corporate citizenship
	201-2	Financial implications and other risks and opportunities due to climate change	4.2.2 – Innovation
	201-4	Financial assistance received from government	5.3.3 – Notes to the consolidated financial statements at 31 December 2021/Note 8/8.2 – Other intangible assets/Capitalized research and development costs
MARKET PRESENCE			
GRI 202: Market presence – 2016	202-2	Proportion of senior management hired from the local community	4.6.1.6 – Diversity, inclusion, equal opportunity and equal treatment
INDIRECT ECONOMIC IMPACTS			
GRI 203: Indirect economic impacts – 2016	203-1	Infrastructure investments and services supported	4.6.6.1 – Supporting local communities through innovation
	203-2	Significant indirect economic impacts	4.6.6.2 – Corporate citizenship

GRI standard	Disclosure	Description	Location or omission
PROCUREMENT PRACTICES			
GRI 204: Procurement practices – 2016	204-1	Proportion of spending on local suppliers	4.1.5 – Duty of care plan 4.6.4 – Responsible procurement
ANTI-CORRUPTION			
GRI 205: Anti-corruption – 2016	205-1	Operations assessed for risks related to corruption	4.1.5 – Duty of care plan 4.6.2 – Compliance and ethics
	205-2	Communication and training about anti-corruption policies and procedures	4.6.2 – Compliance and ethics
	205-3	Confirmed incidents of corruption and actions taken	4.6.2 – Compliance and ethics
ANTICOMPETITIVE BEHAVIOR			
GRI 206: Anticompetitive behavior – 2016	206-1	Legal actions for anticompetitive behavior, anti-trust, and monopoly practices	4.6.2 – Compliance and ethics
TAXES			
GRI 207: Tax – 2019	207-1	Approach to tax	4.6.2.6 – Tax policy
	207-2	Tax governance, control and risk management	4.6.2.6 – Tax policy
GRI 300: Environmental standards			
GRI 103: Management approach – 2016	103-1	Explanation of the material topic and its boundary	4.1.6 – Stakeholders and materiality assessment
	103-2	The management approach and its components	4.5.3.1 – Environmental management
	103-3	Evaluation of the management approach	4.7.5 – Indicators
MATERIALS			
GRI 301: Materials – 2016	301-1	Materials used by weight or volume	4.3.3.3 – Raw materials use
	301-2	Recycled input materials used	4.3.3.4 – Circular economy and industrial operations
	301-3	Reclaimed products and their packaging materials	4.3.3.4 – Circular economy and industrial operations
ENERGY			
GRI 302: Energy – 2016	302-1	Energy consumption within the organization	4.3.3.1 – Energy use
	302-3	Energy intensity	4.4.3.2 – Energy
	302-4	Reduction of energy consumption	4.4.3.2 – Energy
	302-5	Reductions in energy requirements of products and services	4.4.3.2 – Energy
WATER AND EFFLUENTS			
GRI 303: Water and effluents – 2018	303-1	Interactions with water as a shared resource	4.3.3.2 – Water use
	303-2	Management of water discharge-related impacts	4.5.3.2.2 – Emissions to water
	303-3	Water withdrawal	4.3.3.2 – Water use
	303-4	Water discharge	4.5.3.2.2 – Emissions to water
	303-5	Water consumption	4.3.3.2 – Water use
BIODIVERSITY			
GRI 304: Biodiversity – 2016	304-2	Significant impacts of activities, products and services on biodiversity	4.5.3.2 – Other emissions and protecting biodiversity
	304-03	Habitats protected or restored	4.5.3.2 – Other emissions and protecting biodiversity

GRI standard	Disclosure	Description	Location or omission
EMISSIONS			
GRI 305: Emissions – 2016f	305-1	Direct (Scope 1) GHG emissions	4.4.3.1 – Scopes 1 and 2 greenhouse gas emissions
	305-2	Energy indirect (Scope 2) GHG emissions	4.4.3.1 – Scopes 1 and 2 greenhouse gas emissions
	305-3	Other indirect (Scope 3) GHG emissions	4.4.3.3 – Scope 3 greenhouse gas emissions
	305-4	GHG emissions intensity	4.5.3.1 – Environmental management 4.4.3.1 – Scopes 1 and 2 greenhouse gas emissions
	305-5	Reduction of GHG emissions	4.5.1 – Health, safety and environmental management
	305-7	Nitrogen oxides (NOx), sulfur oxides (SOx) and other significant air emissions	4.5.3.2.1 – Emissions to air
WASTE			
GRI 306: Waste – 2020	306-1	Waste generation and significant waste-related impacts	4.3.3.4 – Circular economy and industrial operations
	306-2	Management of significant waste-related impacts	4.3.3.4 – Circular economy and industrial operations 4.5.3.2 – Other emissions and preservation of biodiversity
	306-3	Waste generated	4.3.3.4 – Circular economy and industrial operations
	306-4	Waste diverted from disposal	4.3.3.4 – Circular economy and industrial operations
	306-5	Waste directed to disposal	4.3.3.4 – Circular economy and industrial operations
ENVIRONMENTAL COMPLIANCE			
GRI 307: Environmental compliance – 2016	307-1	Non-compliance with environmental laws and regulations	4.5.1.2 – Management system and audits
SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 308: Supplier environmental assessment – 2016	308-1	New suppliers that were screened using environmental criteria	4.6.4.4 – Assessment of suppliers and subcontractors
	308-2	Negative environmental impacts in the supply chain and actions taken	4.6.4.3 – Selection of suppliers and subcontractors
GRI 400: Social standards			
GRI 103: Management approach – 2016	103-1	Explanation of the material topic and its boundary	4.1.6 – Stakeholders and materiality assessment
	103-2	The management approach and its components	4.2 – Sustainable solutions 4.5 – Safety and environment 4.6 – Labor and stakeholder relations
	103-3	Evaluation of the management approach	4.7.5 – Indicators
EMPLOYMENT			
GRI 401: Employment – 2016	401-1	New employee hires and employee turnover	4.6.1.1 – Talent management
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.6.1.2 – An agile and collaborative organization 4.6.1.5 – A motivating and competitive compensation system
	401-3	Parental leave	4.6.1.4 – Employee engagement and well-being/Work-life balance

GRI standard	Disclosure	Description	Location or omission
OCCUPATIONAL HEALTH AND SAFETY			
GRI 403: Occupational health and safety – 2018	403-1	Occupational health and safety management system	4.5.1 – Health, safety and environmental management 4.5.2.2 – Employee health and safety
	403-2	Hazard identification, risk assessment and incident investigation	4.5.2 – Health and safety information
	403-3	Occupational health services	4.5.2.3 – Process safety
	403-4	Worker participation, consultation and communication on occupational health and safety	4.5.1.3 – Safety and environmental culture
	403-5	Worker training on occupational health and safety	4.5.1.3 – Safety and environmental culture
	403-6	Promotion of worker health	4.5.1.3 – Safety and environmental culture
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	4.5.2.1 – Safety management 4.6.1.4 – Employee engagement and well-being
	403-8	Workers covered by an occupational health and safety management system	4.5.2 – Health and safety information
	403-9	Work-related injuries	4.5.2 – Health and safety information
	403-10	Work-related ill-health	4.5.2.2.4 – Occupational illnesses
TRAINING AND EDUCATION			
GRI 404: Training and education – 2016	404-1	Average hours of training per year per employee	4.6.1.3 – Personal development and training
	404-2	Programs for upgrading employee skills and transition assistance programs	4.6.1.3 – Personal development and training
	404-3	Percentage of employees receiving regular performance and career development reviews	4.6.1.3 – Personal development and training
DIVERSITY AND EQUAL OPPORTUNITIES			
GRI 405: Diversity and equal opportunity – 2016	405-1	Diversity of governance bodies and employees	4.6.1.6 – Diversity, inclusion, equal opportunity and equal treatment
	405-2	Ratio of basic salary and remuneration of women to men	4.6.1.6 – Diversity, inclusion, equal opportunity and equal treatment/Diversity and equal treatment policy
NON-DISCRIMINATION			
GRI 406: Non-discrimination – 2016	406-1	Incidents of discrimination and corrective actions taken	4.6.1.6 – Diversity, inclusion, equal opportunity and equal treatment
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING			
GRI 407: Freedom of association and collective bargaining – 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	4.6.1.7 – Active social dialogue with employee representatives
CHILD LABOR			
GRI 408: Child labor – 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	4.6.3 – Human Rights
FORCED OR COMPULSORY LABOR			
GRI 409: Forced or compulsory labor – 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.6.3 – Human Rights
SECURITY PRACTICES			
GRI 410: Security practices – 2016	410-1	Security personnel trained in human rights policies or procedures	4.6.3 – Human Rights

GRI standard	Disclosure	Description	Location or omission
HUMAN RIGHTS ASSESSMENT			
GRI 412: Human Rights assessment – 2016	412-1	Operations that have been subject to Human Rights reviews or impact assessments	4.6.2 – Compliance and ethics 4.6.3 – Human Rights
	412-2	Employee training on Human Rights policies or procedures	4.6.2 – Compliance and ethics 4.6.3 – Human Rights
	412-3	Significant investment agreements and contracts that include Human Rights clauses or that underwent Human Rights screening	4.6.2 – Compliance and ethics 4.6.3 – Human Rights
LOCAL COMMUNITIES			
GRI 413: Local communities – 2016	413-1	Operations with local community engagement, impact assessments, and development programs	4.6.6 – Community engagement
	413-2	Operations with significant actual and potential negative impacts on local communities	4.6.3 – Human Rights
SUPPLIER SOCIAL ASSESSMENT			
GRI 414: Supplier social assessment – 2016	414-1	New suppliers that were screened using social criteria	4.6.4.4 – Assessment of suppliers and subcontractors
	414-2	Negative social impacts in the supply chain and actions taken	4.6.4.3 – Selection of suppliers and subcontractors
PUBLIC POLICY			
GRI 415: Public policy – 2016	415-1	Political contributions	4.6.5 – Institutional relations initiatives
CUSTOMER HEALTH AND SAFETY			
GRI 416: Customer health and safety – 2016	416-1	Assessment of the health and safety impacts of product and service categories	4.2 – Sustainable solutions
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	4.2 – Sustainable solutions
MARKETING AND LABELING			
GRI 417: Marketing and labeling – 2016	417-1	Requirements for product and service information and labeling	4.2.1 – Management of sustainable solutions
	417-2	Incidents of non-compliance concerning product and service information and labeling	4.2 – Sustainable solutions
	417-3	Incidents of non-compliance concerning marketing communications	4.2 – Sustainable solutions
CUSTOMER PRIVACY			
GRI 418: Customer privacy – 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	4.6.2.4 – Personal data protection
SOCIOECONOMIC COMPLIANCE			
GRI 419: Socioeconomic compliance – 2016	419-1	Non-compliance with laws and regulations in the social and economic area	4.6.2 – Compliance and ethics

4.7.7 SASB cross-reference table

SASB – CHEMICALS

Resource Processing Sector, Version 2018-10

The SASB standards were established to help companies better identify, manage, and communicate financially relevant sustainability information to investors. They identify the most relevant environmental, social and governance (ESG) issues for 77 business sectors.

The following cross-reference table has been prepared to provide a better understanding of Arkema's performance against these standards.

		Disclosures		
		Section of this document	CDP questions 2021	Comments
GREENHOUSE GAS EMISSIONS				
RT-CH-110a.1	Gross global Scope 1 emissions	4.4.3.1		
	Percentage covered under emissions-limiting regulations		C11.1b	
RT-CH-110a.2	Discussion of long-term and short-term strategy or plan to manage Scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets	4.4.1		
AIR QUALITY				
RT-CH-120a.1	Air emissions of the following pollutants:			
	NOx (excluding N_2O)	4.5.3.2.1		
	SOx	4.5.3.2.1		
	Volatile organic compounds (VOCs)	4.5.3.2.1		
	Hazardous air pollutants (HAPs)			Not disclosed
ENERGY MANAGEMENT				
RT-CH-130a.1	Total energy consumed	4.4.3.2	C8.2a	Reported in TWh
	Percentage grid electricity	4.4.3.2		
	Percentage renewable	4.4.3.2	C8.2d, C8.2e	
	Total self-generated energy			Not disclosed
WATER MANAGEMENT				
RT-CH-140a.1	Total water withdrawn	4.3.3.2		
	Total water consumed		W1.2b	Partially disclosed
	Percentage of each in regions with High or Extremely High Baseline Water Stress	4.3.3.2		
RT-CH-140a.2	Number of incidents of non-compliance associated with water quality permits, standards, and regulations			Not disclosed
RT-CH-140a.3	Description of water management risks and discussion of strategies and practices to mitigate those risks	4.3.3.2		Partially disclosed
HAZARDOUS WASTE MANAGEMENT				
RT-CH-150a.1	Amount of hazardous waste generated	4.3.3.4		
	Percentage recycled	4.3.3.4		
COMMUNITY RELATIONS				
RT-CH-210a.1	Discussion of engagement processes to manage risks and opportunities associated with community interests	4.1.6 4.6.6 4.5.1.2 4.6.4		

		Disclosures		
		Section of this document	CDP questions 2021	Comments
WORKFORCE HEALTH & SAFETY				
RT-CH-320a.1	Total recordable incident rate (TRIR)	4.5.2.2.1		Reported per million hours worked
	Fatality rate for (a) direct employees and (b) contract employees	4.5.2.2.1		
RT-CH-320a.2	Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks	4.5.1 4.5.2.2		
PRODUCT DESIGN FOR USE-PHASE EFFICIENCY				
RT-CH-410a.1	Revenue from products designed for use-phase resource efficiency	4.2.3		
SAFETY & ENVIRONMENTAL STEWARDSHIP OF CHEMICALS				
RT-CH-410b.1	Percentage of products that contain Globally Harmonized System of Classification and Labeling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances	4.2.4.2		Reported on the basis of SVHC substances subject to REACH authorization or on the REACH candidate list
	Percentage of such products that have undergone a hazard assessment			Not disclosed
RT-CH-410b.2	Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact	4.2.4 4.2.3		
GENETICALLY MODIFIED ORGANISMS				
RT-CH-410c.1	Percentage of products by revenue that contain genetically modified organisms (GMOs)			Not disclosed
MANAGEMENT OF THE LEGAL & REGULATORY ENVIRONMENT				
RT-CH-530a.1	Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry	2.1.2		
OPERATIONAL SAFETY, EMERGENCY PREPAREDNESS & RESPONSE				
RT-CH-540a.1	Process Safety Incidents Count (PSIC)			Not disclosed
	Process Safety Total Incident Rate (PSTIR)	4.5.2.3		
	Process Safety Incident Severity Rate (PSISR)			Not disclosed
RT-CH-540a.2	Number of transport incidents			Not disclosed
ACTIVITY METRICS				
RT-CH-000.A	Production by reportable segment			Not disclosed

4.7.8 Independent third-party opinion pursuant to articles L. 225-102-1 and L. 22-10-36 of the French Commercial Code

Report by one of the Statutory Auditors, appointed as independent third party, on the consolidated non-financial statement

This is a free English translation of the Statutory Auditor's report issued in French and is provided solely for the convenience of English-speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

For the year ended December 31, 2021

To the Annual General Meeting,

In our capacity as Statutory Auditors of your company (hereinafter the "entity") , appointed as independent third party, and accredited by the COFRAC under number 3-1049[1], we have undertaken a limited assurance engagement on the historical financial information (actual or extrapolated) of the consolidated non-financial statement, prepared in accordance with the entity's procedures (hereinafter the "Guidelines"), for the year ended December31, 2021 (hereinafter, respectively, the "Information" and the "Statement"), included in the entity's and the Group's management report pursuant to the requirements of Articles L. 225-102-1, L. 22-10-36, R. 225-105 and R. 225-105-1 of the French Commercial Code (*Code de commerce*).

Conclusion

Based on the procedures performed, as set out in the "Nature and scope of our work" section of this report, and the information collected, nothing has come to our attention that causes us to believe that the Statement is not presented in accordance with the applicable regulatory requirements and that the Information, taken as a whole, is not presented fairly in accordance with the Guidelines, in all material respects.

Preparation of the Statement

The absence of a commonly used generally accepted reporting framework or as established practices on which to draw to evaluate and measure the Information allows for different, but acceptable, measurement techniques that can affect comparability between entities and over time.

Consequently, the Information needs to be read and understood together with the Guidelines, the main elements of which are presented in the Statement.

Inherent limitations in preparing the Information

As discussed in the Statement, the Information may be subject to inherent uncertainty because of incomplete scientific and economic knowledge and the quality of external data used. Some information is sensitive to methodological choices, assumptions and/or estimates used for their preparation and presentation in the Statement.

Responsibility of the entity

The Board of Directors is responsible for:

- Selecting or establishing suitable criteria for preparing the Information;
- Preparing a Statement in accordance with legal and regulatory requirements, including a presentation of the business model, a description of the main extra-financial risks, a presentation of policies applied to mitigate these risks and the outcomes of those policies, including key performance indicators, and the information provided for in Article 8 of Regulation (EU) 2020/852 (the Taxonomy Regulation);
- Implementing internal control over information relevant to the preparation of the Information that is free from material misstatement, whether due to fraud or error.

The Statement was prepared by applying the entity's Guidelines as mentioned previously.

Responsibility of the Statutory Auditor appointed as independent third party

On the basis of our work, our responsibility is to provide a report expressing a limited assurance conclusion on:

- The compliance of the Statement with the requirements of Article R. 225-105 of the French Commercial Code;
- The fairness of the historical financial information (actual or extrapolated) provided in accordance with Article R.225-105-I(3) and II of the French Commercial Code concerning action plans and policy outcomes, including the key performance indicators on the main risks.

(1) Accreditation Cofrac Inspection, number 3-1049, scope available at www.cofrac.fr

As it is our responsibility to provide an independent conclusion on the Information as prepared by Management, we are not authorised to help prepare said Information, as that could compromise our independence.

However, it is not our responsibility to comment on:

- The entity's compliance with other applicable legal and regulatory requirements (in particular, the disclosures provided for in Article 8 of Regulation (EU) 2020/852 (the Taxonomy Regulation), the French duty of care law and anti-corruption and tax avoidance legislation);
- The fairness of the disclosures provided for in Article 8 of Regulation (EU) 2020/852 (the Taxonomy Regulation);
- The compliance of products and services with the applicable regulations.

Regulatory provisions and applicable professional guidance

We performed our work described below in accordance with the provisions of Articles A. 225 1 and following of the French Commercial Code, the professional guidance issued by the French Institute of Statutory Auditors (Compagnie nationale des commissaires aux comptes) relating to this engagement and International Standard on Assurance Engagements 3000 (Revised)[1].

Our independence and quality control

Our independence is defined by the provisions of Article L. 822-11-3 of the French Commercial Code and the French Code of Ethics (Code de déontologie) for statutory auditors. Our firm maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with applicable legal, regulatory and ethical requirements and the professional guidance issued by the French Institute of Statutory Auditors relating to this engagement.

Means and resources

Our work was carried out by a team of six people between September 2021 and February 2022 and took a total of ten weeks.

We were assisted in our work by our specialists in sustainable development and corporate social responsibility. We conducted about ten interviews with the people responsible for preparing the Statement.

Nature and extent of the work

We planned and performed our work to address the areas where we identified that a material misstatement of the Information was likely to arise.

We believe that the work carried out, based on our professional judgement, is sufficient to provide a basis for our limited assurance conclusion:

- We obtained an understanding of all the consolidated entities' activities, and the description of the principal risks associated;
- We assessed the suitability of the criteria of the Guidelines with respect to their relevance, completeness, reliability, neutrality and understandability, with due consideration of industry best practices, where appropriate;
- We verified that the Statement includes each category of social and environmental information set out in article L. 225-102-1 III, as well as the information provided in the paragraph 2 of the Article L. 22-10-36 regarding compliance with human rights and anti-corruption and tax avoidance legislation;
- We verified that the Statement provides the information required under article R. 225-105 II of the French Commercial Code, where relevant with respect to the principal risks, and includes, where applicable, an explanation for the absence of the information required under article L. 225-102-1 III, paragraph 2 of the French Commercial Code;
- We verified that the Statement presents the business model and a description of principal risks associated with all the consolidated entities' activities, including where relevant and proportionate, the risks associated with their business relationships, their products or services, as well as their policies, measures and the outcomes thereof, including key performance indicators associated to the principal risks;
- We referred to documentary sources and conducted interviews to:
  - assess the process used to identify and confirm the principal risks as well as the consistency of the outcomes, including the key performance indicators used, with respect to the principal risks and the policies presented;
  - corroborate the qualitative information (measures and outcomes) that we considered to be the most important presented in Appendix. Concerning certain risk[2], our work was carried out on the consolidating entity, for the other risks, our work was carried out on the consolidating entity and on a selection of entities[3].

(1) ISAE 3000 (Revised) - Assurance Engagements Other Than Audits or Reviews of Historical Financial Information

(2) Ethics and compliance, including those relating to the fight against corruption; Human rights; Failure of suppliers and subcontractors in social and environmental issues; Scarcity of non-renewable resources; Exposure to chemicals.

(3) Arkema France, of which Jarrie, Marseille, Mont and Saint-Auban sites (France); Arkema Inc., of which Bayport American Acryl, Calvert City, Franklin, Memphis and West Chester (USA); Casda Ltd. (China).

- We verified that the Statement covers the scope of consolidation, i.e. all the consolidated entities in accordance with article L. 233-16 of the French Commercial Code, within the limitations set out in the Statement;
- We obtained an understanding of internal control and risk management procedures the entity has put in place and assessed the data collection process to ensure the completeness and fairness of the Information;
- For the key performance indicators and other quantitative outcomes that we considered to be the most important, as presented in Appendix, we implemented:
  - analytical procedures to verify the proper consolidation of the data collected and the consistency of any changes in those data;
  - tests of details, using sampling techniques, in order to verify the proper application of the definitions and procedures and reconcile the data with the supporting documents. This work was carried out on a selection of contributing entities[1] and covers between 15% and 100% of the consolidated data selected for these tests;

We assessed the overall consistency of the Statement based on our knowledge of all the consolidated entities.

The procedures performed in a limited assurance engagement are less in extent than for a reasonable assurance engagement performed in accordance with the professional guidance issued by the French Institute of Statutory Auditors; a higher level of assurance would have required us to carry out more extensive procedures.

Paris-La Défense, on February 23, 2022

KPMG S.A.

Anne Garans	Eric Dupré
Partner	*Partner*
Sustainability Services	

(1) Arkema France, of which Jarrie, Marseille, Mont and Saint-Auban sites (France); Arkema Inc., of which Bayport American Acryl, Calvert City, Franklin, Memphis and West Chester (USA); Casda Ltd. (China)

Appendix

Qualitative information (actions and results) considered most important
Actions in favor of innovation
Actions to control the environmental footprint
Employee well-being assessment systems
Talent attraction and retention systems
Actions undertaken that have contributed to improving the Group's environmental performance
Measures taken in favor of Human Rights
Code of business conduct and ethics alert system
Training on responsible purchasing

Key performance indicators and other quantitative results considered most important
Total headcount as at 31 December and breakdown by age, gender and geographical area
Percentage of women in senior management and executive positions
Average number of training hours per employee per year
Percentage of non-French nationals in senior management and executive positions
Equal pay between men and women
Percentage of employees benefiting from personnel representation and/or trade union representation
Percentage of employees benefiting from regular medical check-ups
Total Recordable Injury Rate (TRIR)
Lost Time Injury Rate (LTIR)
Process Safety Event Rate (PSER)
Percentage of AIMS (Arkema Integrated Management System) audited sites
Net purchases of energy
Volatile Organic Compounds emissions (VOC)
Total water withdrawn
Chemical Oxygen Demand (COD)
Percentage of recycled waste (hazardous + non-hazardous)
Scope 1 and Scope 2 GHG emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol
Indirect greenhouse gas emissions (Scope 3 – Categories 1, 3, 4, 5, 9, 12)
Percentage of sales from products made from renewable raw materials
Percentage of patent applications filed during the year relating to sustainable development
Percentage of ImpACT+ sales
Percentage of sales covered by life cycle assessment
Percentage of purchasing spend from relevant suppliers covered by a TfS assessment
Percentage of suppliers representing 82% of Scope 3, Category 1 emissions that have set Science-Based Targets (SBTs) on their Scopes 1 and 2 by 2025

4.7.9 Contacts

See section 8.2 of this document.

FINANCIAL AND ACCOUNTING INFORMATION

5

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

5.1 Comments and analysis on the consolidated financial statements

This section should be read jointly with the notes to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter, and in particular with the accounting policies described in the various notes.

All figures contained in this section are provided on a consolidated basis and in accordance with the Group's organization into four business segments.

5.1.1 Indicators used in management analysis

The main alternative performance indicators used by the Group are defined in note 4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter.

When analyzing changes in its results, and more particularly changes in its sales, the Group identifies the impact of the following effects (such analysis is unaudited):

- **scope effect**: the scope effect corresponds to the impact of changes in the Group's scope of consolidation, which arise from acquisitions and divestments of entire businesses, or as a result of the first-time consolidation or deconsolidation of entities. Increases or reductions in capacity are not included in the scope effect;
- **currency effect**: the currency effect corresponds to the mechanical impact of consolidating accounts denominated in currencies other than the euro at different exchange rates from one period to another. The currency effect is calculated by applying the foreign exchange rates of the prior period to the figures for the period under review;
- **price effect**: the impact of changes in average selling prices is estimated by comparing the weighted average net unit selling price of a range of related products in the period under review with their weighted average net unit selling price in the prior period, multiplied, in both cases, by the volumes sold in the period under review; and
- **volume effect**: the impact of changes in volumes is estimated by comparing the quantities delivered in the period under review with the quantities delivered in the prior period, multiplied, in both cases, by the weighted average net unit selling price in the prior period.

5.1.2 Impact of seasonality

Due to the standard pattern of its business, the Group is exposed to seasonal effects. For example:

- demand for products manufactured by the Group is generally weaker around February in China due to Chinese New Year, as well as in the summer months and in December, notably as a result of the slowdown in industrial activity during these months, particularly in France and Europe;
- in some of the Group's businesses, particularly those serving the paint and coatings as well as the refrigeration and air-conditioning markets, sales are generally higher in the first half of the year than in the second half. By contrast, in adhesives, both halves of the year are more balanced; and
- major multi-annual maintenance turnarounds at the Group's production plants, which are generally carried out in the second half of the year, also have an impact on seasonality.

These seasonal effects observed in the past are not necessarily representative of future trends, but can have a material effect on changes in results and working capital from one quarter of the year to the next. In view of the highly exceptional circumstances of the Covid-19 health crisis, the seasonal effects described above may also be impacted by the consequences of the pandemic.

5.1.3 Impact of changes to accounting standards

Changes to accounting standards and any related impacts are disclosed in note 2 "Accounting policies and new standards" to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter.

5.1.4 Description of the main factors which affected sales and results in the period

After a 2020 marked by the emergence of Covid and the resulting major global economic crisis, the pandemic continued to spread in 2021, as new, more contagious variants emerged that led to the re-introduction of lockdown restrictions in some countries. However, the economic rebound that began in late 2020 was confirmed in 2021, and Arkema was able to take advantage of strong growth in most of its end markets and of accelerating demand for sustainable, high performance solutions, particularly in the first half of the year. In this environment of solid growth in volumes, supply chains have been put under pressure, leading to disruptions relating to the unavailability of certain raw materials or logistics resources, as well as very high price inflation in raw materials, energy and transportation.

In this complex and demanding operating environment, Arkema delivered an excellent financial performance in 2021, posting strong earnings growth and a 46.1% year-on-year rise in EBITDA up to a historic high, led by Specialty Materials which accounted for 85.5% of Group sales in 2021.

A number of factors contributed in varying degrees to this financial performance, notably:

- the rebound in global economic activity which was confirmed despite the persistence of the Covid pandemic, with lockdown restrictions limited thanks to the widespread vaccination campaigns. This generated a solid level of demand in most of the Group's end markets, particularly in the first half of the year;
- very high inflation in raw materials, logistics and energy costs, amid solid demand and marked supply chain tensions, which intensified as the year progressed but was globally offset by the Group's ongoing initiatives to increase selling prices;
- Adhesive Solution's very solid performance despite the shortage of certain raw materials in the second half of the year and a raw materials environment up sharply. Bostik posted a year-on-year increase of more than 20% in EBITDA and of 80 bps in the EBITDA margin to nearly 14% for 2021, despite the nearly 100 bps dilutive effect of price increases on this ratio. This performance reflects the rise in selling prices, the improved product mix focused on higher value-added solutions, the benefits of operational excellence initiatives, and the contribution of acquisitions. In that respect, the Group announced in August 2021 the acquisition of the performance adhesives business of Ashland, a leading manufacturer of high performance adhesive solutions in the United States offering significant synergies with Bostik. This acquisition closed on 28 February 2022. Arkema also completed two smaller bolt-on acquisitions, with Poliplas in the Brazilian construction market and with Edge Adhesives in Texas in the residential building market, and recently announced the acquisition of Permoseal, a leader in adhesive solutions for woodworking, packaging, construction and DIY in South Africa;
- the very sharp increase in volumes and the favorable shift in the product mix of High Performance Polymers, which benefited in particular from accelerating demand for sustainable, high performance solutions in line with global megatrends, notably in batteries, bio-based products, sports and water filtration, while the automotive market, impacted by chip shortages, remained down. In this context, the Group announced new sustainable growth projects in 2021, notably in PVDF with a 50% increase in production capacity at Pierre Bénite in 2023 and at Changshu at the end of 2022 for the fast-growing battery, specialty coatings, water filtration and semiconductor markets. The Group also plans to invest in Serquigny to increase its global Pebax capacity by 25% to serve the demanding sports and consumer goods markets, with the start-up scheduled for mid-2023;
- an excellent year for the Coating Solutions segment, which doubled its EBITDA and reached an EBITDA margin of 19%. Moreover, in a context of solid demand, the Group benefited from tightness in upstream acrylics and was also able to increase prices in its downstream activities and offset the sharp rise of the upstream. This performance also reflects the improvement in the product mix towards more environmentally friendly solutions such as water-based and bio-based paints, powder coatings and UV-curable resins. In this area, the Group announced plan in 2021 to double its Sartomer® photocure resins capacity in Asia in 2023 to support the accelerating demand for cutting-edge solutions in electronics and in renewable energies;
- moderate volume growth in Performance Additives, where demand remained lower in the oil and gas and paper markets;
- EBITDA growth in the Intermediates segment despite the negative €90 million scope effect resulting from the divestment of PMMA on 3 May 2021 and of Functional Polyolefins on 1 June 2020, reflecting favorable market conditions in acrylics in Asia compared with the low level of previous years and a solid performance in Fluorogases;
- the depreciation of the US dollar against the euro, with an average euro-dollar exchange rate over the year of 1.18 in 2021 *versus* 1.14 in 2020, resulting in a negative 1.1% currency effect on sales;
- continued high cash generation, with €756 million in recurring cash flow, stable compared with 2020, taking into account the increase in working capital in a context of strong demand and a sharp rise in raw material prices. However, working capital remained well controlled at 12.7% of annual sales; and
- a sharp reduction in net debt to €1.177 billion including hybrid bonds, *i.e.*, 0.7 times 2021 EBITDA.

5.1.5 Group income statement analysis

(In millions of euros)	2021	2020	Change
Sales	**9,519**	**7,884**	**+20.7%**
Operating expenses	(7,376)	(6,336)	+16.4%
Research and development expenses	(243)	(241)	+0.8%
Selling and administrative expenses	(784)	(745)	+5.2%
Other income and expenses	617	38	
Operating income	**1,733**	**600**	**+188.8%**
Equity in income of affiliates	(1)	(2)	
Financial result	(56)	(85)	-34.1%
Income taxes	(369)	(178)	+107.3%
Net income	**1,307**	**335**	**+290.1%**
Net income attributable to non-controlling interests	(2)	3	
Net income – Group share	**1,309**	**332**	**+294.3%**
EBITDA	**1,727**	**1,182**	**+46.1%**
Recurring operating income (REBIT)	**1,184**	**619**	**+91.3%**
Adjusted net income	**896**	**391**	**+129.2%**

Sales

At €9,519 million, sales were up 20.7% compared with the prior year, and up 25.9% at constant scope and currency. In a market environment that recovered significantly after 2020, a year marked by a health and economic crisis, volumes rose by 7.3%, with the Group leveraging the acceleration of demand for high performance, sustainable materials. Thus, Arkema benefited from its cutting-edge innovation and its positioning on solutions that have a high technological content or that are more environmentally friendly in the battery, consumer goods, decorative paints, electronics and 3D printing markets. Certain markets which are more minor for Arkema like oil and gas and paper were down year-on-year, as was the automotive sector, impacted by chip shortages. The price effect came in at +18.6%, reflecting both the adaptation of selling prices throughout the year in the face of high raw materials, energy and logistics cost inflation, and much more favorable market conditions in upstream acrylics relative to the low level of 2020. The 4.1% negative scope effect relates to the divestments of PMMA, finalized on 3 May 2021, and Functional Polyolefins, completed in June 2020, which were partly offset by acquisitions in Specialty Materials. The currency effect was limited over the year (-1.1%).

The share of Specialty Materials increased to 85.5% of total group sales in 2021 (82% in 2020).

Lastly, the evolution in the geographic breakdown of sales reflects the growing importance of Asia, as well as the impact of logistics disruptions and the divestment of PMMA in the United States. Accordingly, North America accounted for 31% of Group sales in 2021 *versus* 33% in 2020, Asia and the rest of the world represented 33% *versus* 31% in 2020, and Europe remained stable at 36%.

EBITDA, recurring operating income and operating income

The Group's EBITDA rose by 46.1% year-on-year to €1,727 million – a historic high – despite a negative scope effect of around €75 million, mainly related to divestments in Intermediates. All segments reported a significant improvement in their results, reflecting higher volumes in attractive markets, the Group's capacity to pass on higher raw materials and energy costs, the shift in the product mix toward higher value-added solutions and favorable market conditions in upstream acrylics. In this predominantly favorable environment, the EBITDA margin improved by more than 300 bps compared with 2020 to reach its historic high at 18.1%.

Recurring operating income (REBIT) was up by more than 90% to €1,184 million, and the REBIT margin improved by 450 bps to 12.4%. Recurring depreciation and amortization amounted to €543 million, down €20 million year-on-year, essentially due to the divestment of PMMA.

Operating income for the year amounted to €1,733 million (€600 million in 2020), and includes:

- operating expenses of €7,376 million, up around 16% from €6,336 million in 2020, mainly reflecting the very sharp rise in raw material costs and the improvement in volumes in the context of a rebound in business, partially offset by a favorable scope effect resulting mainly from the divestment of PMMA and, to a lesser extent, by a favorable currency effect. Operating expenses include €68 million in depreciation and amortization resulting from the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses, up €11 million from 2020, mainly due to the full-year impact of 2020 bolt-on acquisitions and the additional contribution of new acquisitions;

- research and development expenses of €243 million, representing 2.6% of Group sales in the context of high inflation (€241 million in 2020);
- selling and administrative expenses which stood at €784 million compared with €745 million in 2020, up €39 million following cost-cutting initiatives in the context of the pandemic in 2020, mainly reflecting the business recovery and inflation, along with favorable scope and currency effects.

Lastly, operating income included other income and expenses representing a net income of €617 million. This amount includes in particular the capital gain on the divestment of PMMA totaling €956 million before tax and deduction of divestment costs, impairment of assets and goodwill, mainly in the Hydrogen Peroxide and Fluorogases businesses, for €206 million, acquisition costs linked to significant portfolio management operations during the year, restructuring and environmental costs of €37 million, as well as the consequences of winter storm Uri in Texas in the first quarter of 2021.

In 2020, other income and expenses, representing net income of €38 million, corresponded to (i) the €235 million pre-tax gain relating to the divestment of the Functional Polyolefins business, (ii) impairments linked to tests performed in the context of Covid-19, including €69 million in write-downs of goodwill, mainly in the Intermediates segment, and €42 million on a limited number of property, plant and equipment and intangible assets, (iii) restructuring charges totaling €37 million, mainly in the Adhesive Solutions segment and Fluorogases in Asia, (iv) M&A-related expenses of €20 million corresponding to the planned divestment of PMMA and various acquisitions in the Adhesive Solutions segment, and (v) expenses related to the consequences of Hurricane Harvey in the United States.

Financial result

The financial result represented a net expense of €56 million, down €29 million compared with 2020. This year-on-year change is primarily due to a more favorable interest rate on the portion of the Group's debt swapped into US dollars and, to a lesser extent, to the refinancing, at favorable market conditions, of the €480 million senior bond that matured in April 2020.

Income taxes

Income taxes represented a net expense of €369 million *versus* a net €178 million expense in 2020. This increase was mainly due to the automatic increase in the tax amount relating to the increase in the Group's operating income, as well as the capital gains tax on the divestment of PMMA. Excluding exceptional items, the tax rate amounted to 20% of recurring operating income, close to the 2020 tax rate. In 2022, the Group's tax rate excluding exceptional items should amount to around 21% of recurring operating income.

At end-2021, unrecognized deferred tax assets amounted to €506 million.

Net income Group share and adjusted net income

Consequently, net income – Group share totaled €1,309 million (€332 million in 2020).

Excluding the post-tax impact of non-recurring items, adjusted net income amounted to €896 million *versus* €391 million in 2020, *i.e.*, €11.88 per share (€5.11 per share in 2020).

5

5.1.6 Analysis of results by business segment

5.1.6.1 Adhesives Solutions segment

(In millions of euros)	**2021**	2020	Change
Sales	**2,278**	**1,996**	**+14.1%**
EBITDA	**316**	**261**	**+21.1%**
EBITDA margin	***13.9%***	***13.1%***	
Recurring operating income (REBIT)	**250**	**198**	**+26.3%**
REBIT margin	*11.0%*	*9.9%*	
Other income and expenses	(53)	(42)	
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(48)	(35)	
Operating income	**149**	**121**	**+23.1%**

Sales in the Adhesive Solutions segment totaled €2,278 million, up 14.1% compared with 2020. Volumes grew by 5.4%, benefiting from robust demand in the construction and DIY market, as well as the post-Covid business recovery in high performance industrial applications, but they were impacted in the second half of the year by shortages of several important raw materials. The price effect, which grew constantly throughout the year, was a positive 5.4% and reflects the Group's ongoing actions to pass on high inflation in raw materials. The 4.1% positive scope effect corresponds to the integration of Fixatti, Ideal Work, Poliplas and Edge Adhesives Texas and the currency effect was a negative 0.8%.

EBITDA for the segment rose by 21.1% compared with 2020 to €316 million, driven by positive sales momentum, the shift in the product mix toward higher value-added applications and the contribution of acquisitions, with the impact of higher raw materials costs progressively offset by price increase initiatives. In this context, the EBITDA margin expanded by 80 bps compared with 2020 to 13.9%, in line with the guidance of 14% announced in early 2021, which constitutes a good performance, particularly given the mechanical dilutive impact of price increases on this ratio of around 100 bps for the year.

In line with EBITDA, recurring operating income (REBIT) amounted to €250 million (*versus* €198 million in 2020). This figure includes €66 million in recurring depreciation and amortization, a slight rise on 2020 (€63 million) owing to the consolidation of bolt-on acquisitions.

Operating income amounted to €149 million (€121 million in 2020) and included (i) €48 million in depreciation and amortization expense related to asset revaluations carried out as part of the allocation of the purchase price of businesses, and (ii) €53 million in other expenses, mainly corresponding to restructuring and acquisition costs.

5.1.6.2 Advanced Materials segment

(In millions of euros)	2021	2020	Change
Sales	**3,087**	**2,527**	**+22.2%**
EBITDA	**662**	**496**	**+33.5%**
EBITDA margin	***21.4%***	***19.6%***	
Recurring operating income (REBIT)	**408**	**245**	**+66.5%**
REBIT margin	*13.2%*	*9.7%*	
Other income and expenses	(181)	(31)	
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(15)	(16)	
Operating income	**212**	**198**	**+7.1%**

Sales in the Advanced Materials segment rose by a strong 22.2% compared with 2020 to €3,087 million. Volumes were up by a significant 10.3% compared with the prior year, driven by High Performance Polymers, which benefited from a strong dynamic in most end markets, despite a decline in the automotive sector, and from the acceleration in demand for high performance, sustainable solutions, particularly in batteries, bio-based consumer goods, sports and water filtration. Volume growth was more moderate in Performance Additives, where demand remained lower in the oil and gas and paper markets. The 12.8% increase in prices reflects both the actions taken to increase selling prices in the context of marked raw materials, energy and logistics cost inflation, and product mix improvement toward high performance, higher value-added solutions. The scope effect was a positive 0.2%, corresponding to the integration of Agiplast, finalized on 1 June 2021, and the currency effect was a negative 1.1%.

In this context, the segment's EBITDA amounted to €662 million, up by 33.5% year-on-year, supported notably by the excellent year of High Performance Polymers. The EBITDA margin increased to 21.4%, compared with 19.6% in 2020.

Recurring operating income (REBIT) came to €408 million *versus* €245 million in 2020. This figure includes €254 million in recurring depreciation and amortization, virtually stable compared with 2020.

Operating income was up by 7.1% to €212 million from €198 million in 2020. This figure includes €181 million in net other expenses, corresponding mainly to the impairment of assets and goodwill in the Hydrogen Peroxide business, as well as costs related to portfolio management operations, and in particular the divestment of Epoxides. It also includes €15 million in depreciation and amortization related to the revaluation of assets carried out as part of the allocation of the purchase price of businesses, virtually stable compared with 2020.

5.1.6.3 Coating Solutions segment

(In millions of euros)	2021	2020	Change
Sales	**2,746**	**1,911**	**+43.7%**
EBITDA	**525**	**261**	**+101.1%**
EBITDA margin	***19.1%***	***13.7%***	
Recurring operating income (REBIT)	**407**	**142**	**+186.6%**
REBIT margin	*14.8%*	*7.4%*	
Other income and expenses	(13)	(3)	
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(5)	(6)	
Operating income	**389**	**133**	**+192.5%**

Sales in the Coating Solutions segment were up sharply by 43.7% to €2,746 million. Volumes grew by 8.1%, driven by robust demand across all of the segment's key markets, namely decorative paints, 3D printing, industrial coatings, graphic arts and electronics. The positive 37.6% price effect reflects the necessary price increases implemented for downstream products to offset very high raw materials and energy inflation, and the significant tightness of upstream acrylics. The currency effect reduced segment sales by 2.0%.

At €525 million, EBITDA doubled and the EBITDA margin reached the high level of 19.1% (13.7% in 2020), benefiting from the growth and product mix improvement linked to strong demand for more environmentally friendly solutions such as water-based and bio-based paints, powder coatings and UV-curable resins, as well as more favorable conditions in upstream acrylics.

Recurring operating income (REBIT) totaled €407 million (€142 million in 2020). It includes virtually stable recurring depreciation and amortization of €118 million (€119 million in 2020).

Operating income amounts to €389 million (€133 million in 2020) and includes €13 million in net other expenses, corresponding mainly to the consequences of winter storm Uri in the United States. It also includes a €5 million expense related to the revaluation of assets carried out as part of the allocation of the purchase price of businesses.

5.1.6.4 Intermediates segment

(In millions of euros)	2021	2020	Change
Sales	**1,378**	**1,425**	**-3.3%**
EBITDA	**316**	**231**	**+36.8%**
EBITDA margin	***22.9%***	***16.2%***	
Recurring operating income (REBIT)	**219**	**109**	**+100.9%**
REBIT margin	*15.9%*	*7.6%*	
Other income and expenses	875	157	
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	-	-	
Operating income	**1,094**	**266**	**+311.3%**

At €1,378 million, sales in the Intermediates segment were down 3.3% compared with the prior year, impacted by a negative scope effect of 29.1% corresponding to the PMMA divestment finalized in May 2021 and the Functional Polyolefins divestment on 1 June 2020. The positive 22.1% price effect was attributable to much more favorable market conditions for acrylics in Asia compared with the low level of the previous years, and to a solid performance in Fluorogases. Volumes rose by 3.6% over the year, driven by higher demand post-Covid, but held back in the second half for acrylics in Asia following Chinese authorities' measures aimed at limiting energy consumption.

In this context of a buoyant market, and despite a negative scope effect of around €90 million, segment EBITDA increased by 36.8% to €316 million and the EBITDA margin improved to 22.9% (16.2% in 2020).

Recurring operating income (REBIT) came in at €219 million (€109 million in 2020), in line with EBITDA, and includes recurring depreciation and amortization of €97 million (€122 million in 2020), mainly reflecting the divestment of the PMMA business.

Operating income was up sharply to €1,094 million (€266 million in 2020), benefiting from the €956 million gain on the divestment of PMMA before tax and deduction of divestment costs. Other income and expenses also include impairment charged against assets in the Fluorogases business and against a receivable relating to Canada Fluorspar (CFI).

5.1.7 Group cash flow analysis

(In millions of euros)	2021	2020
Cash flow from operating activities	915	1,115
Cash flow used in investing activities	473	(458)
Net cash flow	**1,388**	**657**
Of which net cash flow from portfolio management operations	909	6
Free cash flow	**479**	**651**
Of which exceptional capital expenditure	(252)	(140)
Of which non-recurring cash flow	(25)	29
Recurring cash flow	**756**	**762**
Cash flow from/(used in) financing activities	**(652)**	**(535)**

EBITDA can be reconciled to free cash flow as follows:

(In millions of euros)	2021	2020
EBITDA	**1,727**	**1,182**
Taxes	(233)	(121)
Cash items included in the financial result	(52)	(75)
Change in working capital (1)	(319)	196
Change in fixed asset payables (2)	81	16
Recurring capital expenditure	(506)	(460)
Other	58	24
Recurring cash flow	**756**	**762**
Exceptional capital expenditure	(252)	(140)
Non-recurring cash flow	(25)	29
Free cash flow	**479**	**651**

(1) Excluding flows related to non-recurring items and portfolio management operations, representing a net cash inflow of €29 million in 2021, attributable mainly to impairment recognized against a Canada Fluorspar NL (CFI) receivable (net cash inflow of €5 million in 2020).

(2) Excluding flows related to non-recurring items and portfolio management operations, representing a net cash outflow of €3 million in 2021 (net outflow of €3 million in 2020).

Net cash flow, free cash flow and recurring cash flow

In 2021, net cash flow represented a net inflow of €1,388 million (*versus* €657 million in 2020), and included net cash inflow of €909 million from portfolio management operations. Net cash flow from portfolio management operations mainly included proceeds from the divestments of PMMA and the epoxides businesses, as well as the bolt-on acquisitions of Poliplas, Edge Adhesives Texas and Agiplast. In 2020, this figure came to €6 million and notably included the divestment of the Functional Polyolefins business.

Consequently, free cash flow, corresponding to net cash flow excluding the impact of portfolio management operations, totaled €479 million for the year (€651 million in 2020), and includes recurring cash flow of €756 million and non-recurring items representing a net cash outflow of €277 million.

Recurring cash flow was stable year on year at €756 million (€762 million in 2020) and reflects:

- the Group's improved operating performance in 2021;
- a €319 million increase in working capital in 2021, in the context of a strong rebound in business and significant raw materials inflation (€196 million decrease in 2020 in the context of the pandemic);
- an increase in taxes paid, in line with the improved Group's operating performance;
- recurring capital expenditure of €506 million (€460 million in 2020); and
- a decrease in the cost of debt compared to 2020, primarily due to an improvement in the interest rate of the portion of Group debt swapped into US dollars and, to a lesser extent, to the refinancing, at favorable market conditions, of the €480 million senior bond that matured in April 2020.

The EBITDA to cash conversion rate, now calculated based on recurring cash flow, thus amounted to 43.8%, in line with the Group's long-term objective of 40%.

Exceptional items represented a net cash outflow of €277 million (net cash outflow of €111 million in 2020), primarily reflecting the ramp-up of exceptional capital expenditure corresponding to the bio-based polyamides project in Asia and the hydrogen fluoride supply project with Nutrien in the United States (€252 million in 2021 compared with €140 million in 2020). It also include a net non-recurring cash outflow of €25 million essentially relating to restructuring costs and the consequences of storm Uri in the United States (net cash inflow of €29 million in 2020, including in particular an inflow of €55 million in tax savings further to the utilization of tax losses).

CAPITAL EXPENDITURE OVER THE PAST THREE YEARS

(In millions of euros)	2021	2020	2019
Total intangible assets and property, plant and equipment additions	**763**	**605**	**635**
Of which recurring capital expenditure	*506*	*460*	*511*
Recurring capital expenditure as a% of Group sales	*5.3%*	*5.8%*	*5.8%*
Of which exceptional capital expenditure	*252*	*140*	*96*

Capital expenditure in 2021

Total capital expenditure amounted to €763 million on the year (€605 million in 2020), of which €506 million was recurring and €252 million was exceptional as described above.

Recurring capital expenditure corresponded mainly to:

- growth projects, including the 50% increase in PVDF production capacity at the Changshu site and the Sartomer® photocure resins capacity doubling in Asia; and
- investments in plant maintenance, safety and the environment totaling €280 million and representing 55% of recurring capital expenditure.

This recurring capital expenditure represented the equivalent of 5.3% of Group sales in 2021. This level of capital expenditure is in line with Arkema's target of controlling its capital intensity tightly and to spend, on average, around 5.5% of sales in recurring capital expenditure each year.

For the year as a whole, recurring and exceptional capital expenditure amounted to €758 million, in line with the Group's guidance of €750 million. In 2022, Arkema estimates that recurring capital expenditure should come to around 5.5% of Group sales and that the ongoing exceptional capital expenditure should come to an end with an amount of around €130 million.

For further details, see note 4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Capital expenditure over the period from 2019 to 2021

Over the past three years, Arkema's recurring capital expenditure has averaged €492 million per year, focused on (i) facility maintenance, safety and environmental protection as well as information technology, accounting for approximately 65% of the total, and (ii) industrial development and R&D projects, including productivity improvements of existing facilities, accounting for approximately 35%.

Over the period, 52% of total capital expenditure in property, plant and equipment and intangible assets was made in the Advanced Materials segment, 19% in the Intermediates segment, 15.5% in the Coating Solutions segment, 10.5% in the Adhesive Solutions segment, and 3% on corporate projects. The breakdown of capital expenditure by region was 41% in Europe, 28% in North America, 30% in Asia and 1% in the rest of the world.

Arkema's main capital expenditure for development projects started over the past three years were:

2019	Coating Resins	New polyester resin production unit opened at Navi Mumbai (India) in the first quarter.
	High Performance Polymers	New PEKK Kepstan® unit at the Mobile site (United States) started up in the second quarter.
	Performance Additives	30% capacity increase of photocure liquid resin production in Nansha (China), started up in the second quarter.
	High Performance Polymers	Increase of more than 50% in the Group's global production capacity of Orgasol® specialty polyamide powders at the Mont facility in France, started up in the third quarter.
	Acrylic Monomers	New reactor with an annual capacity of 90,000 tonnes of acrylic acid to replace two end-of-life reactors with annual capacities of 45,000 tonnes each at Clear Lake in the United States.
2020	Performance Additives	Doubling of methyl mercaptan production capacity at the Kerteh site in Malaysia, started up in the first quarter.
	Adhesive Solutions	New world-scale industrial adhesives plant in Japan, as part of the Bostik-Nitta joint venture, in which the Group holds an 80% interest, started up in the third quarter.
	High Performance Polymers	50% increase in Kynar® fluoropolymer production capacity dedicated to the lithium-ion battery business at its Changshu plant in China, started up at the end of the year.
	High Performance Polymers	25% increase in polyamide 12 production capacity at the Changshu site in China.
2021		No significant start-ups.

Capital expenditure financing

The Group's capital expenditure is primarily funded by the cash resources that Arkema generates during the year. The Group may also use the credit resources detailed in notes 11.3 and 12.2 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter.

Cash flow from financing activities

Cash flow from financing activities represented a net outflow of €652 million over the year, primarily including an outflow of €329 million corresponding to the cost of share buybacks, particularly as part of the €300 million buyback program announced in May 2021 and completed on 24 November, payment of the 2020 dividend of €2.50 per share for a total amount of €191 million, and €15 million in interest paid on hybrid bonds.

Cash flow from financing activities represented a net outflow of €535 million in 2020. This figure primarily included the proceeds from the €300 million green bond issue dedicated to the financing of the bio-based polyamide plant in Singapore, the reimbursement of the €480 million senior debt and the payment of the 2019 dividend, which was limited to €2.20 per share in the context of the pandemic, representing an aggregate €168 million. The cost of share buybacks was €25 million for the year, and interest paid on the Group's €300 million and €400 million hybrid bonds amounted to €28 million.

5.1.8 Financing sources

5.1.8.1 Borrowing terms and conditions and the Group's financing structure

The Group has diversified financing resources including bond issues, multi-currency credit facilities and a negotiable commercial paper program, as detailed below. At the date of this document and without taking into account the issues of perpetual hybrid bonds completed in 2019 and 2020 and classified as equity, these resources amounted to €3,550 million.

Bond issues

As part of the Group's long-term financing policy aimed at diversifying its financing resources as well as extending the maturity of its debt, the Company regularly carries out bond issues, five of which are outstanding at the date of this document:

- on 6 December 2013, a bond issue for €150 million over ten years with a 3.125% interest rate;
- on 20 January 2015, a bond issue for €700 million over ten years with a 1.5% interest rate;
- on 11 April 2017, a bond issue for €700 million over ten years with a 1.5% interest rate and on 23 June 2017, the issue of an additional €200 million tranche, bringing the total of the bond issue to €900 million;
- on 3 December 2019, a bond issue for €500 million over ten years with a 0.75% interest rate; and
- on 14 October 2020, a green bond issue for €300 million over six years with a 0.125% interest rate.

Since 2013, bond issues have been part of the Euro Medium Term Notes ("EMTN") program put in place by the Group in 2013 in order to gain easier access to the bond markets and renewed each year since, most recently in April 2021. The prospectus for this program and for its renewal was filed with the AMF under no. 13–535 on 9 October 2013, and under no. 21–114 on 21 April 2021, respectively. The prospectus includes the usual bond default cases, in particular non-payment, early repayment subsequent to non-payment, insolvency proceedings, or cessation of activity of the issuer or a major subsidiary. These default cases may be conditional upon thresholds being exceeded or grace periods expiring.

Furthermore, all five bond issues are accompanied by an early repayment option at the bondholders' request in the event of a change of control of Arkema also involving a downgrading of its credit rating to non-investment grade, or a simple downgrading thereof if it was non-investment grade prior to the change of control.

The Company has also issued perpetual hybrid bonds, of which two tranches remained outstanding at the date of this document:

- perpetual hybrid bonds issued on 17 June 2019 for €400 million. These bonds have a first call option that can be exercised by Arkema between 17 June 2024 and 17 September 2024 and carry an annual coupon of 2.75% until 17 September 2024 (provided they are not redeemed before that date). The coupon will then be reset every five years. The prospectus for this issue, which is part of the Group's EMTN program, was filed with the AMF on 12 June 2019 under no. 19–257; and
- perpetual hybrid bonds issued on 21 January 2020 for €300 million. These bonds have a first call option that can be exercised by Arkema between 21 October 2025 and 21 January 2026 and carry an annual coupon of 1.5% until 21 January 2026 (provided they are not redeemed before that date). The coupon will then be reset every five years. The prospectus for this issue was filed with the AMF on 17 January 2020 under no. 20–015.

All of these bonds are subordinated to any senior debt and are accounted for as equity in accordance with IFRS rules. They are treated as equity for 50% of their amount by rating agencies Standard & Poor's and Moody's. At the date of this document, they are rated BBB- by Standard & Poor's and Baa3 by Moody's.

Further details may be found in the EMTN program base prospectus and in the above-mentioned prospectuses, all of which are available on the Company's website www.arkema.com/global/en/investor-relations/ in the "Debt and ratings" section.

Revolving multi-currency credit facility for €1 billion

On 29 July 2020, the Company and Arkema France (the "Borrowers") and a syndicate of banks signed a revolving multi-currency credit facility in the maximum amount of €1 billion which can be used in renewable drawings. This credit facility was signed for an initial period of three years, subsequently extended to four years following the exercise of the one-year extension option, subject to the lenders' approval, at the end of the first year (the "Facility"). The Facility provides for an additional one-year extension option exercisable under the same conditions at the end of the second year. The purpose of the Facility is to finance, in the form of drawings and bank guarantees, the Group's general corporate purposes, and serves as a back-up facility for the commercial paper program. On 7 July 2021, the Borrowers and the syndicate of banks signed an addendum in order to integrate three key CSR criteria for the Group into the calculation of the cost of credit: greenhouse gas emissions, volatile organic compound emissions and the total recordable injury rate (TRIR). The Facility had not been drawn down at 31 December 2021.

Other Group companies have the possibility to become borrowers under the Facility, in the same capacity as the Company and Arkema France.

The Facility provides for early repayment in certain cases, including a change of control over the Company (defined as any person, acting alone or in concert, holding, directly or indirectly, more than one-third of the voting rights of the Company). Should this clause be triggered by a lender, it could lead to early repayment and the cancellation of the commitments to such lender.

The Facility contains representations to be made by each Borrower relating, among other things, to its financial statements, legal proceedings, or the absence of default events. Some of these representations have to be reiterated at the time of each utilization request.

The Facility also contains the standard undertakings for this type of agreement, including:

- information undertakings (notably accounting and financial information);
- undertakings relating, among other things, to certain restrictions in connection with (but not limited to) the granting of securities, the completion of merger or restructuring transactions, the sale of assets, and the Group's debt. Depending on the case, such restrictions will not apply to ordinary operations or to transactions involving amounts below certain thresholds; and
- a financial undertaking: the Company undertakes to maintain a ratio of consolidated net debt to consolidated EBITDA (tested twice a year) equal to or less than 3.5. Testing requirements depend on the long-term rating issued by the rating agencies. At the date of this document, the long-term rating for the Group issued by Standard and Poor's and Moody's does not require this ratio to be tested.

The Facility also provides for default cases similar to those described in the prospectus of the above-mentioned bond issues.

Lastly, Arkema guarantees on a joint and several basis the obligations of Arkema France under the terms of the Facility to the banks, as well as those of the other borrowers, where applicable. The Facility is not subject to any other personal guarantee or security.

Negotiable commercial paper program

In April 2013, the Group put in place a negotiable commercial paper program with a ceiling of €1 billion. This program was unused at 31 December 2021.

5.1.8.2 Information on restrictions on the use of capital that have significantly influenced or may significantly influence, directly or indirectly, the Group's business

Subject to the stipulations of the syndicated facility described above, the Group is not subject to any restrictions on the use of capital that may significantly influence, either directly or indirectly, its business.

5.1.9 Balance sheet analysis

(In millions of euros)	31 December 2021	31 December 2020	Change
Non-current assets*	6,772	6,489	+4.4%
Working capital	1,185	875	+35.4%
Capital employed	**7,957**	**7,364**	**+8.1%**
Deferred tax assets	144	159	-9.4%
Provisions for pensions and employee benefits	493	530	-7.0%
Other provisions	429	370	+15.9%
Total provisions	**922**	**900**	**+2.4%**
Long-term assets covering some provisions	127	91	+39.6%
Total provisions net of non-current assets	**795**	**809**	**-1.7%**
Deferred tax liabilities	342	320	+6.9%
Net debt (excluding hybrid bonds)	**477**	**1,210**	**-60.6%**
Shareholders' equity	**6,350**	**5,235**	**+21.3%**

* *Excluding deferred tax and including pension assets.*

Between 31 December 2020 and 31 December 2021, non-current assets increased by €283 million. primarily due to:

- capital expenditure amounting to €763 million, of which €506 million was recurring and €252 million exceptional [(1)]. These investments are detailed in section 5.1.7 of this chapter;
- an increase of €65 million in right-of-use assets recognized for lease commitments following the Group's application of IFRS 16 from 1 January 2019;
- net depreciation, amortization and impairment expense totaling €817 million, including (i) €65 million in depreciation of right-of-use assets recognized in application of IFRS 16, (ii) €68 million in depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets carried out as part of the allocation of the purchase price of businesses, and (iii) €206 million in non-recurring impairment of property, plant and equipment and intangible assets (including goodwill);
- the impact of acquisitions amounting to €41 million. This is mainly attributable to the consolidation of the assets of Poliplas, Edge Adhesives and Agiplast, for which €32 million was recognized in goodwill (for further details, see note 3 "Business combinations" to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter);
- a positive translation effect of €275 million, primarily due to the appreciation of the US dollar against the euro at 31 December 2021 compared with end-December 2020.

(1) See note 4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter.

Arkema has a policy of owning its industrial facilities. By way of exception, Arkema sometimes leases offices and warehouses from third-party lessors. Since 1 January 2019, the Group's lease commitments have been recognized in accordance with IFRS 16 (for further details, see note 8.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter). Excluding right-of-use assets recognized in application of IFRS 16, the net book value of the Group's property, plant and equipment was €2,874 million at 31 December 2021 *versus* €2,677 million at 31 December 2020 (see note 8.3 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this chapter).

At 31 December 2021, working capital amounted to €1,185 million, €310 million higher than at 31 December 2020. The change includes a positive currency effect of €99 million and reflects the recovery in business as well as the significant increase in raw material costs. However, working capital remained well controlled at 12.7% of annual sales excluding the PMMA business (11.8% at end-December 2020 and 13.8% at end-December 2019), and below its normative level of around 14%.

Between 31 December 2020 and 31 December 2021, the Group's capital employed therefore increased by €593 million to €7,957 million. At 31 December 2021, the breakdown of capital employed by segment (excluding corporate) had almost no change and was as follows: 37% for the Adhesive Solutions segment (37% in 2020), 34% for Advanced Materials segment (35% in 2020), 19% for the Coating Solutions segment (18% in 2020) and 10% for the Intermediates segment (10% in 2020). The breakdown of capital employed by region was as follows: Norh America increased to 31% (28.5% in 2020), offset by Europe, down to 47% (50% in 2020), and Asia and the rest of the world stayed virtually stable year on year at 22% (21.5% in 2020).

Deferred tax assets amounted to €144 million at 31 December 2021, a decrease of €15 million *versus* 31 December 2020 (€159 million), mainly following the utilization of €14 million in tax losses.

At 31 December 2021, gross provisions amounted to €922 million. Some of these provisions, accounting for a total of €116 million, are mainly covered by the guarantee facility granted by Total and described in note 10.2 to the consolidated financial statements at 31 December 2021 (section 5.3.3 of this chapter) and therefore by long-term assets recognized in the balance sheet. These consist mainly of provisions related to former industrial sites in the United States. A pension asset of €11 million was also recognized in the balance sheet in 2021. Accordingly, at 31 December 2021, provisions net of these non-current assets amounted to €795 million against €809 million at 31 December 2020.

The breakdown of net provisions by type was as follows: pension liabilities of €324 million (€388 million in 2020), other employee benefit obligations of €158 million (€142 million in 2020), environmental contingencies of €120 million (€116 million in 2020), restructuring provisions of €49 million (€40 million in 2020), and other provisions of €144 million (€123 million in 2020). Between 31 December 2020 and 31 December 2021, net provisions for pension liabilities fell by €64 million, reflecting the increase in discount rates and the revaluation of plan assets, particularly in the United States and the United Kingdom. Provisions for other employee benefit obligations (healthcare costs, welfare costs and long-service awards) rose slightly, mainly as a result of taking into account the obligation relating to the dispensation-from-work mechanism in France.

Long-term deferred tax liabilities amounted to €342 million at 31 December 2021 *versus* €320 million at 31 December 2020.

Including the hybrid bonds, net debt stood at €1,177 million at end-December 2021 *versus* €1,910 million at 31 December 2020. The variation can be explained mainly by cash flows, as detailed in paragraph 5.1.7 of this chapter. The net debt (including hybrid bonds) to EBITDA ratio remains well under control at 0.7x. Including the finalization of the acquisition of Ashland's adhesives, this ratio should remain below 2x annual EBITDA in 2022.

Shareholders' equity amounted to €6,350 million *versus* €5,235 million at end-2020. The €1,115 million increase primarily included (i) €1,307 million in net income for the period, (ii) the payment of a dividend of €2.50 per share totaling €191 million, (iii) a total of €329 million in share buybacks, (iv) €15 million in coupons paid on the hybrid bonds accounted for under "Dividends paid", and (v) a positive €275 million translation effect mainly due to the appreciation of the US dollar and Chinese yuan against the US dollar at end-December 2021 compared with end-December 2020. In 2021, a €76 million actuarial gain was recognized in equity in respect of provisions for post-employment benefit obligations, excluding deferred tax effects.

5.2 Trends and outlook

5.2.1 Trends

5.2.1.1 Main trends

The growth of the chemical industry and of Arkema businesses is globally in line with GDP. Stronger growth in certain economies, for example in Asia, and new needs driven by global megatrends such as urbanization and social change, climate change, resource scarcity and technological transformation, all represent opportunities for responsible and sustainable development that will help support this growth. The Group should benefit from this momentum, thanks to its unique positioning in Specialty Materials and its range of innovative and sustainable solutions that meet the increasingly demanding needs of its customers, particularly in the battery, bio-based and recyclable materials, 3D printing, more eco-friendly coatings, renewable energies and electronics segments.

In the shorter term, as of the date of this document, the Group, like all economic players, continues to operate in a volatile and challenging environment, marked by uncertainty linked to the pandemic, particularly with regard to the potential emergence of new variants. In the continuity of the second half of 2021, underlying demand has remained strong in most markets in the beginning of the year, and the operating environment is still characterized by very high inflation in raw materials, energy and logistics costs, and by a shortage of certain materials, that should continue to impact more particularly the Adhesive Solutions segment. However, supply chain tensions could ease during 2022 and market conditions could gradually normalize, particularly in upstream acrylics, which benefited from favorable conditions throughout 2021.

However, the Russian offensive in Ukraine launched in late February and the uncertainty about how it will evolve, as well as the economic sanctions that have been or could be levied against Russia by various governments, could accelerate inflation in energy and raw materials costs, and also weigh on the availability of certain raw materials and on demand as a whole.

In this complex and demanding context, Arkema will leverage its positioning in innovative, high value-added specialty products and its proximity to customers to adapt to this environment and mitigate the impact on its 2022 performance, in particular through its pricing policy and operational excellence initiatives.

The Group's performance in 2022 should notably reflect these factors.

Over the longer term, the global economic environment is also characterized by continuing regulatory and legislative changes concerning the chemical industry in different parts of the world and an ever-increasing focus on environmental topics and risks. The major sustainable development trends to address challenges in terms of new energies and clean mobility, lightweight materials and design, natural resources management and the circular economy, living comfort and home efficiency, and the development of electronic solutions, also continue to represent promising development opportunities for the Group over the medium and long term.

At the date of this document, there is nothing to indicate that the long-term trends of the Group's main markets as described in chapter 1 and in the section "Profile, ambition and strategy" of this document might be significantly and durably affected. However, given the uncertainties surrounding the economic environment, the markets in which the Group operates, the cost of raw materials and energy, the variation in exchange rates and geopolitical stability, as well as the continuous developments in the regulatory environment, there is no guarantee that these trends will endure.

5.2.1.2 Factors likely to affect the Group's outlook

Some of the statements regarding the Group's outlook contained in this document are based on the current opinions and assumptions of the Group's executive management. Those opinions and assumptions could be influenced by certain risks, both known and unknown, as well as by uncertainties, which could lead to actual results, performance or events differing substantially from such outlook. The main risk factors that may influence the Group's future results are described in section 2.1 of this document.

5.2.2 Outlook

In 2022, Arkema should benefit from a positive level of global demand, with nuances in different regions and markets, and from its leading positioning on innovative, high performance Specialty Materials. In particular, the Group will leverage its innovation dynamic in fields such as clean mobility, materials lightweighting, natural resources management and living comfort and home efficiency, as well as the start-up of production units in high-growth regions.

At the start of the year, the environment remains volatile, marked by uncertainty related to the health crisis, growing geopolitical tensions and continued strong constraints in raw materials and energy in the continuity of second-half 2021. In this demanding context, while remaining attentive to demand trends, the Group will continue to pass on higher costs in its selling prices and ensure that it optimizes supply chain management.

In first-quarter 2022, Group EBITDA is expected to increase strongly, driven by the growth in Advanced Materials and Coating Solutions. The Adhesive Solutions segment will still remain temporarily impacted by raw materials shortages, and its EBITDA is expected to come in, at constant scope, somewhere between the first-quarter 2020 and the record first-quarter 2021 levels. Intermediates should achieve a solid start to the year.

For full-year 2022, Arkema is aiming to achieve, at constant scope, Specialty Materials EBITDA comparable to the record high of 2021. Moreover, the scope effect at Group level will include the contribution of Ashland's performance adhesives, expected to close in the first quarter, and the residual effect of the divestment of PMMA.

In line with its strategy to become a pure Specialty Materials player by 2024, the Group will continue its bolt-on acquisition policy in 2022, as well as its review of the Intermediates segment. Lastly, beyond the start-up, expected in the middle of the year, of the two major industrial projects, namely the bio-based polyamides plant in Singapore and the hydrofluoric acid plant in the United States, Arkema will continue to strengthen its innovation and capacities to support, in a targeted manner, customer demand in fast-growing markets.

On the strength of its 2021 performance and the significant progress made in the execution of its strategic roadmap, the Group is fully reaffirming its confidence in its ability to achieve its ambitious 2024 targets.

The Group's long-term ambition is detailed in the "Profile, ambition and strategy" section in the introduction of this document.

5.3 Consolidated financial statements

5.3.1 Statutory auditors' report on the consolidated financial statements

This is a translation into English of the statutory auditors' report on the consolidated financial statements of the Company issued in French and it is provided solely for the convenience of English-speaking users.

This statutory auditors' report includes information required by European regulation or French law, such as information about the appointment of the statutory auditors or verification of the information concerning the Group presented in the management report.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

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Arkema

Year ended December 31, 2021

Statutory auditors' report on the consolidated financial statements

To the annual general meeting of Arkema,

Opinion

In compliance with the engagement entrusted to us by your annual general meeting we have audited the accompanying consolidated financial statements of Arkema for the year ended 31 December 2021.

In our opinion, the consolidated financial statements give a true and fair view of the assets and liabilities and of the financial position of the Group as at 31 December 2021 and of the results of its operations for the year then ended in accordance with International financial reporting Standards as adopted by the European Union.

The audit opinion expressed above is consistent with our report to the Audit Committee.

Basis for opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the *statutory auditors' Responsibilities for the Audit of the Consolidated Financial Statements* section of our report.

Independence

We conducted our audit engagement in compliance with the independence requirements of the French Commercial Code *(Code de commerce)* and the French Code of Ethics for statutory auditors *(Code de déontologie de la profession de commissaire aux comptes)* for the period from 1 January 2021 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in Article 5(1) of regulation (EU) no. 537/2014.

Justification of Assessments – Key Audit Matters

Due to the global crisis related to the Covid-19 pandemic, the financial statements for this period have been prepared and audited under special circumstances. Indeed, this crisis and the exceptional measures taken in the context of the health emergency have had numerous consequences for companies, particularly on their operations and their financing, and have led to greater uncertainties regarding their future prospects. Some of these measures, such as travel restrictions and remote working, have also had an impact on companies' internal organization and on the performance of audits.

It is in this complex, evolving context that, in accordance with the requirements of Articles L. 823-9 and R. 823-7 of the French Commercial Code *(Code de commerce)* relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the consolidated financial statements as a whole and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the consolidated financial statements.

Valuation of intangible assets and property, plant and equipment

Identified risk	Your group subjects the recoverable amount of its intangible and tangible assets to impairment tests, the terms of which are described in Note 8.5 to the consolidated accounts. As at 31 December 2021, these fixed assets, including goodwill, amounted to M€ 6,473 in net value, or 52.6% of the Group's total assets after recognition of impairments of the fiscal year. The valuation of these fixed assets is a key audit matter given their highly material amount in the consolidated financial statements of the Group and because the determination of their recoverable amount – based on future discounted cash flow projections – rely on the use of assumptions made by management, as stated in Note 8.5 to the consolidated financial statements
Our response	We examined the compliance of the method applied by your Group with the accounting standard IAS 36, particularly with regard to the identification of groups of assets for which the impairment tests are performed. We appraised the conditions of the implementation of these impairment tests as well as the data and assumptions used. In particular, we: ● analyzed the process for developing the cash flow projections used in the plan prepared by the Group for the purpose of impairment testing. We made sure that these projections had been approved by the general management; ● compared the main assumptions used for these tests with those of the five-year plan validated by the Executive Committee; ● compared the estimates used for previous periods with the actual figures; ● verified the mathematical accuracy of the calculation, including that of the sensitivity tests; ● compared, against external references, the discount rate and measured the sensitivity of the impairment tests following the method described in Note 8.5 of the consolidated financial statements; ● analyzed the consistency of the information and the parameters used in these tests, with regard to (i) our knowledge of the sectors in which your Group operates, (ii) our assessment of the five-year plan, (iii) our interviews with your Group's management and (iv) considering the elements that could affect certain assets; ● analyzed the compliance of the information provided in the notes to the consolidated financial statements with IAS 36.

Environmental risks

Identified risk	The areas of activity in which your Group operates present a risk of incurring its environmental liability. Your Group assesses its exposure to these risks and presents, in its consolidated financial statements, an estimate of its liabilities and contingent liabilities relating to costs arising from commitments or legal, regulatory or contractual obligations, or those arising from the Group's practices or public commitments, as described in Note 10 to the consolidated financial statements. As at 31 December 2021, these provisions amounted to M€ 202. The liabilities and contingent liabilities are listed in Note 10.2 to the consolidated financial statements. We considered the valuation and the presentation in the notes of these liabilities and contingent liabilities to be a key audit matter, in light of the fact that they are estimates, their sensitivity to regulatory developments, uncertainties as to the technical solutions to be implemented, and their materiality in the consolidated financial statements.
Our response	Our work, with the help of our environmental risk assessment specialists, consisted in: ● assessing the procedures for identifying and listing the risks of incurring the Group's liability on environmental matters; ● obtaining an understanding of the risk analysis carried out by management, and the corresponding documentation; ● assessing the assumptions used by your group to estimate exposure to those risks and justifying the amount of the provisions or their nature of contingent liabilities; ● comparing the information provided in the notes to the consolidated financial statements with that required by IFRS. Furthermore, among the environmental risks listed by the Group in contingent liabilities, we paid particular attention to the arguments or to the documentation provided to consider them as presenting a low probability of occurrence, or a low probability of an exit of resources.

Recognition of future tax savings in France

Identified risk	Deferred tax assets relating to tax loss carry-forwards are only recorded if the Group has deferred tax liabilities for the same amount of these potential tax savings or if it considers that their recovery is probable. As at 31 December 2021, as presented in Note 7 to the consolidated financial statements, your Group had recognized an amount of M€ 144 in deferred tax assets in the consolidated balance sheet for the global scope. As at 31 December 2021, the overall amount of indefinite tax loss carry-forwards stands at M€ 1,350, which mostly originates from the French tax consolidation, and is presented in Note 7.4 to the consolidated financial statements. As presented in Note 7 to the consolidated financial statements, almost the entirety of the deferred tax assets recognized in the balance sheet originates from your Group's ability to generate taxable profits in France and the Group's ability to achieve the future tax savings reflected by these deferred tax assets is assessed by Management at the close of each period by taking into account the profit forecasts determined by the Group and the history of taxable income. We considered the recognition of deferred tax assets relating to French tax loss carry-forwards to be a key audit matter due to their materiality and the judgment used by Management to assess the justification for recording the related deferred tax assets.
Our response	Our audit approach consisted in analyzing the documentation used by Management to estimate the likelihood of being able to make future use of the tax loss carry-forwards in France, generated at the closing date, notably with regard to: ● existing deferred tax liabilities which could be offset against existing tax loss carry-forwards before their expiry, if any; and ● the ability of the companies comprising the scope of the French tax consolidation to generate sufficient future taxable profits to allow absorption of the tax loss carry-forwards. We obtain an understanting of the method used by management to identify existing tax loss carry-forwards at the closing date and evaluated the correct deferral of tax losses in the tax reports. In order to assess future taxable profits, we assessed the forecasting process by: ● obtaining an understanding of the procedure for developing and approving the last taxable income forecast used for estimates; ● obtaining an understanding of the conclusions of the controls performed on the taxable profit by the tax administration; ● comparing the forecasts made over several years with the actual taxable income; ● analysing the evolution of the results of the companies comprising the French tax consolidation scope; ● reconciling the assumptions used by management to draw up the taxable income forecasts used to value deferred taxes with, firstly, those applied to the impairment testing of non-current assets and, secondly, those used in the five-year strategic plan validated by the Executive Committee.

Specific Verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by laws and regulations of the information relating to the Group given in the Board of Directors' management report.

We have no matters to report as to its fair presentation and its consistency with the consolidated financial statements.

We attest that the consolidated non-financial statement required by Article L. 225-102-1 of the French Commercial Code (*Code de commerce*) is included in the information relating to the Group given in the management report, it being specified that, in accordance with Article L. 823-10 of said Code, we have verified neither the fair presentation nor the consistency with the consolidated financial statements of the information contained therein. This information should be reported on by an independent third party.

Report on Other Legal and Regulatory Requirements

Format of preparation of the consolidated financial statements intended to be included in the annual financial report

We have also verified, in accordance with the professional standard applicable in France relating to the procedures performed by statutory auditors regarding the annual and consolidated financial statements prepared in the European single electronic format, that the preparation of the consolidated financial statements intended to be included in the annual financial report mentioned in Article L. 451-1-2, I of the French Monetary and Financial Code (*Code monétaire et financier*), prepared under the responsibility of the Chief Executive Officer, complies with the single electronic format defined in Commission Delegated regulation (EU) No. 2019/815 of 17 December 2018. Regarding consolidated financial statements, our work includes verifying that the tagging thereof complies with the format defined in the above-mentioned regulation.

On the basis of our work, we conclude that the preparation of the consolidated financial statements intended to be included in the annual financial report complies, in all material respects, with the European single electronic format.

We have no responsibility to verify that the consolidated financial statements that will ultimately be included by your Company in the annual financial report filed with the AMF *(Autorité des marchés financiers)* agree with those on which we have performed our work.

Appointment of the statutory auditors

We were appointed as statutory auditors of Arkema by your annual general meeting held on 23 June 2005 for KPMG Audit, Département de KPMG S.A., and on 10 May 2006 for ERNST & YOUNG Audit.

As at 31 December 2021, KPMG Audit, Département de KPMG S.A., was in the seventeenth year of total uninterrupted engagement, sixteen years since securities of the Company were admitted to trading on a regulated market, and ERNST & YOUNG Audit was in the sixteenth year.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with International financial reporting Standards as adopted by the European Union and for such internal control as Management determines is necessary to enable the preparation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated financial statements, Management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Company or to cease operations.

The Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risk management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The consolidated financial statements were approved by the Board of Directors.

Statutory auditors' Responsibilities for the Audit of the Consolidated Financial Statements

Objectives and audit approach

Our role is to issue a report on the consolidated financial statements. Our objective is to obtain reasonable assurance about whether the consolidated financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users made on the basis of these consolidated financial statements.

As specified in Article L. 823-10-1 of the French Commercial Code (*Code de commerce*), our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of the Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- identifies and assesses the risks of material misstatement of the consolidated financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control;
- evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by Management in the consolidated financial statements;
- assesses the appropriateness of Management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the consolidated financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein;
- evaluates the overall presentation of the consolidated financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation;
- obtains sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. The statutory auditor is responsible for the direction, supervision and performance of the audit of the consolidated financial statements and for the opinion expressed on these consolidated financial statements.

Report to the Audit Committee

We submit to the Audit Committee a report which includes in particular a description of the scope of the audit and the audit program implemented, as well as the results of our audit. We also report significant deficiencies, if any, in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Audit Committee includes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the consolidated financial statements of the current period and which are therefore the key audit matters that we are required to describe in this report.

We also provide the Audit Committee with the declaration provided for in Article 6 of regulation (EU) No. 537/2014, confirming our independence within the meaning of the rules applicable in France as set out in particular in Articles L. 822-10 to L. 822-14 of the French Commercial Code *(Code de commerce)* and in the French Code of Ethics for statutory auditors *(Code de déontologie de la profession de commissaire aux comptes)*. Where appropriate, we discuss with the Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Paris-La Défense, February 23, 2022

The Statutory Auditors

French original signed by

KPMG Audit *Département de KPMG S.A.*		ERNST & YOUNG Audit
Bertrand Desbarrières	Eric Dupré	Christine Vitrac

5.3.2 Consolidated financial statements at 31 December 2021

Consolidated income statement

(In millions of euros)	Notes	2021	2020
Sales	***(4.9 & 4.10)***	**9,519**	**7,884**
Operating expenses		(7,376)	(6,336)
Research and development expenses		(243)	(241)
Selling and administrative expenses		(784)	(745)
Other income and expenses	*(5.1.5)*	617	38
Operating income	***(5.1)***	**1,733**	**600**
Equity in income of affiliates	*(9.1 & 9.2)*	(1)	(2)
Financial result	*(11.1)*	(56)	(85)
Income taxes	*(7.1)*	(369)	(178)
Net income		**1,307**	**335**
Attributable to non-controlling interests		(2)	3
Net income – Group share		**1,309**	**332**
Earnings per share (in euros)	*(12.7)*	*17.15*	*3.98*
Diluted earnings per share (in euros)	*(12.7)*	*17.04*	*3.96*

The accounting policies applied in preparing the consolidated financial statements at 31 December 2021 are identical to those used in the consolidated financial statements at 31 December 2020, except for the policies described at the start of note 2 “Accounting policies and new standards”.

Consolidated statement of comprehensive income

(In millions of euros)	Notes	2021	2020
Net income		**1,307**	**335**
Hedging adjustments		(12)	28
Other items		2	—
Deferred taxes on hedging adjustments and other items		(1)	(5)
Change in translation adjustments	*(12.6)*	278	(212)
Other recyclable comprehensive income		**267**	**(189)**
Impact of remeasuring unconsolidated investments		(6)	—
Actuarial gains and losses	*(6.3)*	76	(47)
Deferred taxes on actuarial gains and losses		(15)	11
Other non-recyclable comprehensive income		**55**	**(36)**
TOTAL INCOME AND EXPENSES RECOGNIZED DIRECTLY THROUGH EQUITY		**322**	**(225)**
Comprehensive income		**1,629**	**110**
Attributable to non-controlling interests		1	1
Comprehensive income – Group share		1,628	109

Consolidated balance sheet

(In millions of euros)	Notes	31 December 2021	31 December 2020
Assets			
Goodwill	(8.1)	1,925	1,933
Other intangible assets, net	(8.2)	1,517	1,433
Property, plant and equipment, net	(8.3)	3,031	2,828
Investments in equity affiliates	(9.1 & 9.2)	29	29
Other investments	(9.3)	52	57
Deferred tax assets	(7.2)	144	159
Other non-current assets	(9.4)	218	209
TOTAL NON-CURRENT ASSETS		**6,916**	**6,648**
Inventories	(5.2)	1,283	881
Accounts receivable	(5.2)	1,432	1,131
Other receivables and prepaid expenses	(5.2)	181	163
Income taxes recoverable	(7)	91	70
Current financial derivative assets	(11.2)	109	40
Cash and cash equivalents	(11.4)	2,285	1,587
Assets held for sale	(3.3)	4	191
TOTAL CURRENT ASSETS		**5,385**	**4,063**
TOTAL ASSETS		**12,301**	**10,711**
Liabilities and shareholders' equity			
Share capital	(12.1)	767	767
Paid-in surplus and retained earnings		5,598	4,458
Treasury shares	(1.3)	(305)	(6)
Translation adjustments	(12.6)	243	(32)
SHAREHOLDERS' EQUITY – GROUP SHARE		**6,303**	**5,187**
Non-controlling interests		47	48
TOTAL SHAREHOLDERS' EQUITY		**6,350**	**5,235**
Deferred tax liabilities	(7.2)	342	320
Provisions for pensions and other employee benefits	(6.3)	493	530
Other provisions and non-current liabilities	(10.1)	443	383
Non-current debt	(11.3)	2,680	2,663
TOTAL NON-CURRENT LIABILITIES		**3,958**	**3,896**
Accounts payable	(5.2)	1,274	987
Other creditors and accrued liabilities	(5.2)	430	339
Income taxes payable	(7)	155	69
Current financial derivative liabilities	(11.2)	52	15
Current debt	(11.3)	82	134
Liabilities associated with assets held for sale	(3.3)	0	36
TOTAL CURRENT LIABILITIES		**1,993**	**1,580**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**12,301**	**10,711**

Consolidated cash flow statement

(In millions of euros)	Notes	2021	2020
Operating cash flows			
Net income		1,307	335
Depreciation, amortization and impairment of assets		817	748
Other provisions and deferred taxes		58	41
(Gains)/losses on sales of long-term assets	*(3.2)*	(991)	(240)
Undistributed affiliate equity earnings		1	2
Change in working capital	*(5.2)*	(290)	201
Other changes		13	28
Cash flow from operating activities		**915**	**1,115**
Investing cash flows			
Intangible assets and property, plant and equipment additions	*(4.3)*	(763)	(605)
Change in fixed asset payables	*(5.2)*	78	13
Acquisitions of operations, net of cash acquired	*(3.2)*	(40)	(226)
Increase in long-term loans		(36)	(39)
Total expenditures		**(761)**	**(857)**
Proceeds from sale of operations, net of cash transferred	*(3.2)*	1,161	326
Proceeds from sale of intangible assets and property, plant and equipment	*(3.2)*	18	6
Proceeds from sale of unconsolidated investments		8	—
Repayment of long-term loans		47	67
Total divestitures		**1,234**	**399**
Cash flow from investing activities		**473**	**(458)**
Financing cash flows			
Issuance (repayment) of shares and paid-in surplus	*(12.1)*	-	7
Purchase of treasury shares	*(12.3)*	(329)	(25)
Issuance of hybrid bonds	*(12.2)*	-	299
Redemption of hybrid bonds	*(12.2)*	-	(300)
Dividends paid to parent company shareholders	*(12.4)*	(191)	(168)
Interest paid to bearers of subordinated perpetual notes	*(12.2)*	(15)	(28)
Dividends paid to non-controlling interests		(4)	(7)
Increase in long-term debt		11	302
Decrease in long-term debt		(68)	(87)
Increase/(Decrease) in short-term debt		(56)	(528)
Cash flow from financing activities		**(652)**	**(535)**
Net increase/(decrease) in cash and cash equivalents		736	122
Effect of exchange rates and changes in scope		(38)	58
Cash and cash equivalents at beginning of period		1,587	1,407
CASH AND CASH EQUIVALENTS AT END OF PERIOD	*(11.4)*	**2,285**	**1,587**

Consolidated statement of changes in shareholders' equity

(In millions of euros)	Share capital	Paid-in surplus	Hybrid bonds	Retained earnings	Translation adjustments	Treasury shares	Shareholders' equity – Group share	Non-controlling interests	Shareholders' equity
At 1 January 2021	**767**	**1,272**	**700**	**2,486**	**(32)**	**(6)**	**5,187**	**48**	**5,235**
Cash dividend	-	-	-	(206)	-	-	(206)	(4)	(210)
Issuance of share capital	-	-	-	-	-	-	-	-	-
Purchase of treasury shares	-	-	-	-	-	(329)	(329)	-	(329)
Grants of treasury shares to employees	-	-	-	(30)	-	30	-	-	-
Share-based payments	-	-	-	17	-	-	17	-	17
Issuance of hybrid bonds*	-	-	-	-	-	-	-	-	-
Redemption of hybrid bonds	-	-	-	-	-	-	-	-	-
Other	-	-	-	6	-	-	6	2	8
Transactions with shareholders	**-**	**-**	**-**	**(213)**	**-**	**(299)**	**(512)**	**(2)**	**(514)**
Net income	-	-	-	1,309	-	-	1,309	(2)	1,307
Total income and expenses recognized directly through equity	-	-	-	44	275	-	319	3	322
Comprehensive income	**-**	**-**	**-**	**1,353**	**275**	**-**	**1,628**	**1**	**1,629**
At 31 December 2021	**767**	**1,272**	**700**	**3,626**	**243**	**(305)**	**6,303**	**47**	**6,350**

(In millions of euros)	Share capital	Paid-in surplus	Hybrid bonds	Retained earnings	Translation adjustments	Treasury shares	Shareholders' equity – Group share	Non-controlling interests	Shareholders' equity
At 1 January 2020	**766**	**1,266**	**694**	**2,380**	**178**	**(11)**	**5,273**	**51**	**5,324**
Cash dividend	-	-	-	(196)	-	-	(196)	(7)	(203)
Issuance of share capital	1	6	-	-	-	-	7	-	7
Purchase of treasury shares	-	-	-	-	-	(25)	(25)	-	(25)
Grants of treasury shares to employees	-	-	-	(30)	-	30	-	-	-
Share-based payments	-	-	-	24	-	-	24	-	24
Issuance of hybrid bonds*	-	-	300	(1)	-	-	299	-	299
Redemption of hybrid bonds	-	-	(294)	(6)	-	-	(300)	-	(300)
Other	-	-	-	(4)	-	-	(4)	3	(1)
Transactions with shareholders	**1**	**6**	**6**	**(213)**	**-**	**5**	**(195)**	**(4)**	**(199)**
Net income	-	-	-	332	-	-	332	3	335
Total income and expenses recognized directly through equity	-	-	-	(13)	(210)	-	(223)	(2)	(225)
Comprehensive income	**-**	**-**	**-**	**319**	**(210)**	**-**	**109**	**1**	**110**
At 31 December 2020	**767**	**1,272**	**700**	**2,486**	**(32)**	**(6)**	**5,187**	**48**	**5,235**

* *See note 12.2 "Hybrid bonds".*

5.3.3 Notes to the consolidated financial statements at 31 December 2021

Note 1 Highlights

1.1 Impact of Covid-19

After a year strongly marked by Covid-19 in 2020, during which Arkema nevertheless delivered a solid financial performance, the Group was able to take advantage of the economic rebound in 2021 while accelerating its drive to refocus on Specialty Materials. However, Arkema is still highly attentive to the health situation, which remains uncertain in several regions. Thanks to its solid balance sheet, as well as to its careful monitoring of the still-volatile market environment, Arkema considers that it is very well placed to benefit from the fast-growing demand for sustainable, high performance materials, driven by global megatrends.

1.2 Portfolio management

On 31 August 2021, the Group announced the proposed acquisition of Ashland's Performance Adhesives business, a first-class leader in high performance adhesives in the United States. Ashland offers a portfolio of high performance adhesive solutions in high value-added industrial applications, and has significant technological and geographical complementarities with Bostik's activities. The offer was made on the basis of a US$1,650 million enterprise value. The acquisition is expected to be finalized in first-quarter 2022.

In 2021, Arkema also made the following three small bolt-on acquisitions, the impacts of which are described in note 3.2 "Business combinations":

- Poliplas, a Brazilian leader in hybrid-technology sealants and adhesives for the construction market. The acquisition was finalized on 1 March 2021 and the company is now part of the Adhesive Solutions segment;
- the Edge Adhesives business in Texas, which is complementary to Bostik in hot-melt adhesives and pressure-sensitive adhesive tapes for residential construction. The acquisition was finalized on 1 June 2021 and the company is now part of the Adhesive Solutions segment; and
- Agiplast, a leader in the regeneration of high performance polymers, in particular specialty polyamides and fluoropolymers. It is now part of High Performance Polymers. This acquisition, finalized on 1 June 2021, enables Arkema to offer a full service to customers in terms of materials circularity.

On 16 December 2021, the Group also announced the proposed acquisition of Permoseal, one of the leaders in woodworking, packaging, construction and DIY in South Africa. The project should be finalized in second-quarter 2022.

Furthermore, in the Intermediates segment, on 3 May 2021 the Group completed the divestment of its PMMA activity to Trinseo for an enterprise value of €1,137 million. This operation, whose impacts are described in note 3.3 "Assets held for sale", is fully in line with the strategy of refocusing the Group's activities on Specialty Materials.

Lastly, on 1 December 2021, Arkema finalized the divestment of its epoxides business, with annual sales of around US$40 million, to Cargill, a leader in agricultural products and services, thereby pursuing the repositioning of its portfolio on its core businesses. The offer received values this activity at US$38.8 million.

1.3 Other highlights

Following the combined annual general meeting of 20 May 2021, which authorized the 2021 share buyback program, Arkema signed a share purchase agreement with an investment services provider for a maximum amount of €300 million over a period from 21 May to 24 November 2021. For more details, see note 12.3 "Treasury shares" and note 14 "Subsequent events".

Note 2 Accounting policies and new standards

Arkema, a major player in Specialty Chemicals and Advanced Materials, is a French limited liability company (*société anonyme*) with a Board of Directors, subject to the provisions of book II of the French Commercial Code and all other legal provisions applicable to French commercial companies. The Arkema Group's LEI is 9695000EHMS84KKP2785.

The Company's head office is at 420 rue d'Estienne d'Orves, 92700 Colombes (France). It was incorporated on 31 January 2003 and the shares of Arkema have been listed on the Paris stock exchange (Euronext) since 18 May 2006. The Group's parent company is Arkema S.A.

The Group's consolidated financial statements at 31 December 2021 were prepared under the responsibility of the Chairman and CEO of Arkema and were approved for publication by the Board of Directors of Arkema on 23 February 2022. They will be submitted to the approval of the shareholders' general meeting of 19 May 2022.

The consolidated financial statements at 31 December 2021 were prepared in accordance with the IFRS (International financial reporting Standards) issued by the IASB (International Accounting Standards Board) as released at 31 December 2021 and the IFRS endorsed by the European Union at 31 December 2021.

The accounting framework and standards adopted by the European Commission can be accessed from the following website: https://ec.europa.eu/info/law/international-accounting-standards-regulation-ec-no-1606-2002.

The accounting policies applied in preparing the consolidated financial statements at 31 December 2021 are identical to those used in the consolidated financial statements at 31 December 2020, except for IFRS standards, amendments and interpretations, as adopted by the European Union and the IASB, that are mandatory for accounting periods commencing on or after 1 January 2021 (and which had not been applied early by the Group), namely:

Amendments to IFRS 4	Insurance contracts – Extension of the temporary exemption from applying IFRS 9	Adopted by the European Union on 16 December 2020
Amendments to IFRS 9, IAS 39, IFRS 7, IFRS 4 and IFRS 16	Interest rate benchmark reform – Phase 2	Adopted by the European Union on 14 January 2021
Amendments to IFRS 16	Covid-19-related rent concessions beyond 30 June 2021	Adopted by the European Union on 31 August 2021

Application of these amendments and interpretations had no significant impact on the financial statements at 31 December 2021.

A reform of the main interest rate benchmarks is currently underway, with the Interbank Offered Rates (IBORs) being replaced by alternative risk-free rates. The Group has taken steps to ensure a gradual transition to risk-free rates and is keeping a close eye on market practices and publications by the relevant bodies. The reform is mainly operational in scope and has no material impact on the financial statements at 31 December 2021.

The impact of the IFRS IC (IFRS Interpretations Committee) decision on attributing benefit to periods of service (IAS 19 “Employee benefits”) is described in note 6.3 “Provisions for pensions and other employee benefits”.

The standards, amendments and interpretations published by the IASB and the IFRS IC which are not yet mandatory for accounting periods commencing on or after 1 January 2021 (and which have not been applied early by the Group) are:

Amendments to IAS 1	Classification of liabilities as current or non-current	Not adopted by the European Union at 31 December 2021
Amendments to IAS 1	Disclosure of accounting policies	Not adopted by the European Union at 31 December 2021
Amendments to IAS 8	Definition of accounting estimates	Not adopted by the European Union at 31 December 2021
Amendments to IAS 12	Income taxes – Recognition of deferred tax assets for unrealized losses	Not adopted by the European Union at 31 December 2021
Amendments to IAS 16	Property, plant and equipment – Proceeds before intended use	Not adopted by the European Union at 31 December 2021
Amendments to IAS 37	Onerous contracts – Cost of fulfilling a contract	Not adopted by the European Union at 31 December 2021
Amendments to IFRS 3	Reference to the conceptual framework	Not adopted by the European Union at 31 December 2021
IFRS 17	Insurance contracts	Adopted by the European Union on 23 November 2021
Conceptual framework	Amendments to references to the conceptual framework	Not adopted by the European Union at 31 December 2021

The Group does not expect application of these amendments and this standard to have a significant impact.

Preparation of the consolidated financial statements in accordance with IFRS requires Group management to make estimates and determine assumptions that can have an impact on the amounts recognized in assets and liabilities at the balance sheet date, and have a corresponding impact on the income statement. Management made its estimates and determined its assumptions on the basis of past experience and taking into account different factors considered to be reasonable for the valuation of assets and liabilities. These financial statements therefore take into consideration the current Covid-19 health crisis and are based on information available at the closing date. Use of different assumptions could have a material effect on these valuations. The main assumptions made by management in preparing the financial statements are those used for measuring the recoverable value of property, plant and equipment and intangible assets, pension benefit obligations, deferred taxes and provisions. The disclosures provided concerning contingent assets and liabilities and off-balance sheet commitments at the date of preparation of the consolidated financial statements also involve the use of estimates.

The consolidated financial statements are prepared in accordance with the historical cost convention, except for certain financial assets and liabilities which are recognized at fair value.

The consolidated financial statements are presented in millions of euros, rounded to the nearest million, unless otherwise indicated.

The functional operating currency of foreign companies in the scope of consolidation is their local currency, in which most of their transactions are denominated. Their balance sheets are translated into euros on the basis of exchange rates at the end of the period. The statements of income and of cash flows are translated using the average exchange rates during the period. Foreign exchange differences resulting from translation of the financial statements of these subsidiaries are recorded either in “Translation adjustments” in shareholders’ equity in the consolidated financial statements for the Group share, or in “Non-controlling interests” for the share not directly or indirectly attributable to the Group. In exceptional cases, a company’s functional currency may differ from the local currency.

In application of IAS 21 “The effects of changes in foreign exchange rates”, transactions denominated in foreign currencies are translated by the entity carrying out the transaction into its functional currency at the exchange rate applicable on the transaction date. Monetary balance sheet items are restated at the closing exchange rate at the balance sheet date. Gains and losses resulting from translation are recognized in recurring operating income, unless they result from unhedged financing, in which case they are included in the financial result.

Note 3 Scope of consolidation

3.1 Consolidation principles

All material transactions between consolidated companies, and all intercompany profits, are eliminated.

Control

The Group controls an entity when all of the three following conditions are fulfilled:

(i) the Group holds power over the entity (has effective rights conferring a current ability to direct the entity's relevant activities);

(ii) the Group is exposed or entitled to variable returns; and

(iii) the Group has the ability to use its power over the investee to influence the amount of the returns received.

Companies controlled directly or indirectly by the Group are fully consolidated, except for certain entities considered non-significant for the consolidated financial statements.

Joint arrangements

A joint arrangement is an operation over which two or more parties have joint control. Joint control is the contractually agreed sharing of control over an arrangement. It exists only when the decisions about the relevant activities require the unanimous consent of the parties sharing control.

There are two categories of joint arrangements:

- a joint operation is a joint arrangement in which the parties have rights to the assets and obligations for the liabilities. The Group recognizes the assets, liabilities, income and expenses in proportion to its percentage of interest in the capital of the joint operation; and
- a joint venture is a joint arrangement in which the parties have rights to the net assets of the arrangement. The Group applies the equity method to this type of joint arrangement.

To determine the type of joint arrangement, the Group must take the following factors into consideration:

- the structure of the joint arrangement (identifying whether it takes the form of a separate vehicle); and
- when the joint arrangement takes the form of a separate vehicle: the legal form, the terms of the contractual arrangements and other facts and circumstances.

Assessment of other facts and circumstances has led the Group to classify a certain number of joint arrangements as joint operations.

Associates

An associate is an entity over which the Group exercises significant influence. If the Group directly or indirectly holds 20% or more of the voting rights in the issuing entity, it is presumed to exercise significant influence. If it holds less than 20%, significant influence must be demonstrated.

Investments in associates are accounted for under the equity method.

Other non-controlling interests

Shares owned in companies which do not meet the criteria set out above are included in "Other investments" and recognized in accordance with IFRS 9 (see note 9.3 "Other investments").

3.2 Business combinations

The Group uses the acquisition method for the recognition of business combinations, in accordance with IFRS 3 (Revised).

The identifiable assets acquired and liabilities assumed are stated at fair value at the acquisition date.

Where the business combination agreement provides for a purchase price adjustment, the Group includes the fair value of this adjustment at the acquisition date in the cost of the business combination, even if the adjustment is optional.

Non-controlling interests are measured at the acquisition date, either at fair value (the full goodwill method) or the NCI's proportionate share of net assets of the entity acquired (the partial goodwill method). The decision of which option to use is made for each business combination. Subsequent acquisitions of investments are always recorded in equity, regardless of the choice made at the time of the acquisition.

At the acquisition date, goodwill is measured as the difference between:

- the acquisition price plus the amount of any non-controlling interests in the acquired entity and the fair value of the acquirer's previously held equity interest in that acquired entity; and
- the fair value of identifiable assets and liabilities.

Goodwill is recognized in the balance sheet assets. Contingent liabilities are recognized in the balance sheet when the obligation concerned is current at the acquisition date and their fair value can be reliably measured.

Any negative goodwill arising on an acquisition on favorable terms, and direct acquisition expenses, are recognized immediately in the income statement under "Other income and expenses" (see note 5.1.5 "Other income and expenses").

The Group has a maximum of 12 months to finalize determination of the acquisition price and goodwill.

3.2.1 Finalization of the Fixatti, Ideal Work, Crackless Monomer Company (CMC) and Colorado Photopolymer Solutions (CPS) purchase price allocations

The Group has finalized the purchase price allocations for Fixatti, Ideal Work, Crackless Monomer Company (CMC) and Colorado Photopolymer Solutions (CPS).

Intangible assets stated at fair value primarily comprise technologies and customer relations and amount to €64 million.

Final goodwill totals €59 million for the four acquisitions and mainly corresponds to the value of future technologies and expected business development. This goodwill is not amortizable for tax purposes.

3.2.2 Acquisitions in 2021

Business combinations in 2021 correspond to the acquisitions described in note 1 "Highlights", namely:

- 100% of Poliplas;
- 100% of Agiplast;
- Edge Adhesives business in Texas.

The Group used the acquisition method for the accounting treatment of these operations.

The amount recorded in the financial statements at 31 December 2021 for the identifiable assets acquired and liabilities assumed at the acquisition dates is €13 million.

Under IFRS 3 (Revised), the Group has 12 months from the acquisition date to finalize the value of the assets acquired and liabilities assumed.

The total provisional goodwill amounts to €32 million. This provisional goodwill will be adjusted when the purchase prices are finalized, in accordance with the final purchase price allocations.

3.3 Assets held for sale

On 14 December 2020, Arkema announced the planned divestment of its PMMA activity, which is part of its Intermediates segment, for the enterprise value of €1,137 million to Trinseo. The PMMA activity is an integrated operation, from production of methyl methacrylate to polymethyl methacrylate, marketed under the well-known brands Plexiglas® on the American continent and Altuglas® in the Rest of the world. This activity employed some 860 people and had seven production sites (four in Europe and three in North America).

In application of IFRS 5 "Non-current assets held for sale and discontinued operations", the assets held for sale and the associated liabilities must therefore be presented in two specific lines of the balance sheet at 31 December 2020. Non-current assets and groups of assets held for sale are stated at the lower of book value and fair value net of costs of disposal.

The balance sheet items classified as assets held for sale at 31 December 2020 are the following:

(In millions of euros)	**2020**
Intangible assets	30
Property, plant and equipment	93
Other investments	1
Deferred tax assets	1
Other non-current assets	1
Total non-current assets	**126**
Inventories	54
Accounts receivable	7
Other receivables and prepaid expenses	2
Income taxes recoverable	1
Cash and cash equivalents	1
Other current assets	—
Total current assets	**65**
ASSETS HELD FOR SALE	**191**
Deferred tax liabilities	—
Provisions for pensions and other employee benefits	18
Other provisions and non-current liabilities	4
Non-current debt	2
Total non-current liabilities	**24**
Accounts payable	2
Income taxes payable	—
Current debt	1
Other current liabilities	9
Total current liabilities	**12**
LIABILITIES ASSOCIATED WITH ASSETS HELD FOR SALE	**36**

The assets sold on 3 May 2021 are as follows:

(In millions of euros)	**2021**
Intangible assets	32
Property, plant and equipment	102
Other investments	4
Deferred tax assets	1
Other non-current assets	1
Total non-current assets	**140**
Inventories	56
Accounts receivable	10
Other receivables and prepaid expenses	2
Cash and cash equivalents	0
Total current assets	**68**
TOTAL ASSETS SOLD	**208**
Deferred tax liabilities	5
Provisions for pensions and other employee benefits	16
Other provisions and non-current liabilities	3
Non-current debt	2
Total non-current liabilities	**26**
Accounts payable	10
Income taxes payable	7
Current debt	3
Total current liabilities	**20**
TOTAL LIABILITIES TRANSFERRED	**46**

In the 2021 income statement, the capital gain before deduction of disposal costs amounts to €956 million before tax and is included in "Other income and expenses" (see note 5.1.5 "Other income and expenses").

The price received is included in "Proceeds from sale of operations, net of cash transferred" in the cash flow statement.

In addition, as part of the divestment of the PMMA activity, Arkema signed an agreement with Hanwha on 6 May 2021 providing for the shutdown of production at the Jinhae site (South Korea) and the sale of the land in the first half of 2022. These assets are presented in "Assets held for sale" at 31 December 2021.

3.4 Warranties related to sales of businesses

When selling businesses, the Arkema Group has sometimes granted the purchaser warranties in respect of unrecorded liabilities. In most cases, these warranties are capped and granted for a limited period of time. They are also limited in terms of their coverage to certain types of expenses or litigation. In the majority of cases, they cover risks of occurrence of environmentally related expenses or litigation.

The cumulative residual amount of capped warranties in respect of unrecorded liabilities granted by the Group amounts to €89 million at 31 December 2021 (€102 million at 31 December 2020). These amounts are stated net of provisions recognized in the balance sheet in respect of such warranties.

Note 4 Alternative performance indicators and information by segment

To monitor and analyze the financial performance of the Group and its activities, Group management uses alternative performance indicators. These are financial indicators that are not defined by IFRS. This note presents a reconciliation of these indicators and the aggregates from the consolidated financial statements under IFRS.

4.1 Recurring operating income (REBIT) and EBITDA

(In millions of euros)	Notes	2021	2020
OPERATING INCOME		**1,733**	**600**
- Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		(68)	(57)
- Other income and expenses	*(5.1.5)*	617	38
RECURRING OPERATING INCOME (REBIT)		**1,184**	**619**
- Recurring depreciation and amortization of property, plant and equipment and intangible assets		(543)	(563)
EBITDA		**1,727**	**1,182**

Details of depreciation and amortization of property, plant and equipment and intangible assets:

(In millions of euros)	Notes	2021	2020
Depreciation and amortization of property, plant and equipment and intangible assets	***(8.1 & 8.2 & 8.3)***	**(817)**	**(748)**
Of which: Recurring depreciation and amortization of property, plant and equipment and intangible assets		(543)	(563)
Of which: Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		(68)	(57)
Of which: Impairment included in other income and expenses	*(5.1)*	(206)	(128)

4.2 Adjusted net income and adjusted earnings per share

(In millions of euros)	Notes	2021	2020
NET INCOME – GROUP SHARE		**1,309**	**332**
- Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		(68)	(57)
- Other income and expenses	*(5.1.5)*	617	38
- Other income and expenses attributable to non-controlling interests		-	-
- Taxes on depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses		15	14
- Taxes on other income and expenses		(146)	(54)
- One-time tax effects		(5)	-
ADJUSTED NET INCOME		**896**	**391**
Weighted average number of ordinary shares		75,409,368	76,457,875
Weighted average number of potential ordinary shares	*(12.7)*	75,859,550	76,702,124
ADJUSTED EARNINGS PER SHARE *(IN EUROS)*		**11.88**	**5.11**
DILUTED ADJUSTED EARNINGS PER SHARE *(IN EUROS)*		**11.81**	**5.10**

4.3 Recurring capital expenditure

(In millions of euros)	2021	2020
INTANGIBLE ASSETS AND PROPERTY, PLANT AND EQUIPMENT ADDITIONS	**763**	**605**
- Exceptional capital expenditure	252	140
- Investments relating to portfolio management operations	-	-
- Capital expenditure with no impact on net debt	5	5
RECURRING CAPITAL EXPENDITURE	**506**	**460**

Exceptional capital expenditure corresponds to a very limited number of capital expenditure items for major development projects that the Group presents separately in its financial reporting due to their size and nature. In the two periods presented, exceptional capital expenditure mainly concerned investments in Specialty Polyamides in Asia and the partnership with Nutrien in the United States for the supply of anhydrous hydrogen fluoride.

Investments relating to portfolio management operations reflect investments relating to acquisition operations.

4.4 Cash flow and EBITDA to cash conversion rate

(In millions of euros)	2021	2020
Cash flow from operating activities	915	1,115
+ Cash flow from investing activities	473	(458)
NET CASH FLOW	**1,388**	**657**
- Net cash flow from portfolio management operations	909	6
FREE CASH FLOW	**479**	**651**
- Exceptional capital expenditure	(252)	(140)
- Non-recurring cash flow	(25)	29
RECURRING CASH FLOW	**756**	**762**

The net cash flow from portfolio management operations corresponds to the impact of acquisition and divestment operations described in note 1 “Highlights”.

Non-recurring cash flow corresponds to cash flow from other income and expenses, as described in note 5.1.5 “Other income and expenses”. In 2020, this item included an exceptional €55 million cash inflow from tax savings generated from the utilization of tax losses.

For the sake of comparability and to eliminate the impact of non-recurring cash flow, a new metric – recurring cash flow excluding exceptional items (exceptional capital expenditure and non-recurring cash flow) – has been introduced and now serves as the basis for calculating the EBITDA to cash conversion rate. The EBITDA to cash conversion rate for 2020 has thus been adjusted to reflect this new definition.

(In millions of euros)	2021	2020
RECURRING CASH FLOW	**756**	**762**
EBITDA	1,727	1,182
EBITDA TO CASH CONVERSION RATE	**43.8%**	**64.5%**

4.5 Net debt

(In millions of euros)	Notes	2021	2020
Non-current debt	(11.3)	2,680	2,663
+ Current debt	(11.3)	82	134
- Cash and cash equivalents	(11.4)	2,285	1,587
NET DEBT		**477**	**1,210**
+ Hybrid bonds	(12.2)	700	700
NET DEBT AND HYBRID BONDS		**1,177**	**1,910**

4.6 Working capital

(In millions of euros)	Notes	2021	2020
Inventories	*(5.2)*	1,283	881
+ Accounts receivable	*(5.2)*	1,432	1,131
+ Other receivables including income taxes recoverable	*(5.2)*	272	233
+ Current financial derivative assets	*(11.2)*	109	40
- Accounts payable (operating suppliers)	*(5.2)*	1,274	987
- Other liabilities including income taxes	*(5.2)*	585	408
- Current financial derivative liabilities	*(11.2)*	52	15
WORKING CAPITAL		**1,185**	**875**

4.7 Capital employed

(In millions of euros)	Notes	2021	2020
Goodwill, net	*(8.1)*	1,925	1,933
+ Intangible assets (excluding goodwill) and property, plant and equipment, net	*(8.1 & 8.2 & 8.3)*	4,548	4,261
+ Investments in equity affiliates	*(9.1 & 9.2)*	29	29
+ Other investments and other non-current assets	*(9.3 & 9.4)*	270	266
Working capital		1,185	875
CAPITAL EMPLOYED		**7,957**	**7,364**
Elements of capital employed classified as assets held for sale		4	178
ADJUSTED CAPITAL EMPLOYED		**7,961**	**7,542**

4.8 Return on capital employed (ROCE)

The return on capital employed (ROCE) corresponds to the recurring operating income (REBIT) for the year as a percentage of the adjusted capital employed at the end of the year.

(In millions of euros)	2021	2020
Recurring operating income (REBIT)	1,184	619
Adjusted capital employed	7,961	7,542
ROCE*	**14.9%**	**8.2%**

* *Excluding recurring operating income (REBIT) from PMMA for the first four months of 2021, ROCE amounts to 14.4% in 2021.*

4.9 Information by segment

As required by IFRS 8 “Operating segments”, segment information for the Group is presented in accordance with the internal reporting structure that is used by executive management in order to assess financial performance and allocate resources.

Arkema is organized around three complementary, coherent segments dedicated to Specialty Materials, namely Adhesive Solutions, Advanced Materials and Coating Solutions, and an Intermediates segment consisting of activities with more volatile results.

The Adhesive Solutions segment is headed by a member of the Executive Committee, and the Advanced Materials, Coating Solutions and Intermediates segments are directed by a Chief Operating Officer who is also a member of the Executive Committee. Both of these segment heads report to the Chairman and CEO, Arkema’s chief operating decision-maker as defined by IFRS 8, and are in regular contact with him for the purpose of discussing their segments’ operating activities, financial results, forecasts and plans.

The Chief Operating Officer is supported by three other Executive Committee members, who report to him and are respectively in charge of the Coating Solutions segment and each of the two Business Lines (1) making up the Advanced Materials segment: High Performance Polymers and Performance Additives.

The content of the segments is as follows:

- Adhesive Solutions comprises the following Business Lines:
  - Construction and Consumer, providing solutions for construction, renovation of buildings and DIY, and
  - Industrial Assembly, comprising high performance adhesives for durable goods, and adhesive solutions for packaging and non-woven.

(1) *Business Lines are activities or groups of activities.*

The Adhesive Solutions segment supplies technologies used in building activities for businesses and individuals, including sealants, tile and flooring adhesives and waterproofing systems, and technologies used in industry, including state-of-the-art know-how in the automotive, textiles, glazing, flexible and rigid packaging, and hygiene markets.

- Advanced Materials comprises the following Business Lines:
  - High Performance Polymers, consisting of specialty polyamides and PVDF, and
  - Performance Additives, covering interface agents combining specialty surfactants and molecular sieves, organic peroxides, thiochemicals and hydrogen peroxide.

The Advanced Materials segment offers innovative solutions with high added value to meet the major challenges of sustainable development, including lightweighting, new energies, access to water, bio-based products and recycling. These solutions are used in a wide variety of sectors such as the automotive and transportation sectors, oil and gas, renewable energies (photovoltaics, lithium-ion batteries, wind power), consumer goods (sports equipment, packaging, beauty and health products, etc.), electronics, construction, coatings, animal nutrition and water treatment.

- Coating Solutions comprises the following Business Lines:
  - Coating Resins, combining the EU/US acrylics activities and coating resins, and
  - Coating Additives, combining Sartomer photocure resins and Coatex rheology additives.

This segment offers a broad range of innovative products for decorative paints, industrial coatings and adhesives, and also provides solutions for applications in the paper industry, superabsorbents, water treatment and oil and gas extraction, and in cutting-edge high-growth markets such as 3D printing and electronics.

- The Intermediates segment comprises the following activities:
  - Fluorogases,
  - PMMA, and
  - Asia Acrylics.

These industrial intermediate chemicals activities, in which Arkema holds leading positions, concern competitive global product lines used in several industrial sectors such as construction, production of cold (refrigeration and air conditioning), the automotive industry, coatings and water treatment.

Functional and financial activities which cannot be directly allocated to operational activities (notably certain research costs and central costs) are brought together in a Corporate segment.

Operating income and assets are allocated between segments prior to inter-segment adjustments. Sales between segments take place at market prices.

The segment information includes the PMMA activity until its divestment (see note 3.3 “Assets held for sale”).

2021 *(In millions of euros)*	Adhesive Solutions	Advanced Materials	Coating Solutions	Intermediates	Corporate	Total
Sales	**2,278**	**3,087**	**2,746**	**1,378**	**30**	**9,519**
EBITDA*	**316**	**662**	**525**	**316**	**(92)**	**1,727**
Recurring depreciation and amortization of property, plant and equipment and intangible assets*	(66)	(254)	(118)	(97)	(8)	(543)
Recurring operating income (REBIT)*	**250**	**408**	**407**	**219**	**(100)**	**1,184**
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(48)	(15)	(5)	-	-	(68)
Other income and expenses	(53)	(181)	(13)	875	(11)	617
Operating income	**149**	**212**	**389**	**1,094**	**(111)**	**1,733**
Equity in income of affiliates	-	(0)	-	(1)	-	(1)
Intangible assets and property, plant and equipment additions	77	441	102	121	22	763
Of which: Recurring capital expenditure*	77	249	97	61	22	506
Goodwill, net	1,039	462	368	56	-	1,925
Intangible assets (excluding goodwill) and property, plant and equipment, net	1,420	1,757	726	575	70	4,548
Investments in equity affiliates	-	29	-	0	-	29
Other investments and other non-current assets	23	65	33	11	138	270
Working capital*	382	350	382	103	(32)	1,185
Capital employed*	2,864	2,663	1,509	745	176	7,957
Provisions and other non-current liabilities	(122)	(351)	(84)	(116)	(605)	(1,278)

* *See note 4 “Alternative performance indicators and information by segment”.*

2020 (In millions of euros)	Adhesive Solutions	Advanced Materials	Coating Solutions	Intermediates	Corporate	Total
Sales	**1,996**	**2,527**	**1,911**	**1,425**	**25**	**7,884**
EBITDA*	**261**	**496**	**261**	**231**	**(67)**	**1,182**
Recurring depreciation and amortization of property, plant and equipment and intangible assets	(63)	(251)	(119)	(122)	(8)	(563)
Recurring operating income (REBIT)*	**198**	**245**	**142**	**109**	**(75)**	**619**
Depreciation and amortization related to the revaluation of property, plant and equipment and intangible assets as part of the allocation of the purchase price of businesses	(35)	(16)	(6)	-	-	(57)
Other income and expenses	(42)	(31)	(3)	157	(43)	38
Operating income	**121**	**198**	**133**	**266**	**(118)**	**600**
Equity in income of affiliates	-	(2)	-	-	-	(2)
Intangible assets and property, plant and equipment additions	69	271	88	161	16	605
Of which: Recurring capital expenditure*	69	204	83	88	16	460
Goodwill, net	1,057	462	359	55	-	1,933
Intangible assets (excluding goodwill) and property, plant and equipment, net	1,343	1,587	703	566	62	4,261
Investments in equity affiliates	-	26	-	3	-	29
Other investments and other non-current assets	12	64	37	26	127	266
Working capital*	255	366	212	35	7	875
Capital employed*	2,667	2,505	1,311	685	196	7,364
Provisions and other non-current liabilities	(135)	(338)	(86)	(127)	(547)	(1,233)

* *See note 4 "Alternative performance indicators and information by segment".*

Sales of Specialty Materials, by Business Line:

	2021	2020
Adhesive Solutions	**2,278**	**1,996**
Construction and Consumer	1,225	1,075
Industrial Assembly	1,053	921
Advanced Materials	**3,087**	**2,527**
High Performance Polymers	1,139	757
Performance Additives	1,948	1,770
Coating Solutions	**2,746**	**1,911**
Coating Resins*	2,005	1,396
Coating Additives*	741	515

* *At 1 January 2021, a business generating annual sales of around €50 million was transferred from the Coating Resins Business Line to the Coating Additives Business Line. The 2020 figures have not been restated.*

4.10 Information by geographical area

Sales are presented on the basis of the geographical location of customers. Capital employed and gross intangible assets and property, plant and equipment additions are presented on the basis of the location of the assets.

2021 *(In millions of euros)*	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Non-Group sales	737	2,673	2,941	2,798	370	9,519
Capital employed	2,461	1,260	2,462	1,687	87	7,957
Intangible assets and property, plant and equipment additions	245	41	184	287	6	763

2020 *(In millions of euros)*	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Non-Group sales	614	2,244	2,592	2,097	337	7,884
Capital employed	2,504	1,174	2,099	1,531	56	7,364
Intangible assets and property, plant and equipment additions	230	37	189	147	2	605

* *NAFTA USA, Canada, Mexico.*

Note 5 Other information relating to operating activities

5.1 Income statement

5.1.1 Sales

Sales consist of sales of chemicals produced or marketed by the Group. They are measured at the fair value of the consideration received or receivable, net of returns, trade discounts and volume rebates. Sales are recognized when control of the goods is transferred to the customer. The transfer of control is determined mainly on the basis of the terms and conditions of the sales contracts.

5.1.2 Operating expenses

Operating expenses correspond to the full cost of sales excluding research and development expenses and selling and administrative expenses which are reported on specific lines.

5.1.3 Research and development expenses

Research and development expenses include salaries, purchases, external services and amortization, and are recognized as incurred. Grants received are recognized as a deduction from research expenses.

The Group recognizes France's research tax credit (CIR) as a deduction from operating expenses.

5.1.4 Operating income

Operating income is calculated as all income and expenses not relating to the financial result, equity affiliates or income taxes.

5.1.5 Other income and expenses

Other income and expenses concern a limited number of well-identified non-recurring items of income and expense of a particularly material nature that the Group presents separately in its income statement in order to facilitate understanding of its recurring operational performance. These items of income and expense notably include:

- impairment losses in respect of property, plant and equipment, intangible assets and financial assets;
- gains or losses on sale of assets, acquisition costs, negative goodwill on acquisitions on favorable terms and the valuation difference on inventories between their fair value at the acquisition date and their production cost;
- start-up costs related to capital expenditure that is considered exceptional;
- large restructuring and environmental expenses which would hamper the interpretation of recurring operating income (including substantial modifications to employee benefit plans and the effect of onerous contracts); and
- material expenses related to litigation and claims whose nature is not directly related to ordinary operations.

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	2021			2020		
(In millions of euros)	Expenses	Income	Net	Expenses	Income	Net
Restructuring and environment	(41)	4	(37)	(42)	1	(41)
Goodwill impairment	(41)	-	(41)	(69)	-	(69)
Asset impairment (excluding goodwill)	(191)	-	(191)	(52)	-	(52)
Litigation and claims	(27)	-	(27)	(16)	-	(16)
Gains (losses) on sales and purchases of assets	(66)	1,000	934	(20)	236	216
Other	(21)	-	(21)	-	-	-
TOTAL OTHER INCOME AND EXPENSES	**(387)**	**1,004**	**617**	**(199)**	**237**	**38**

In 2021, restructuring and environment expenses mainly concern the Adhesive Solutions segment and the Thiochemicals and Fluorogases activities. The goodwill in the Hydrogen Peroxide Cash Generating Unit (CGU) has been fully impaired as have certain other assets in the CGU (see note 8.5 “Asset value monitoring”). Asset impairments have also been recognized for Asia, mainly in the Fluorogases activities (see note 8.3 “Property, plant and equipment”), and on a debt receivable from Canada Fluorspar NL Inc. (CFI) (see note 8.2 “Other intangible assets”). Expenses related to litigation and claims mainly concern the consequences of Winter Storm Uri in Texas in the first quarter of 2021, and legal fees for ongoing proceedings in the United States. The income and expenses relating to sales and purchases of assets are mainly attributable to the divestment of the PMMA activity (see note 3.3 “Assets held for sale”) as well as the divestment of the epoxides business and costs from the acquisition of Ashland’s performance adhesives business. The item “Other” primarily includes the impact of taking into account the dispensation from work mechanism in France over the long term in the Group’s financial statements (see note 6.3 “Provisions for pensions and other employee benefits”).

In 2020, restructuring and environment expenses mainly included restructuring costs in the Adhesive Solutions segment and the Fluorogases activity in Asia. In the context of Covid-19, impairment tests were conducted, leading to recognition of goodwill impairment of €69 million, essentially on activities in the Intermediates segment (see note 8.1 “Goodwill”). Impairment was also booked on a small number of property, plant and equipment (see note 8.3 “Property, plant and equipment”) and intangible assets (see note 8.2 “Other intangible assets”). Expenses related to litigation and claims concerned the consequences of Hurricane Harvey in the United States in 2017, and legal expenses on other ongoing proceedings in the United States. The expenses relating to sales and purchases of assets were essentially attributable to costs on the planned divestment of the PMMA activity, and expenses on acquisitions in the Adhesive Solutions segment. The pre-tax gain on the divestment of the Functional Polyolefins business was €235 million (net of expenses).

The total impairment (including goodwill impairment) included in other income and expenses amounts to a net expense of €206 million at 31 December 2021 compared to a net expense of €128 million at 31 December 2020.

5.2 Working capital

5.2.1 Cash flows

Cash flows in foreign currencies are translated into euros using the average exchange rates of each period. Cash flow statements exclude foreign exchange differences arising from the translation into euros of assets and liabilities recognized in balance sheets denominated in foreign currencies at the end of the period (except for cash and cash equivalents).

The change in working capital reported in the cash flow statement amounts to €290 million in cash flow from operating activities and €89 million in cash flow from investing activities.

(In millions of euros)	31 December 2020	Change in scope	Monetary flows in the cash flow statement (operating and investing activities)	Translation adjustment	Other non-monetary flows*	31 December 2021
Inventories	881	(48)	352	43	54	1,283
+ Accounts receivable, excluding fixed asset receivables	1,131	(6)	234	59	13	1,432
+ Other receivables, including income taxes recoverable	233	(2)	27	7	7	272
- Accounts payable, excluding fixed asset payables	835	2	162	35	1	1,034
- Other liabilities, including income taxes	408	(5)	163	16	(7)	574
TOTAL OPERATING CATEGORIES	**1,002**	**(52)**	**290**	**59**	**80**	**1,379**
Other creditors and fixed asset payables	152	-	89	9	-	251
TOTAL INVESTING CATEGORIES	**(152)**	**-**	**89**	**9**	**-**	**(251)**
+ Current financial derivative assets and liabilities	25	-	(6)	50	(11)	57
TOTAL WORKING CAPITAL	**875**	**(52)**	**373**	**118**	**69**	**1,185**

* *See note 3.3 “Assets held for sale”.*

5.2.2 Inventories

Inventories are valued in the consolidated financial statements at the lower of cost and net realizable value, in accordance with IAS 2 "Inventories". Cost of inventories is generally determined using the weighted average cost (WAC) method.

Cost of manufactured product inventories includes raw material and direct labor costs, and an allocation of production overheads and depreciation based on normal production capacity. Start-up costs and general and administrative costs are excluded from the cost of manufactured products inventories.

The net realizable value is the sale price as estimated for the normal course of business, less estimated costs for completion and sale.

(In millions of euros)	**31 December 2021**	31 December 2020
INVENTORIES (COST)	**1,400**	**979**
Valuation allowances	(117)	(98)
INVENTORIES (NET)	**1,283**	**881**
Of which:		
Raw materials and supplies	*474*	*309*
Finished products	*810*	*572*

5.2.3 Greenhouse gas emissions allowances (EUAs)

In the absence of an IFRS standard or interpretation relating to accounting for CO_2 emissions allowances, the following treatment has been adopted:

- allowances allocated without payment of consideration are recognized for nil value; and
- transactions carried out in the market are recognized at the transaction amount.

At this point, greenhouse gas emissions allowances (EUAs) allocated are adequate to cover the operational needs of the Group's European entities and a deficit is not currently forecast. The Group does not have any trading activity in respect of CO_2 emissions allowances. However, in the normal course of its operations, the Group may carry out cash or forward sales of its surpluses. These sales do not enter into the scope of application of IFRS 9 because of the "own use" exception.

5.2.4 Accounts receivable, other receivables and prepaid expenses

Accounts receivable amount to €1,432 million net at 31 December 2021 (€1,131 million at 31 December 2020) and include a bad debt provision of €24 million at 31 December 2021 (€29 million at 31 December 2020). The maturities of accounts receivable net of provisions are presented in note 11.6.4 "Credit risk". Other receivables and prepaid expenses notably include receivables from governments in an amount of €134 million at 31 December 2021 (€125 million at 31 December 2020), including €106 million of VAT.

5.2.5 Accounts payable, other creditors and accrued liabilities

Accounts payable amount to €1,274 million at 31 December 2021 (€987 million at 31 December 2020).

Other creditors and accrued liabilities mainly comprise employee-related liabilities for €275 million at 31 December 2021 (€210 million at 31 December 2020) and amounts owing to governments for €83 million at 31 December 2021 (€87 million at 31 December 2020), including €51 million of VAT (€45 million at 31 December 2020).

5.3 Off-balance sheet commitments related to operating activities

5.3.1 Off-balance sheet commitments related to the Group's operating activities

The main commitments given are summarized in the table below:

(In millions of euros)	**31 December 2021**	31 December 2020
Guarantees granted	110	133
Comfort letters	-	-
Contractual guarantees	4	12
Customs and excise guarantees	42	32
TOTAL	**156**	**177**

Guarantees granted are mainly bank guarantees in favor of local authorities and public bodies (state agencies, environmental agencies) in respect of environmental obligations or concerning classified sites, as well as bank guarantees given to Nutrien in connection with the partnership project in the Fluorogases activity in the United States.

5.3.2 Contractual commitments related to the Group's operating activities

In the normal course of business, the Arkema Group has signed multi-year purchase agreements for raw materials and energy for the operational requirements of its factories, in order to guarantee the security and continuity of supply. Signature of such contracts over initial periods generally comprised between one and ten years is a normal practice for companies in the Group's business sector in order to cover their needs.

These purchase commitments were valued taking into account, on a case-by-case basis, Arkema's financial commitment to its suppliers, as certain of these contracts include clauses which oblige the Group to take delivery of the minimum volumes as set out in the contract or, otherwise, to pay financial compensation to the supplier. Depending on the case, these commitments are reflected in the purchase contracts in the form of notice periods, indemnification to be paid to the supplier in case of early termination of the contract or "take or pay" clauses. The value of these agreements thus corresponds to the minimum amount payable to suppliers as indemnification in the event of termination of the contracts or failure to take delivery of the minimum contractual quantities, less any quantities that can be resold on the market when the Group is able to do so.

Some lease or purchase commitments do not fall within the scope of IFRS 16. Many of them are irrevocable purchase commitments described above, and service contracts or contracts making available assets that are not identified or not controlled by Arkema at 31 December 2021. Only the irrevocable portion of outstanding future purchases has been valued, and the corresponding amounts are included in the table below at 31 December 2021.

The total amount of the Group's financial commitments is €1,072 million at 31 December 2021, maturing as follows:

(In millions of euros)	31/12/2021	31/12/2020
2021	-	234
2022	257	78
2023	104	55
2024	85	49
2025	71	49
2026 until expiry of the contracts	555	259
TOTAL	**1,072**	**724**

The increase in the Group's commitments is mainly due to the establishment of a long-term hydrofluoric acid supply contract. It follows on from a partnership formed with Nutrien to start up a production unit in the United States in the first half of 2022.

Note 6 Workforce, personnel expenses and employee benefits

6.1 Workforce

	Adhesive Solutions	Advanced Materials	Coating Solutions	Intermediates	Corporate	Total
Employees at 31 December 2021	6,641	7,474	3,577	2,211	127	20,030
Employees at 31 December 2020	6,254	7,484	3,425	3,097	130	20,390

	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Employees at 31 December 2021	7,170	3,570	3,669	4,842	779	20,030
Employees at 31 December 2020	7,231	3,792	4,004	4,685	678	20,390

* *NAFTA USA, Canada, Mexico.*

6.2 Personnel expenses

Personnel expenses, including free share grants (see note 6.4 "Share-based payments"), amount to €1,498 million in 2021 (€1,464 million in 2020).

They comprise €1,138 million of wages and salaries and IFRS 2 expenses (€1,106 million in 2020) and €360 million of social charges (€358 million in 2020).

6.3 Provisions for pensions and other employee benefits

In accordance with IAS 19 (Revised) "Employee benefits":

- payments made in the context of defined contribution plans are recognized in expenses of the period; and
- obligations in respect of defined benefit plans are recognized and valued using the actuarial projected unit credit method.

Post-employment benefits

For defined benefit plans, the valuation of obligations under the projected unit credit method principally takes into account:

- an assumption concerning the date of retirement;
- a discount rate which depends on the geographical region and the duration of the obligations;
- an inflation rate;
- assumptions in respect of future increases in salaries, rates of employee turnover and increases in health costs; and
- the most recent mortality statistics for the countries concerned.

Returns on plan assets are in line with discount rates.

Differences which arise between the valuation of obligations and forecasts of such obligations (on the basis of new projections or assumptions) and between forecasts and outcomes of returns on plan assets are termed actuarial gains and losses, and are recorded in other non-recyclable comprehensive income.

When a plan is amended or created, the entire past service cost is immediately recognized in the income statement.

A pension asset may be generated where a defined benefit plan is overfunded. The amount at which such an asset is recognized in the balance sheet may be subject to a ceiling, in application of IAS 19.64 and IFRIC 14.

Other long-term benefits

In respect of other long-term benefits, and in accordance with applicable laws and regulations, provisions are recognized using a simplified method. Thus, if an actuarial valuation using the projected unit credit method is required, actuarial gains and losses and all past service costs are recognized immediately in the provision, with a corresponding entry being recognized in the income statement.

The net expense related to pension obligations and other employee benefit obligations is recognized in recurring operating income, with the exception of:

- the effect of curtailments or settlements of plans, which are presented under the "Other income and expenses" caption in the case of substantial modifications to such plans; and
- the net interest expense and the actuarial gains and losses related to changes in the discount rate on other long-term benefits, which are classified within the financial result caption.

IFRIC decision on attributing benefit to periods of service (IAS 19 "Employee Benefits")

From 2021 onward, IFRIC (IFRS Interpretations Committee), in agreement with the IASB, will adopt a new approach for attributing benefit to periods of service.

This has led to a change in how obligations are valued for plans capped at a specified number of years of service.

The following plans are concerned:

- plans with lump-sum payments on retirement, where benefits are calculated in terms of months and capped at a specified number of years of service in the company;
- supplementary defined benefit pension plans other than those affected by the French order of July 2019, which froze any further rights accruals as of the end of 2019;
- early retirement schemes, where benefits are only paid if the employment contract is terminated.

The Group considers that the impact of this change in valuation method was not material (€11 million) at 31 December 2020 and, accordingly, has not restated the balance sheet. The decrease in the provision for pensions was recognized at 1 January 2021 against reserves. In the 2021 income statement, the new policy for valuing obligations gave rise to a proportional decrease in the discounting expense (financial expense) and an increase in the future service cost. The Group does not expect the future impacts on its financial statements to be material.

At 31 December 2021, provisions for pensions and other employee benefits break down as follows:

(In millions of euros)	2021	2020
Pension obligations	335	388
Healthcare and similar coverage	59	62
Dispensation from work*	19	5
Post-employment benefits	**413**	**455**
Long service awards	80	75
Other long-term benefits	**80**	**75**
PROVISIONS FOR PENSIONS AND OTHER EMPLOYEE BENEFITS	**493**	**530**
Provision recognized in liabilities	493	530
Amount recognized in assets	(11)	-
NET PROVISIONS FOR PENSIONS AND OTHER EMPLOYEE BENEFITS	**482**	**530**

* *Reclassified from "Other long-term benefits" at 31 December 2020.*

Dispensation from work

Since the end of 2010, a dispensation from work mechanism has existed in France for certain categories of employees. Since the mechanism is regularly renewed, Arkema now considers it to be a long-term commitment and has accordingly presented the commitment for all employees concerned in this line.

Characteristics of the principal plans

In accordance with the laws and practices of each country, the Group participates in employee benefit plans offering retirement, healthcare and similar coverage, and special termination benefits. These plans provide benefits based on various factors including length of service, salaries, and contributions made to the national bodies responsible for the payment of benefits.

These plans are either defined contribution plans or defined benefit plans. In certain cases they can be either partly or totally funded by investments in dedicated plan assets, mutual funds, general funds of insurance companies or other assets.

The main features of the principal defined benefit plans are as follows:

- in the United States, the largest defined benefit plan is the "Employee Pension Plan". This plan has been frozen for several years and no new rights can be earned except in the case of a few employees. Under this plan, beneficiaries receive a lump sum or an annuity when they retire. The plan is prefunded, and the assets funding it are subject to the minimum funding rules laid down in the federal Pension Protection Act. A complementary healthcare plan covering certain medical expenses or insurance premiums for retired employees and their dependents is still open to new members; this plan is not prefunded. In 2020, to reduce exposure to financial risk and volatility, some of the Employee Pension Plan obligations were outsourced to an insurance company together with the corresponding assets. This resulted in a US$31 million decrease in assets and a US$29.5 million decrease in obligations, with the difference recorded in the 2020 income statement. An additional transfer was carried out in 2021, resulting in a US$42.9 million decrease in assets and a US$44.6 million decrease in obligations, with the difference recorded in the 2021 income statement;
- in France, the top hat pension plans are closed to new members. One of these plans is managed by an insurance company and prefunded by plan assets. The other plan has been terminated insofar as it concerns the Chairman and Chief Executive Officer, following the resolution adopted at the annual general meeting of 7 June 2016. The portion of the plan related to other beneficiaries was closed and transferred to external management in 2016.

The retiree top-up healthcare plan is also closed and is not prefunded. Other benefit plans (bonuses, long service awards and retirement gratuities) pay out lump sums; they are open to all employees and are partly prefunded;

- in Germany, all defined benefit plans are closed to new members. Plan participants receive a monthly payment once they retire (the normal retirement age is set at 65). Only certain plans are prefunded, involving non-significant amounts;
- in the Netherlands, the defined benefit plans for Arkema and Bostik were open until 31 December 2015 and were then replaced by defined contribution plans from 1 January 2016. Rights vested at 31 December 2015 were transferred to external management; and
- in the United Kingdom, no further rights have been able to be earned under any existing plan for several years now. The UK plans are prefunded through a pension fund.

6.3.1 Expense in the income statement

The expense related to defined-benefit plans breaks down as follows:

	2021				2020			
(In millions of euros)	Total	Pension obligations	Healthcare and similar coverage	Dispensation from work	Total	Pension obligations	Healthcare and similar coverage	Dispensation from work
Current service cost	17	16	1	-	18	17	1	0
Past service cost	21	3	-	18	-	-	-	-
Settlements	(2)	(2)	-	-	(2)	(2)	-	-
Interest expense	13	12	1	-	18	17	1	0
Expected return on plan assets	(6)	(6)	-	-	(11)	(11)	-	-
Other	-	-	-	-	-	-	-	-
(Income)/Expense	**43**	**23**	**2**	**18**	**23**	**21**	**2**	**0**

6.3.2 Change in net provisions over the period

	Pension obligations		Healthcare and similar coverage		Dispensation from work		Total post-employment benefits	
(In millions of euros)	2021	2020	2021	2020	2021	2020	2021	2020
Net liability (asset) at beginning of period	**388**	**381**	**62**	**64**	**5**	**5**	**455**	**450**
Provision recognized in liabilities	*388*	*382*	*62*	*64*	*5*	*5*	*455*	*451*
Amount recognized in assets	-	*(1)*	-	-	-	-	-	*(1)*
(Income)/Expense for the period	23	21	2	2	18	0	43	23
Contributions paid to plan assets	(5)	(23)	-	-	-	-	(5)	(23)
Net benefits paid by the employer	(9)	(7)	(3)	(3)	(2)	-	(14)	(10)
Changes in scope	(15)	-	(1)	-	-	-	(16)	-
Reclassification as assets held for sale under IFRS 5	16	(16)	1	(1)	-	-	17	(17)
Actuarial gains and losses recognized in shareholders' equity	(72)	44	(4)	3	(1)	-	(77)	47
IFRIC decision recognized in shareholders' equity	(11)	-	-	-	(1)	-	(12)	-
Translation adjustments	9	(12)	2	(3)	-	-	11	(15)
Net liability (asset) at end of period	**324**	**388**	**59**	**62**	**19**	**5**	**402**	**455**
Provision recognized in liabilities	*335*	*388*	*59*	*62*	*19*	*5*	*413*	*455*
Amount recognized in assets	*(11)*	-	-	-	-	-	*(11)*	-

6.3.3 Benefit obligations and provisions at 31 December

a) Present value of benefit obligations

	Pension obligations		Healthcare and similar coverage		Dispensation from work	
(In millions of euros)	2021	2020	2021	2020	2021	2020
Present value of benefit obligations at beginning of period	**742**	**795**	**62**	**64**	**5**	**5**
Current service cost	16	17	1	1	-	0
Net interest expense	12	17	1	1	-	0
Past service cost (including curtailments)	3	-	-	-	18	-
Settlements	(38)	(27)	-	-	-	-
Plan participants' contributions	-	-	-	-	-	-
Benefits paid	(69)	(46)	(3)	(3)	(2)	-
Changes in scope	(30)	-	(1)	-	-	-
Reclassification as assets held for sale under IFRS 5	41	(41)	1	(1)	-	-
Actuarial gains and losses recognized in shareholders' equity	(51)	67	(4)	3	(1)	-
IFRIC decision recognized in shareholders' equity	(11)	-	-	-	(1)	-
Translation adjustments	33	(40)	2	(3)	-	-
Present value of benefit obligations at end of period	**648**	**742**	**59**	**62**	**19**	**5**

b) Change in fair value of plan assets

Plan assets are mainly located in the United States, France and the United Kingdom.

	Pension obligations	
(In millions of euros)	2021	2020
Fair value of plan assets at beginning of period	**(354)**	**(414)**
Interest income	(6)	(11)
Settlements	36	25
Plan participants' contributions	-	-
Employer contributions	(5)	(23)
Benefits paid from plan assets	60	39
Changes in scope	15	-
Reclassification as assets held for sale under IFRS 5	(25)	25
Actuarial gains and losses recognized in shareholders' equity	(21)	(23)
Translation adjustments	(24)	28
Fair value of plan assets at end of period	**(324)**	**(354)**

c) Obligations in the balance sheet

	Pension obligations		Healthcare and similar coverage		Dispensation from work	
(In millions of euros)	**2021**	2020	**2021**	2020	**2021**	2020
Present value of unfunded obligations	114	122	59	62	19	5
Present value of funded obligations	534	620	-	-	-	-
Fair value of plan assets	(324)	(354)	-	-	-	-
(Surplus)/Deficit of assets relative to benefit obligations	**324**	**388**	**59**	**62**	**19**	**5**
Asset ceiling	-	-	-	-	-	-
Net balance sheet provision	**324**	**388**	**59**	**62**	**19**	**5**
Provision recognized in liabilities	*335*	*388*	*59*	*62*	*19*	*5*
Amount recognized in assets	*(11)*	-	-	-	-	-

Changes in recent years in the obligation (excluding the dispensation from work mechanism), the value of the plan assets and actuarial gains and losses are as follows:

(In millions of euros)	**2021**	2020	2019	2018
Obligations for pensions, healthcare and similar coverage	707	804	859	764
Plan assets	(324)	(354)	(414)	(368)
Net obligations	**383**	**450**	**445**	**396**
Actuarial (gains) and losses on accumulated rights				
• experience adjustments	(6)	(7)	5	(6)
• effects of changes in financial assumptions	(43)	77	99	(27)
• effects of changes in demographic assumptions	(6)	-	(11)	7

d) Pre-tax amount recognized through equity during the valuation period

	Pension obligations		Healthcare and similar coverage		Dispensation from work	
(In millions of euros)	**2021**	2020	**2021**	2020	**2021**	2020
Actuarial (gains) and losses generated in the period (A)	(72)	44	(4)	3	(1)	-
Effect of the surplus cap and the asset ceiling (B)	-	-	-	-	-	-
Total amount recognized in equity (A + B)	**(72)**	**44**	**(4)**	**3**	**(1)**	**-**
Cumulative actuarial (gains) and losses recognized in equity	**170**	**242**	**(80)**	**(76)**	**(1)**	**-**

e) Composition of the investment portfolio

	Pension obligations							
	At 31 December 2021				At 31 December 2020			
	France	**UK**	**Rest of Europe**	**USA**	France	UK	Rest of Europe	USA
Shares	22%	28%	21%	49%	18%	31%	20%	42%
Bonds	22%	33%	36%	42%	19%	34%	37%	41%
Property	2%	-	16%	6%	2%	-	15%	10%
Monetary/Cash assets	26%	2%	7%	-	-	4%	7%	6%
Investment funds	1%	37%	-	-	-	31%	-	2%
Funds held by an insurance company	26%	-	8%	-	61%	-	9%	-
Other	-	-	13%	3%	-	-	13%	-

Pension assets are mainly invested in listed financial instruments.

f) Actuarial assumptions

The main assumptions for pension obligations and healthcare and similar coverage are as follows:

	2021					2020				
	France	Germany	UK	Rest of Europe	USA	France	Germany	UK	Rest of Europe	USA
Discount rate	1.40	1.50	2.00	1.17	2.65	1.00	1.05	1.35	0.75	2.25
Rate of increase in salaries	2.18-2.5	2.50	N/A	1.50-3.50	4.15	2.18-2.5	2.50	N/A	1.00-3.50	4.17

The discount rate is determined based on indexes covering bonds by issuers with an AA credit rating, for maturities consistent with the duration of the above obligations.

The rate of increase in healthcare costs has a negligible impact in the United States as a ceiling has been applied since mid-2006, and in Europe since 2008. The impact has been limited to the rate of inflation during the period over which rights vest.

A change of plus or minus 0.50 points in the discount rate has the following effects on the present value of accumulated benefit obligations at 31 December 2021:

Pension obligations, healthcare and similar coverage *(In millions of euros)*	2021	
	Europe	USA
Increase of 0.50	(31)	(18)
Decrease of 0.50	33	30

A change of plus or minus 0.50 points in the rate of increase in salaries has the following effects on the present value of accumulated benefit obligations at 31 December 2021:

Pension obligations, healthcare and similar coverage *(In millions of euros)*	2021	
	Europe	USA
Increase of 0.50	13	3
Decrease of 0.50	(13)	(3)

g) Provisions by geographical area

2021	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	122	89	6	97	10	324
Healthcare and similar coverage	29	-	-	30	-	59
Dispensation from work	19	-	-	-	-	19

2020	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	134	98	20	128	8	388
Healthcare and similar coverage	31	-	-	31	-	62
Dispensation from work	5	-	-	-	-	5

h) Cash flows

The contributions to be paid by the Group in 2022 for funded benefits are estimated at €7 million.

The benefits to be paid by the Group in 2022 in application of defined benefit plans are valued at €9 million for pension obligations, and €4 million for healthcare and similar coverage.

6.4 Share-based payments

In application of IFRS 2 “Share-based payments”, the free shares granted to management and certain Group employees are measured at their fair value at the date of grant, which generally corresponds to the date of the Board of Directors’ meeting that granted the free shares.

The fair value of rights under free share grants corresponds to the opening market price of the shares on the day of the Board of Directors’ meeting that decides on the grant, adjusted for dividends not received during the vesting period and an illiquidity cost related to the holding period. The expense recognized also reflects the probability that the presence condition will be fulfilled. This expense is included in personnel expenses on a straight-line basis over the vesting period of the rights.

6.4.1 Stock options

The Board of Directors decided several years ago not to introduce any further stock option plans, and there are no remaining stock option plans outstanding.

6.4.2 Free share grants

On 9 November 2021, the Board of Directors decided to introduce two free performance share plans for employees, particularly people in positions of responsibility whose work has an influence on the Group’s results.

Movements in the free share grant plans existing at 31 December 2021 are as follows:

Plan	Grant date	Vesting period	Holding period	Total number of free shares granted	Number of shares subject to performance conditions	Fair value *(euros per share)*	Number of shares vested in 2021	Number of shares canceled in 2021	Total number of shares still to be granted at 31 Dec. 2021
2017-2	8 Nov. 2017	4 years	-	**129,405** (1)	114,845	67.88	121,687	2,900	**-**
2018-1, 2	2 May 2018	3-4 years	0-3 years	**41,137**	-	59.31-61.13	3,621	145	**37,252**
2018-3	5 Nov. 2018	3 years	2 years	**231,820** (2)	217,570	62.64	181,162	48,638	**-**
2018-4	5 Nov. 2018	4 years	-	**127,665** (3)	111,235	64.15	-	25,852	**94,538**
2019-1	29 Oct. 2019	3 years	2 years	**237,945** (4)	225,015	57.73	3,745	970	**231,775**
2019-2	29 Oct. 2019	4 years	-	**131,035** (5)	112,740	59.76	-	3,785	**124,675**
2020-1, 2	5 May 2020	3-4 years	0-3 years	**9,129**	-	10.09-20.94	14	-	**9,115**
2020-3	4 Nov. 2020	3 years	2 years	**238,550** (6)	226,000	52.58	3,700	1,330	**233,520**
2020-4	4 Nov. 2020	4 years	-	**128,245** (7)	111,365	54.33	-	3,155	**125,090**
2021-1	9 Nov. 2021	3 years	2 years	**239,575** (8)	227,387	81.91	-	90	**239,485**
2021-2	9 Nov. 2021	4 years	-	**124,713** (9)	105,293	83.92	-	630	**124,083**

(1) May be raised to 140,890 in the event of outperformance.
(2) May be raised to 253,577 in the event of outperformance.
(3) May be raised to 138,789 in the event of outperformance.
(4) May be raised to 282,948 in the event of outperformance.
(5) May be raised to 153,583 in the event of outperformance.
(6) May be raised to 283,750 in the event of outperformance.
(7) May be raised to 150,518 in the event of outperformance.
(8) May be raised to 285,052 in the event of outperformance.
(9) May be raised to 145,772 in the event of outperformance.

The amount of the IFRS 2 expense recognized in respect of free shares at 31 December 2021 is €16 million (€24 million at 31 December 2020).

6.5 Compensation of key management personnel

Key management personnel of a group, as defined in IAS 24, are those persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of that entity.

The key management personnel of the Group are the directors and the members of its Executive Committee.

The compensation and benefits of any kind recognized in expenses by the Group are as follows:

(In millions of euros)	2021	2020
Salaries and other short-term benefits	10	9
Pensions, other post-employment benefits and contract termination benefits	-	-
Other long-term benefits	-	-
Share-based payments	4	7

Salaries and other short-term benefits comprise all types of compensation recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and Chief Executive Officer is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of twice his total gross annual compensation (fixed and variable), subject to achievement of performance criteria.

Note 7 Income taxes

Current taxes

Current taxes are the amount of income taxes that the Group expects to pay in respect of taxable profits of consolidated companies in the period. They also include adjustments to current taxes in respect of prior periods.

The French tax consolidation regime enables certain French companies in the Group to offset their taxable income when determining the tax expense for the entire French tax group. The overall tax expense is payable by Arkema, as the parent company of the tax group. Tax consolidation regimes also exist in countries outside France.

France's CET *(contribution économique territoriale)* tax, which includes a contribution based on companies' value added (*cotisation sur la valeur ajoutée des entreprises* – CVAE), meets the requirements to be treated as a current tax under IAS 12 and has therefore been classified under "Income taxes".

Deferred taxes

The Group uses the liability method whereby deferred taxes are recognized based upon the temporary differences between the financial statement and tax basis of assets and liabilities, as well as on tax loss carryforwards and other tax credits, in accordance with IAS 12 "Income taxes".

Deferred tax assets and liabilities are valued at the tax rates that are expected to apply in the year in which the asset will be realized or the liability settled, on the basis of tax rates (and tax legislation) that have been enacted or virtually enacted at the balance sheet date. The effect of any changes in tax rates is recognized in income for the period, unless it relates to items that were previously debited or credited through equity. Deferred tax assets and liabilities are not discounted.

Deferred tax assets are recognized to the extent that their recovery is probable. In order to assess the likelihood of recovery of such assets, account is notably taken of the profitability outlook at the end of each period, determined by the Group, and historical taxable profits or losses, particularly for the scope of the French tax consolidation group.

A deferred tax liability is recognized for all taxable temporary differences related to investments in subsidiaries, associates and joint ventures, unless:

- the Group controls the timing of the reversal of the temporary difference; and
- it is probable that this difference will not reverse in the foreseeable future.

Deferred tax assets and liabilities are offset if a legally enforceable right to offset current tax assets and liabilities exists and if they relate to income taxes levied by the same tax authority.

7.1 Income tax expense

The income tax expense breaks down as follows:

(In millions of euros)	**2021**	**2020**
Current income taxes	(374)	(135)
Deferred income taxes	5	(43)
TOTAL INCOME TAXES	**(369)**	**(178)**

The income tax expense amounts to €369 million for 2021 including €8 million for the CVAE, compared with €178 million for 2020 including €13 million for the CVAE. The change in current income taxes in 2021 compared with 2020 mainly corresponds to the tax on the divestment of the PMMA activity. The deferred income tax expense in 2020 essentially corresponded to the reversal of €55 million of deferred tax assets following use of tax losses during the period.

7.2 Analysis by source of net deferred tax assets (liabilities)

The analysis by source of the net deferred tax assets (liabilities) is as follows, before offset of assets and liabilities at fiscal entity level:

(In millions of euros)	**31/12/2020**	**Change in scope/ Reclassifications**	**Changes recognized in shareholders' equity**	**Changes recognized in the income statement**	**Translation adjustments**	**31/12/2021**
Tax loss and tax credit carryforwards	62	-	-	(11)	-	51
Provisions for pensions and similar benefits	109	0	(22)	4	3	94
Other temporarily non-deductible provisions	186	5	(1)	104	11	305
Deferred tax assets	**357**	**5**	**(23)**	**97**	**14**	**450**
Valuation allowance on deferred tax assets	**(59)**	**(3)**	**(1)**	**(92)**	**(2)**	**(157)**
Excess tax over book depreciation	129	(1)	-	5	8	141
Other temporary tax deductions	330	19	(4)	(4)	9	350
Deferred tax liabilities	**459**	**18**	**(4)**	**1**	**17**	**491**
NET DEFERRED TAX ASSETS (LIABILITIES)	**(161)**	**(16)**	**(20)**	**4**	**(5)**	**(198)**

The increase in deferred tax assets related to other non-deductible provisions in the balance sheet is mainly attributable to provisions in France, and is offset by the impairment of these same deferred tax assets. In particular, this increase includes deferred taxes related to the impairment of the Hydrogen Peroxide activity.

After offsetting assets and liabilities at fiscal entity level, deferred taxes are presented as follows in the balance sheet:

(In millions of euros)	**31/12/2021**	**31/12/2020**
Deferred tax assets	144	159
Deferred tax liabilities	342	320
NET DEFERRED TAX ASSETS (LIABILITIES)	**(198)**	**(161)**

As the Group is able to control the timing of the reversal of temporary differences related to investments in subsidiaries and joint ventures, it is not necessary to recognize deferred taxes in respect of these differences.

7.3 Reconciliation between income tax expense and pre-tax income

(In millions of euros)	**2021**	**2020**
Net income	1,307	335
Income taxes	(369)	(178)
Pre-tax income	1,676	513
French corporate income tax rate	28.41%	32.02%
Theoretical tax expense	(476)	(164)
Difference between French and foreign income tax rates	49	25
Tax effect of equity in income of affiliates	0	0
Permanent differences	109	0
Change in valuation allowance against deferred tax asset ceiling	(92)	3
Deferred tax assets not recognized (losses)	41	(42)
INCOME TAX EXPENSE	**(369)**	**(178)**

The French corporate income tax rate includes the standard tax rate (27.5%) and the additional social security contribution. The overall income tax rate therefore stands at 28.41%.

7.4 Expiry of tax loss carryforwards and tax credits

The Group's unrecognized tax loss carryforwards and tax credits can be used up to their year of expiry, indicated in the table below:

	31 December 2021		**31 December 2020**	
(In millions of euros)	**Base**	**Income taxes**	**Base**	**Income taxes**
2021	-	-	26	7
2022	15	4	17	4
2023	22	5	18	5
2024	14	4	32	8
2025	18	5	57	14
2026 and beyond	15	4	-	-
Tax losses that can be carried forward indefinitely*	1,266	327	1,362	367
TOTAL	**1,350**	**349**	**1,512**	**405**

* *Essentially in France.*

The Group's unrecognized tax loss carryforwards and tax credits take into account the changes in the tax rate.

7.5 Income taxes paid

Income taxes paid amount to €288 million. The substantial change in income taxes paid compared with 2020 is primarily due to the increase in current income taxes.

(In millions of euros)	**31 December 2021**	**31 December 2020**
Income taxes paid	288	81

Note 8 Intangible assets and property, plant and equipment

8.1 Goodwill

Goodwill is initially recognized when a business combination takes place, as described in note 3.1 “Consolidation principles”.

Goodwill is not amortized after initial recognition. It is included in the CGUs that are subject to impairment tests as soon as any indicators of potential impairment are identified. Impairment tests are performed at least annually, following the methodology described in note 8.5 “Asset value monitoring”.

	31 December 2021			31 December 2020
(In millions of euros)	Gross book value	Accumulated amortization and impairment	Net book value	Net book value
Goodwill	2,532	(607)	1,925	1,933

The breakdown by segment is as follows:

	31 December 2021	31 December 2020
Goodwill by segment	Net book value	Net book value
Adhesive Solutions	1,038	1,057
Advanced Materials	463	462
Coating Solutions	368	359
Intermediates	56	55
Corporate	-	-
TOTAL	**1,925**	**1,933**

Changes in the net book value of goodwill are as follows:

(In millions of euros)	2021	2020
At 1 January	**1,933**	**1,917**
Impairment	(41)	(69)
Changes in scope	(29)	149
Translation adjustments	62	(64)
Reclassifications (including reclassifications as assets held for sale)	-	-
At 31 December	**1,925**	**1,933**

In 2021, the change in gross goodwill primarily corresponds to changes in scope from the Poliplas, Agiplast and Edge acquisitions (see note 3.2 “Business combinations”) offset by the reduction in goodwill following the finalization of the Fixatti, Ideal Work, Crackless Monomer Company (CMC) and Colorado Photopolymer Solutions (CPS) purchase price allocation. Goodwill impairment concerns the Hydrogen Peroxide CGU (see note 8.5 “Asset value monitoring”).

In 2020, the change in gross goodwill principally corresponded to changes in scope reflecting the acquisitions of LIP, Fixatti and Ideal Work (see note 3.2 “Business combinations”). Impairment of goodwill mainly related to the Fluorogases activity in China and the Asia Acrylics CGU (for an amount of €50 million), activities in the Adhesive Solutions segment (€11 million) and activities positioned in the aeronautics markets (€8 million).

8.2 Other intangible assets

Other intangible assets mainly include patents and technologies, trademarks, software and IT licenses, capitalized contracts, customer relations, and capitalized research expenses. These intangible assets are recognized in the balance sheet at their acquisition or production cost, less any accumulated amortization and impairment losses recognized following impairment tests as described in note 8.5 “Asset value monitoring”.

Intangible assets other than goodwill and trademarks with indefinite useful lives are amortized on a straight-line basis over 3 to 20 years depending on the pattern in which the asset’s future economic benefits are expected to be consumed by the entity.

The main categories of intangible assets and the amortization periods applied by the Group are as follows:

- patents: residual period until expiry of patent protection;
- technologies: average useful life;
- software: 3 to 10 years;
- licenses: term of the contract;
- capitalized contracts: term of the contract;
- customer relations: average useful life;
- capitalized research expenses: useful life of the project; and
- REACH registration fees: protection period of study data.

Trademarks

Trademarks are valued by the relief-from-royalty method.

Software and IT licenses

Software development expenses for the design, programming and test phases are capitalized.

Training costs, expenses related to change management, data transfer and subsequent maintenance costs are recorded as expenses.

Capitalized research and development costs

Under IAS 38 "Intangible assets", development costs are capitalized as soon as the Group can demonstrate, in particular:

- its intention and its financial and technical ability to complete the development project;
- that it is probable that future economic benefits attributable to the development costs will flow to the enterprise, which also implies having successfully completed the main non-toxicity studies relating to the new product; and
- that the cost of the asset can be measured reliably.

Grants received in respect of development activities are recognized as a deduction from capitalized development costs if they have been definitively earned by the Group. The Group also receives public financing in the form of repayable advances for the development of certain projects. Repayment of these advances is generally related to the future revenues generated by the development. The Group recognizes these advances in balance sheet liabilities (in the "Other non-current liabilities" caption) taking account of the probability of their repayment.

REACH (Registration, Evaluation and Authorization of Chemicals)

As no specific IFRS IC interpretations exist on the subject, the Group applies the following methods based on IAS 38:

- when most of the tests required for preparing the registration file have been acquired from a third party, the Group records an operating right in the intangible assets;
- when most of the expenses involved in preparing the registration file have been carried out internally or outsourced, the Group capitalizes the development costs that meet the requirements for capitalization defined by IAS 38 (see "Capitalized research and development costs" above).

At 31 December 2021, the net book value of intangible assets amounts to €1,517 million.

	31 December 2021			31 December 2020
(In millions of euros)	Gross book value	Accumulated amortization and impairment	Net book value	Net book value
Patents and technologies	460	(220)	240	257
Trademarks	595	0	595	583
Software and IT licenses	415	(331)	84	77
Capitalized REACH costs	73	(45)	28	32
Other capitalized research expenses	21	(17)	4	12
Capitalized contracts	87	(64)	23	32
Asset rights	75	(48)	27	32
Customer relations	310	(67)	243	231
Other intangible assets	93	(39)	54	23
Intangible assets in progress	244	(25)	219	154
TOTAL	**2,373**	**(856)**	**1,517**	**1,433**

Trademarks essentially comprise the Bostik® and Den Braven® trademarks, which are part of the Adhesive Solutions segment.

Changes in the net book value of intangible assets are as follows:

(In millions of euros)	2021	2020
At 1 January	**1,433**	**1,475**
Acquisitions	125	130
Amortization	(120)	(127)
Impairment	(13)	(9)
Disposals	-	-
Changes in scope	31	40
Translation adjustments	48	(47)
Reclassifications (including reclassifications as assets held for sale) (1)	12	(29)
At 31 December	**1,516**	**1,433**

(1) On 5 January 2021, Arkema terminated its fluorspar supply contract with Canada Fluorspar NL Inc. (CFI). This contract is valued in the Group's financial statements at 31 December 2020 at CAD 30 million, recognized in the form of a capacity reservation. A receivable of an equivalent amount from CFI was recognized in January 2021 instead of the capacity reservation. Arkema France filed a Statement of Claim on 1 June 2021 in the Ontario Superior Court of Justice to recover the debt due and owing by CFI under the contract. The Group has provisioned the total amount of the risk as CFI did not repay its debt at 31 December 2021.

Impairment of intangible assets at 31 December 2021 mainly concerns the Hydrogen Peroxide CGU (see note 8.5 "Asset value monitoring") and the Fluorogases activity in Asia.

Impairment of intangible assets at 31 December 2020 mainly related to capitalized R&D (€9 million) for certain projects whose growth prospects cannot confirm the value of the assets.

8.3 Property, plant and equipment

Gross value

The gross value of items of property, plant and equipment other than rights of use corresponds to their acquisition or production cost in accordance with IAS 16 "Property, plant and equipment". Gross value is not subject to revaluation.

Equipment subsidies are deducted directly from the cost of the assets which they financed. With effect from 1 January 2009 and in accordance with the revised version of IAS 23, borrowing costs that are directly attributable to financing property, plant and equipment that necessarily take a substantial period of time to get ready for their intended use or sale are eligible for capitalization as part of the cost of the assets for the portion of the cost incurred over the construction period.

Routine maintenance and repairs are charged to income in the period in which they are incurred. Costs related to major maintenance turnarounds of industrial facilities which take place at intervals greater than 12 months are capitalized at the time they are incurred and depreciated over the period between two such turnarounds.

Depreciation and impairment

Depreciation is calculated on a straight-line basis on the basis of the acquisition or production cost. Assets are depreciated over their estimated useful lives by category of asset. The principal categories and useful lives are as follows:

- machinery and tools: 5-10 years;
- transportation equipment: 5-20 years;
- specialized complex installations: 10-20 years;
- buildings: 10-30 years.

These useful lives are reviewed annually and modified if expectations change from the previous estimates. Such changes in accounting estimates are accounted for on a prospective basis.

Additional impairment is recognized when a loss of value is observed from impairment tests conducted as described in note 8.5 "Asset value monitoring".

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Property, plant and equipment

	31 December 2021			31 December 2020
(In millions of euros)	Gross book value	Accumulated depreciation and impairment	Net book value	Net book value
Land and buildings	2,137	(1,421)	716	719
Complex industrial facilities	3,677	(3,094)	583	655
Other property, plant and equipment	3,686	(2,729)	957	930
Construction in progress	655	(37)	618	372
TOTAL PROPERTY, PLANT AND EQUIPMENT EXCLUDING RIGHTS OF USE	**10,155**	**(7,281)**	**2,874**	**2,677**
Rights of use	298	(141)	157	151
TOTAL PROPERTY, PLANT AND EQUIPMENT	**10,453**	**(7,422)**	**3,031**	**2,828**

Other property, plant and equipment at 31 December 2021 mainly comprises machinery and tools with a gross value of €2,808 million (€2,562 million at 31 December 2020), and accumulated depreciation and provisions for impairment of €2,141 million (€1,879 million at 31 December 2020).

Changes in property, plant and equipment excluding rights of use

Changes in the net book value of property, plant and equipment excluding rights of use are as follows:

(In millions of euros)	2021	2020
At 1 January	**2,677**	**2,874**
Acquisitions	638	474
Depreciation	(419)	(430)
Impairment	(160)	(55)
Disposals	(8)	(43)
Changes in scope	(86)	74
Translation adjustments	148	(121)
Other	-	-
Reclassifications (including reclassifications as assets held for sale)	84	(96)
At 31 December	**2,874**	**2,677**

Impairment of property, plant and equipment at 31 December 2021 mainly concerns the Hydrogen Peroxide CGU (see note 8.5 “Asset value monitoring”) and the Fluorogases activity in Asia.

Impairment of property, plant and equipment at 31 December 2020 mainly related to activities linked to the aeronautics market (for an amount of €18 million), in the Adhesive Solutions segment (€10 million), and the Fluorogases activity in Asia (€9 million).

8.4 IFRS 16 leases: rights of use and IFRS 16 debt

From 1 January 2019, the Group’s lease obligations are recorded in application of IFRS 16 “Leases”. In the balance sheet, the Group recognizes an asset corresponding to the right to use the leased asset, and an equivalent financial liability. In the income statement, the lease payment expense is replaced by depreciation of the right to use the asset, recorded in “Depreciation, amortization and impairment”, and a financial interest expense, recorded in “Financial result”. The cash flow statement is also impacted. The Group records repayments of the financial liability, presented in “Cash flow from financing activities”, and a financial interest expense, presented in “Cash flow from operating activities”.

The Group first applied this standard at 1 January 2019 under the modified retrospective approach, and opted to use the two exemptions from capitalization allowed for leases of less than twelve months and leases of assets with an individual value of less than US$5,000 when new. For purposes of simplification, the Group excludes a certain number of subsidiaries from the scope of application of IFRS 16. The combined impact of the excluded lease contracts is not material for the Group.

The right of use is recognized at an amount corresponding to the initial debt, adjusted for prepaid and accrued payments on the original lease, and any estimated repair costs. The right of use is depreciated on a straight-line basis over the term of the lease.

In application of the decision of November 2019 by the IFRS IC, the lease term is the irrevocable period, extended where relevant by any renewal options the Group is reasonably certain to use; in particular, the Group applies the recommendation of 3 July 2020 issued by France’s Accounting Standards Authority, ANC, to real estate property leases in France.

The lease obligation at 1 January 2019 was calculated under IFRS 16, applying the discount rates in force at that date over the residual term of the lease.

As the implicit interest rate of the leases is not easily determined, the Group applies a discount rate based on the subsidiaries' estimated incremental borrowing rate.

The principal leases affected by IFRS 16 concern real estate property and logistics equipment, excluding servicing obligations associated with the lease.

At 31 December 2021, the net book value of rights of use related to leases is €157 million.

	31 December 2021			31 December 2020
(In millions of euros)	Gross book value	Accumulated depreciation and impairment	Net book value	Net book value
Rights of use: real estate assets (head offices, offices)	72	(34)	38	42
Rights of use: industrial assets (factories, land, warehouses)	50	(11)	39	30
Rights of use: logistics assets (trucks, containers, trolleys)	152	(83)	69	66
Rights of use: other assets (cars, etc.)	24	(13)	11	13
Total rights of use	**298**	**(141)**	**157**	**151**

Changes in the net book value of rights of use are as follows:

(In millions of euros)	2021	2020
At 1 January	**151**	**152**
Acquisitions	68	68
Depreciation	(65)	(57)
Disposals	-	(2)
Changes in scope	(7)	-
Translation adjustments	7	(7)
Reclassifications (including reclassifications as assets held for sale)	3	(3)
At 31 December	**157**	**151**

The IFRS 16 debt amounts to €168 million at 31 December 2021 (see note 11.3 "Debt"). The total non-discounted value of the Group's future lease payments amounts to €186 million at 31 December 2021, maturing as follows:

(In millions of euros)	31 December 2021
Within one year	52
1-5 years	87
After 5 years	47
TOTAL	**186**

At 31 December 2021, the cash outflows associated with leases amount to €58 million. The financial expenses related to the IFRS 16 debt amount to €3 million.

The application of exemptions for short-term leases and leases of low-value assets concerns amounts that are not material at Group level.

8.5 Asset value monitoring

The recoverable amount of property, plant and equipment and intangible assets is tested as soon as any indication of impairment is identified. A review to identify if any such indication exists is performed at each year-end, based on a five-year plan validated by the Executive Committee. This impairment test is performed at least once a year and includes goodwill and trademarks with indefinite useful lives.

An asset's recoverable amount corresponds to the greater of its value in use and its fair value less costs to sell.

Tests are performed for each autonomous group of assets, termed Cash Generating Units (CGUs). A CGU is a group of assets whose continued use generates cash flows that are substantially independent of cash flows generated by other groups of assets. They are worldwide business operations, which bring together groups of similar products in strategic, commercial and industrial terms. The value in use of a CGU is determined on the basis of the discounted future cash flows that are expected to be generated by the assets in question, based upon Group management's expectation of future economic and operating conditions over the next five years or, when the asset is to be sold, by comparison with its market value. In 2021, the terminal value was determined on the basis of a perpetuity annual growth rate of 1.5% (the same rate as used in 2020) and mid-cycle cash flow. The after-tax rate used to discount future cash flows and the terminal value is the Group's weighted average cost of capital, estimated at 7.5% in 2021 (the same rate as used in 2020). Any impairment is calculated as the difference between the recoverable amount and the carrying amount of the CGU. Because of its unusual nature, any such impairment is presented separately in the income statement under the "Other income and expenses" caption. Impairment may be reversed, to the maximum carrying amount that would have been recognized for the asset had the asset not been impaired. Impairment losses on goodwill are irreversible (in application of IFRIC 10, impairment losses on goodwill recognized in previous interim accounting periods cannot be written back).

Sensitivity analyses carried out at 31 December 2021, evaluating the impact of reasonable changes in the basic assumptions – in particular the impact of a 1-point increase in the discount rate, or of a change of minus 0.5 of a point in the perpetuity growth rate, or minus 10% in EBITDA, or plus 20% in capital expenditure – have confirmed the net carrying amounts of the different CGUs, excluding the Hydrogen Peroxide CGU.

EBITDA and investment sensitivities are now considered sufficient to take into account any climate-related impacts. In addition, the Group believes that climate issues have no impact on the useful lives of assets and that no additional impairment is required.

In the context of a downward trend – which the Group believes will prove long-lasting – in European pulp bleaching and liquid chlorine markets in the medium and long term, and the divestment of the epoxides business, the impairment test on the Hydrogen Peroxide CGU resulted in the recognition of a €156 million impairment loss, including €41 million in goodwill impairment. A change of minus 10% in EBITDA, or plus 20% in capital expenditure, or plus 0.5% in the discount rate would lead to impairment losses of between €40 million and €70 million on the remaining assets allocated to this CGU.

Lastly, impairment losses were recognized on other specific assets at 31 December 2021 (see note 8.3 “Property, plant and equipment”).

Note 9 Equity accounted companies and other non-current assets

The accounting methods for associates, joint ventures and other investments are described in note 3.1 “Consolidation principles”.

The amounts of the Group’s commitments to joint ventures and associates are non-significant.

In addition, in the normal course of business, the Group has business relationships with certain non-consolidated companies or with companies which are accounted for under the equity method. The values involved are not significant.

9.1 Associates

	2021				2020			
(In millions of euros)	% ownership	Equity value	Equity in income (loss)	Sales	% ownership	Equity value	Equity in income (loss)	Sales
Arkema Yoshitomi Ltd.	49%	4	0	17	49%	4	0	16
CJ Bio Malaysia Sdn. Bhd.	14%	12	0	307	14%	12	(1)	254
ERPRO 3D FACTORY	10%	1	0	1	-	-	-	-
Ihsedu Agrochem Private Ltd.	25%	6	0	225	25%	5	0	110
TOTAL		**23**	**0**			**21**	**(1)**	

9.2 Joint ventures

	2021				2020			
(In millions of euros)	% ownership	Equity value	Equity in income (loss)	Sales	% ownership	Equity value	Equity in income (loss)	Sales
Barrflex TU LLC	49%	6	(1)	0	49%	5	(1)	0
Daikin Arkema Refrigerants Asia Ltd.	0%	0	0	5	40%	2	-	12
Daikin Arkema Refrigerants Trading Ltd.	0%	0	0	7	40%	2	-	24
TOTAL		**6**	**(1)**			**9**	**(1)**	

Daikin Arkema Refrigerants Asia Ltd. and Daikin Arkema Refrigerants Trading (Shanghai) Co., Ltd. were sold in September 2021 as part of Arkema Advanced Fluorochemicals Co., Ltd.’s restructuring and merger with Arkema (Changshu) Fluorochemical Co., Ltd. (see note 15 “List of consolidated companies”).

9.3 Other investments

The main movements in 2020 and 2021 are as follows:

(In millions of euros)	2021	2020
At 1 January	**57**	**53**
Acquisitions	4	8
Disposals	(4)	-
(Increases)/Reversals of impairment	-	5
Changes in scope	1	(7)
Translation adjustments	-	(1)
Other changes	(5)	(1)
At 31 December	**52**	**57**

9.4 Other non-current assets

	31 December 2021			31 December 2020		
(In millions of euros)	Gross value	Impairment	Net value	Gross value	Impairment	Net value
Pension assets	11	-	11	-	-	-
Loans and advances	165	(9)	156	182	(9)	173
Security deposits paid	51	-	51	36	-	36
TOTAL	**227**	**(9)**	**218**	**218**	**(9)**	**209**

Loans and advances include amounts receivable from the French tax authorities in respect of France's research tax credit (CIR) and tax credit for competitiveness and employment (CICE). Loans and advances also include €63 million of receivables on Total related to the remediation costs in respect of closed industrial sites in the United States (see note 10.1 "Other provisions and other non-current liabilities/Provisions for environmental contingencies").

The balance of the CICE for 2015 was reimbursed in 2021 for €1 million.

The CIR and CICE for 2016, amounting to €33 million, were reimbursed in 2020 for €32 million and in 2021 for €1 million.

The CIR and CICE for 2017, amounting to €32 million, were reimbursed during the second quarter of 2021.

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Note 10 Other provisions and other non-current liabilities, contingent liabilities and litigation

10.1 Other provisions and other non-current liabilities

A provision is recognized when:

- the Group has a legal, regulatory or contractual obligation to a third party resulting from past events. An obligation can also result from Group practices or public commitments that create a reasonable expectation among the third parties in question that the Group will assume certain responsibilities;
- it is certain or probable that the obligation will lead to an outflow of resources to the benefit of the third party; and
- its amount can be estimated reliably and corresponds to the best possible estimate of the commitment. In exceptional cases where the amount of the obligation cannot be measured with sufficient reliability, disclosure is made in the notes to the financial statements in respect of the obligation (see note 10.2 "Liabilities and contingent liabilities").

Provisions for environmental contingencies which are established or reviewed when a business is closed down, or upon a formal request from the authorities, are the subject of an internal review every two years. These provisions are recognized or updated by a dedicated team which calls in specialized external assistance as and when required by the matters identified.

When it is expected that the Group will obtain partial or total reimbursement of the cost that was provided against, the expected reimbursement is recognized in receivables if, and only if, the Group is virtually certain of the receipt.

Long-term provisions, other than provisions for pensions and post-employment benefit obligations, are not inflation-indexed or discounted as the Group considers that the impact of such adjustments would not be significant.

The current (less than one year) portion of provisions is maintained within the "Other provisions and non-current liabilities" caption.

10.1.1 Other non-current liabilities

Other non-current liabilities amount to €14 million at 31 December 2021 as against €13 million at 31 December 2020.

10.1.2 Other provisions

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
At 1 January 2021	**184**	**40**	**146**	**370**
Increases in provisions	35	20	82	137
Reversals of provisions on use	(22)	(12)	(38)	(72)
Reversals of unused provisions	(3)	(2)	(19)	(24)
Changes in scope	(2)	2	(2)	(2)
Translation adjustments	8	1	7	16
Other	2	-	2	4
At 31 December 2021	**202**	**49**	**178**	**429**
Of which: less than one year	30	24	30	84
Of which: more than one year	172	25	148	345

Furthermore, certain provisions are covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
Portion of provisions covered by receivables or deposits	**63**	**-**	**34**	**97**
Deferred tax asset related to amounts covered by the Total indemnity	19	-	-	19
Provisions at 31 December 2021 net of non-current assets	120	49	144	313

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
At 1 January 2020	**197**	**34**	**143**	**374**
Increases in provisions	16	15	51	82
Reversals of provisions on use	(15)	(8)	(30)	(53)
Reversals of unused provisions	(4)	0	(9)	(13)
Changes in scope	0	0	0	0
Translation adjustments	(8)	(1)	(7)	(16)
Other	(2)	0	(2)	(4)
At 31 December 2020	**184**	**40**	**146**	**370**
Of which: less than one year	27	11	29	67
Of which: more than one year	157	29	117	303

Furthermore, certain provisions were covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
Total provisions at 31 December 2020	**184**	**40**	**146**	**370**
Portion of provisions covered by receivables or deposits	52	0	23	75
Deferred tax asset related to amounts covered by the Total indemnity	16	-	-	16
Provisions at 31 December 2020 net of non-current assets	**116**	**40**	**123**	**279**

Provisions for environmental contingencies

Provisions for environmental contingencies are recognized to cover expenses related to soil and water table clean-up, mainly:

- in France for €88 million (€82 million at 31 December 2020); and
- in the United States for €102 million (€87 million at 31 December 2020), of which €82 million in respect of former industrial sites covered 100% by the Total group indemnity (receivable recognized in "Other non-current assets" for an amount of €63 million and €19 million recognized in deferred tax assets).

Restructuring provisions

Restructuring provisions are mainly in respect of restructuring measures in France for €26 million (€22 million at 31 December 2020), in Europe outside France for €7 million (€7 million at 31 December 2020) and in the United States for €13 million (€9 million at 31 December 2020).

Increases in such provisions in the year mainly correspond to the restructuring plans described in note 5.1.5 "Other income and expenses".

Other provisions

Other provisions amount to €178 million and mainly comprise:

- provisions for labor litigation for €80 million (€61 million at 31 December 2020);
- provisions for commercial litigation and warranties for €46 million (€28 million at 31 December 2020);
- provisions for tax litigation for €33 million (€30 million at 31 December 2020); and
- provisions for other risks for €19 million (€27 million at 31 December 2020).

The allocation of provisions at 31 December 2020 has been changed with no material impact on the presentation.

10.2 Liabilities and contingent liabilities

Contingent liabilities arising from changes in the scope of consolidation are presented in note 3.4 "Warranties related to sales of businesses".

10.2.1 Environment

The Group's business activities are subject to constantly changing local, national and international regulations on the environment and industrial safety, which entail meeting increasingly complex and restrictive requirements. In this regard, these activities can involve a risk of the Group's liability being called upon, particularly in respect of clean-up of sites and industrial safety.

Taking account of the information available, agreements signed with Total, and the provisions for environmental contingencies recognized, the Group's executive management considers that the environmental liabilities identified at this point are valued and recognized to the best of their knowledge in the financial statements. However if laws, regulations or government policy in respect of environmental matters were to change, the Group's obligations could change, which could lead to additional costs.

The competent authorities have made, are making or may in the future make specific demands that the Group rehabilitate or control emissions at certain sites that it is currently operating, or that it operated or disposed of in the past, at neighboring sites or at sites where the Group stored or disposed of waste.

Sites currently in operation

The Group has many sites of which a certain number are probably polluted in view of their age and the range of activities that are carried out on them, or that were carried out on them in the past. As regards these sites, certain situations have been identified and the Group has already carried out certain clean-up work, or otherwise developed action plans and recognized provisions in order to cover future clean-up work.

However, in the light of (i) the uncertainties over the technical means to be implemented, (ii) potential issues that are unknown, (iii) uncertainties over the actual time required for remediation compared with the estimated time (*e.g.*, "pump and treat"), and (iv) potential changes in regulations, the possibility that the expenses the Group will incur will be higher than the amounts covered by provisions cannot be excluded. These potential excess costs relate mainly to the sites in Antwerp (Belgium), Calvert City (United States), Carling (France), Günzburg (Germany), Jarrie (France), Lannemezan (France), Leicester (United Kingdom), Lesgor (France), Loison (France), Mont (France), Pierre-Bénite (France), Porto Marghera (Italy), Ribecourt (France), Rion-des-Landes (France), Riverview (United States), Rotterdam (Netherlands), Saint-Auban (France), and Vlissingen (Netherlands) and could adversely affect the Group's business, results and financial situation.

Closed industrial sites (former industrial sites)

Total directly or indirectly took over some closed industrial sites at the date of the Spin-Off of Arkema's Businesses on 10 May 2006.

Since the Spin-Off, the businesses exercised on the former sites of Dorlyl SNC (France), Ibos (France), Colmar (France), Bernouville (France), Bonn (Germany) and Wetteren (Belgium) have been closed and the land sold. The businesses exercised on the Zaramillo (Spain) site have been closed and the real estate assets are in the process of being sold. The businesses exercised on the sites of Chauny (France), Miranda (Spain) and Pierrefitte Nestalas (France) have also been closed, without selling the land, and where relevant are covered by provisions for amounts that the Group considers adequate.

Furthermore, the Prefect of the Haute-Savoie region issued a prefectural decision on 6 April 2018 ordering Arkema France to carry out investigations on the Chedde site (France), with regard to the perchlorate production operations. Arkema France has met all requirements. On 15 October 2021, the Republic and Canton of Geneva filed a petition for summary proceedings with the Administrative Court of Grenoble, notably challenging Arkema France in its capacity as beneficiary of the perchlorate production operations on the Chedde site, and requesting the appointment of an expert to determine the causes, origins and consequences of the perchlorate pollution in the groundwater around Geneva. On 19 November 2021, Arkema France filed a petition with the Grenoble Administrative Court seeking to establish the potential liability of the French Ministry of Armed Forces.

Sites in operation that have been sold

a) Saint-Fons (Arkema France)

In the sale of the Group's vinyls activities to the Klesch Group in early July 2012, all industrial installations on the Saint-Fons site were transferred to Kem One, apart from the land, which is held under a long-term lease. The agreements for the sale stipulated that Arkema France remains liable for legacy pollution at the site.

The Prefect of the Rhône region issued decisions on 14 May 2007, 19 and 27 June 2012, ordering Arkema France to carry out quality monitoring on underground water and propose a plan to manage the legacy pollution affecting the site (T112 and other pollutants).

A provision has been established in the consolidated financial statements in connection with this matter. Following issuance of the most recent prefectural decision on 22 December 2020, Arkema France is preparing its new management plan. At 31 December 2021, the balance of the provision corresponds to the management of the planned remediation techniques.

b) Parrapon mining concession (SCIA Parapon)

Under a prior commitment made by the Arkema Group to the French authorities in connection with the transfer of the Parrapon mining concession to Kem One SAS, which was authorized by a ministerial decision of 13 January 2016, the Group will bear the costs that may be payable by Kem One SAS, as concession operator, as a result of surveillance and safety measures for the 31 salt mines which were permanently closed down on 12 February 2014.

To meet the requirements of the authorities, Kem One sent a proposal to the DREAL in a letter dated 21 August 2017 setting out a program of work. At 31 December 2021, the balance of the provision recorded in the 2017 consolidated financial statements corresponds to an amount considered adequate by the Group to cover the cost of the work.

10.2.2 Litigation, claims and proceedings in progress

Labor litigation

a) Occupational illness (France)

In the manufacture of its products, the Group uses and has used toxic or hazardous substances. Despite the safety and monitoring procedures that have been instituted at Group level and for each production site, Group employees may have been exposed to such substances and may develop specific pathologies as a result of such exposure.

In this respect, like most industrial companies, in the past, the Group has used a variety of insulating or heat-proofing materials containing asbestos in its production facilities. Consequently, certain employees may have been exposed to such materials before they were gradually eliminated and replaced with substitute products.

At its French sites, the Group anticipated the regulatory provisions applicable to asbestos (Decrees no. 96–97 and 96-98 of 7 February 1996 and Decree No. 96-1133 of 24 December 1996). The Group made an inventory of building materials within its premises that contained asbestos, notified employees of the results of these investigations and took the collective and individual protective measures required by the applicable laws. However, claims for occupational illness related to past asbestos exposure have been filed against the Group, mostly for periods before 1980. Given the latency period of asbestos-related pathologies, a large number of claims for occupational illness are likely to be filed in the years ahead.

The Group has recognized provisions to cover the risks of employer liability claims related to notified cases of occupational illness, which are reversed as appropriate depending on case outcomes.

b) Prejudice related to asbestos (Arkema France)

In a ruling of 11 May 2010, the labor chamber of the French Supreme Court *(Cour de Cassation)* recognized the existence of a prejudice of anxiety, eligible for compensation, for employees who in the past worked on sites included in the list of establishments whose workers were eligible for the early retirement system for asbestos workers.

Two decisions by the French Supreme Court (*Cour de Cassation*, on 5 April 2019 and 11 September 2019) extended the right to compensation for the prejudice of anxiety to employees who have not worked in an establishment classified as exposing workers to asbestos, but can prove they have been exposed to asbestos, and employees who can prove they have been exposed to a harmful or toxic substance entailing a high risk of developing a serious medical condition.

Currently, two compensation claims for the prejudice of anxiety, filed in the first half of 2020, have been brought against Arkema France before the employee claims courts.

In addition, 38 employees of the Saint-Fons site, formerly owned by Arkema France but transferred to Kem One in 2012, filed compensation claims against their current employer for the prejudice of anxiety from asbestos exposure due to the presence of this material in the industrial facilities. Arkema France was also implicated in the case.

The Group has recognized a provision to cover these risks.

It is possible that other current or former employees of Arkema France who were effectively exposed to asbestos or who worked on sites that are added by ministerial decision to the official list of eligible sites could bring action in the future before an employee claims court to claim compensation for the prejudice of anxiety.

Tax litigations

a) Arkema Quimica Ltda

Arkema's Brazilian subsidiary Arkema Quimica Ltda, which merged with Arkema Coatex Brasil Indústria e Comércio Ltda. on 1 January 2021, started offsetting certain tax assets and liabilities in 2000 following a declaration as to the unconstitutional nature of certain taxes. The Brazilian government contested the justification for this offset and in 2009 claimed repayment of 19.5 million reais (around €6 million). In mid-2017, Arkema Quimica Ltda reassessed its risk and decided to opt into an amnesty program that reduced the amount payable to 6 million reais, to be paid in installments until September 2029. The provision at 31 December 2021 corresponds to the remaining payments.

b) Arkema Srl

In 2013, the Lombardy Regional Tax office (Italy) conducted a tax inspection of Arkema Srl for the 2008, 2009 and 2010 financial years, subsequently extended to 2011, 2012, 2013 and 2014, after which, among other observations, it contested the purchase prices of products for resale and the level of commission paid to the Company in intragroup transactions, and applied a withholding tax on interest on intragroup financing. The tax reassessments notified for 2008, 2009, 2010, 2011, 2012, 2013 and 2014 amount to €14.7 million including interest and penalties. Arkema Srl is contesting all of these reassessments and has not recognized any provisions. It has won every case so far, both at first instance and on appeal. On 19 October 2021, the Supreme Court overturned the 2011 appeal court's decision on the grounds of mistake of law (burden of proof) and remanded the matter back to the court. This decision does not fundamentally change the company's analysis of the risk.

c) Arkema France

France's National and International Audit Administration (*Direction des vérifications nationales et internationales* – DVNI) has contested that the full amount of depreciation and amortization expense for research center assets can be used when calculating France's research tax credit (CIR) for Arkema France and Bostik SA, arguing that only a percentage of this amount proportionate to the use of such assets for CIR-eligible projects should apply. Discussions with the authorities are continuing. A provision for the risk of a tax reassessment has been recognized in liabilities for the years audited (2016-2018) and the following years, including 2021.

Other litigation

a) Harvey (Arkema Inc.)

As a result of Hurricane Harvey, Arkema's Crosby, Texas plant experienced unprecedented flooding leading to a loss of power, the loss of back-up refrigeration, the decomposition of certain organic peroxide products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, more than thirty civil lawsuits have been filed against Arkema Inc., and are still ongoing. Arkema S.A. is currently a named defendant in four of those lawsuits. At this time, Arkema S.A. has not been formally served and cannot estimate any potential losses associated with these lawsuits; if formally served, Arkema S.A. will vigorously defend against such claims. A number of U.S., Texas, and local regulatory authorities have reviewed the incident at the Crosby plant, including Arkema Inc.'s compliance with regulatory environmental requirements, and the schedule and actions taken to ensure the safety of the site, the surrounding community and environment. On 24 May 2018, the U.S. Chemical Safety and Hazard Investigation Board issued its final investigation report on the incident and Arkema Inc. implemented its recommendations.

b) Perfluorinated substances

Arkema Inc. and in some instances Arkema France, along with numerous other users and multiple fluorogas manufacturers, have been sued in the United States in a substantial number of cases involving per- and poly-fluoroalkyl substances. The majority of these concern fluorinated substances used in firefighting foams. Many have been filed in or transferred to a single multi-district litigation action pending in federal court in South Carolina. There is also a putative class action filed in federal court in Ohio, on behalf of all persons in the United States who have been exposed to such substances. Additionally, there are similar claims filed in other various state and federal courts. There are also cases involving a former operating site in New Jersey for which Arkema Inc. is indemnified by Legacy Site Services, LLC as more fully described in note 10.3 "Commitments received". The two companies are vigorously defending against the allegations of these lawsuits. The Group is not, as at the date of these financial statements, in a position, having regard to the information available to it, to estimate the total amount of the claims that might finally be upheld against it by the various competent courts after the exhaustion of any avenues of appeal.

c) Asbestos risk (Arkema Inc.)

In the United States, Arkema Inc. is involved in a substantial number of asbestos-related proceedings in various State courts. No notable developments have arisen in the proceedings concerning claims by third parties (other than employees) relating to (i) alleged exposure to asbestos on the Group's sites, or (ii) exposure to products containing asbestos and sold by former subsidiaries of the Group in the United States and elsewhere. Most proceedings against Arkema Inc. have been brought by non-group contractors or product users and are covered by liability insurance, while the proceedings by Arkema employees relate to the employee indemnity regime in each State and are covered by employee insurance. However, in 2015 Arkema Inc. settled two disputes concerning former employees' alleged exposure to asbestos before State courts. When claims are not covered by insurance policies, provisions have been made for such claims in an amount which the Group considers sufficient. However, due to the continuing uncertainties as to the outcome of these proceedings, the Group is not, as at the date of these financial statements, in a position, having regard to the information available to it, to estimate the total amount of the claims that might finally be upheld against it by the various competent courts after the exhaustion of any avenues of appeal.

d) Kem One

The Group sold its vinyls activities, grouped into the Kem One Group, to the Klesch group with effect from 1 July 2012.

On 27 March 2013, insolvency proceedings were opened against the company Kem One SAS. In a ruling of 20 December 2013, the Lyon commercial court designated the new owner of Kem One SAS, and put to an end the insolvency proceedings concerning the company.

An arbitration procedure was initiated against Arkema France by Klesch Chemicals Ltd and Klesch Group Ltd on 4 March 2013. In its decision issued on 24 November 2015, the International Chamber of Commerce Court of Arbitration dismissed all the claims made by Klesch Chemicals Ltd and Klesch Group Ltd against Arkema France, and ordered Klesch Chemicals Ltd to pay Arkema France €73.6 million in damages and Klesch Chemicals Ltd and Klesch Group Ltd to reimburse the majority of the costs incurred for this arbitration procedure. A petition by Klesch Chemicals Ltd and Klesch Group Ltd for cancellation of this arbitration ruling was filed with the Paris Appeal Court on 9 December 2015, and heard in court on 4 December 2018. On 22 January 2019, the Paris Appeal Court issued its judgment, rejecting the petition by Klesch Chemicals Ltd and Klesch Group Ltd, and ordering the two companies to pay Arkema France the sum of €200,000 in costs (under article 700 of the French Code of Civil Procedure). Klesch Chemicals Ltd and Klesch Group Ltd filed an appeal against this judgment on 8 August 2019. This appeal was rejected by the Supreme Court *(Cour de Cassation)* on 27 January 2021.

e) Coem (Arkema France)

As there were no product supplies by Kem One SAS to the Italian company Coem, Coem in August 2012, and subsequently its shareholder Industrie Generali in March 2016, issued written complaints to Arkema France and Kem One that they had suffered losses through breach of commercial relations. On 27 June 2017, Industrie Generali brought a tort action before the Nanterre commercial court claiming €8.9 million from Arkema France in compensation for the banks' activation of the guarantees it had provided when Coem was placed in receivership. Arkema considered that these claims had no legal foundation, and no provision was booked in the financial statements. The case was heard in court on 29 January 2020. In a ruling of 6 May 2020, the Nanterre commercial court rejected the claim brought by Industrie Generali and ordered it to pay Arkema France the sum of €30,000 in costs (under article 700 of the Code of Criminal Procedure). Industrie Generali filed an appeal against this decision on 25 August 2020. The proceedings were still ongoing in 2021.

10.3 Commitments received

Commitments received from Total in 2006

In connection with the Spin-Off of Arkema's Businesses, Total S.A. and certain Total companies extended certain indemnities, or assumed certain obligations, for the benefit of the Arkema Group. Some are still in application while others terminated during 2017. The indemnities and obligations concerned are described below, and relate to actual or potential environmental liabilities of the Group arising from certain sites in France, Belgium and the United States, the operations on which in the majority of cases have ceased.

Obligations and indemnities given in respect of Former Industrial Sites

In order to cover certain risks relating to certain industrial sites situated in France, Belgium and the United States in respect of which the Group is or could be held liable, and where, for the most part, operations have ceased (the Former Industrial Sites), Total S.A. companies have entered into indemnity and service agreements with Arkema or its subsidiaries.

Pursuant to these agreements, the obligations and environmental responsibilities associated with these former industrial sites in France and at Rieme in Belgium were transferred to Total S.A. group companies.

Agreement relating to certain former industrial sites located in the United States

In March 2006, Arkema Amériques SAS completed the acquisition from Elf Aquitaine Inc. and Arkema France of Arkema Delaware Inc., a holding company for most of the Group's operations in the United States. The negotiated terms of the stock purchase agreement among Elf Aquitaine Inc., Legacy Site Services and Arkema Amériques SAS, dated 7 March 2006 (the Arkema Delaware Main SPA) required Elf Aquitaine Inc. to use US$270 million to capitalize a new subsidiary, Legacy Site Services LLC, to perform remediation services and indemnify the Group against the cost of environmental contamination liabilities incurred by the Group entities covered by this indemnity, and related personal injury and property damage claims associated with contamination at 35 of the Group's closed and formerly operated facilities and 24 third party sites where the Group's liability arises solely out of waste shipments from the sites other than currently operated sites. In exchange for this indemnification, Arkema Amériques SAS agreed to grant to Legacy Site Services LLC control over remediation activities and the defense of claims relating to contamination liabilities at these facilities and sites.

The sites currently operated by the Group are excluded from this indemnity, as are sites that received waste associated with current operations of the Group, certain sites where no significant restoration work is currently underway or anticipated, and other sites where the Group could be held liable for environmental pollution. These other sites include, for example, sites where remediation has been conducted in the past or where future remediation costs or liability are believed to be insignificant or non-existent based upon information available at the time when the indemnity was entered into. Arkema Amériques SAS has waived any claims against Legacy Site Services LLC, Total S.A. or their respective subsidiaries in respect of the sites not covered by the indemnity.

The Legacy Site Services LLC indemnity covers the costs of restoration and clean-up of the soil and groundwater, the costs of related defense and settlement costs and personal injury, property and natural resource damages. The indemnity does not cover liabilities unrelated to site remediation, in particular liabilities in respect of products manufactured on the said sites, liability arising from certain dangerous and potentially dangerous substances, particularly asbestos exposure, and criminal liability.

The indemnity described above is capped at US$270 million. The amount received by Arkema under this indemnity amounts to US$132 million. At the same time as the stock purchase agreement and the indemnity described above, Legacy Site Services LLC and Arkema Inc. entered into a supplemental contamination indemnity agreement pursuant to which Legacy Site Services LLC will indemnify the liabilities of the Group in excess of US$270 million, on the same terms, for the same sites and subject to the same exceptions as the indemnity described in the preceding paragraph.

Note 11 Financing, financial instruments and risk management

11.1 Financial result

Financial result includes the cost of debt adjusted for capitalized financial expenses, and as regards provisions for pensions and employee benefits, the interest cost, the expected return on plan assets and the actuarial gains and losses related to changes in the discount rate on other long-term benefits. It also includes the portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the difference between the spot exchange rate and the forward exchange rate, and the foreign exchange gain/loss on unhedged financing.

(In millions of euros)	2021	2020
Cost of debt	(48)	(55)
Spot/forward exchange rate difference and foreign exchange gain/loss on unhedged financing	(3)	(17)
Financial income/expenses on provisions for pensions and employee benefits	(4)	(10)
Capitalized interest	2	1
Interest expenses on leases	(3)	(4)
Other	0	0
FINANCIAL RESULT	**(56)**	**(85)**

11.2 Financial assets and liabilities

Financial assets and liabilities principally comprise:

- other investments;
- loans and financial receivables, included in other non-current assets;
- accounts receivable;
- cash and cash equivalents;
- debt and other financial liabilities (including accounts payable); and
- derivatives, reported in other current assets and liabilities.

Other investments

These securities are recognized at fair value in accordance with IFRS 9. In cases where fair value cannot be reliably determined, they are recognized at their historical cost. At the date of application of IFRS 9, the Group opted to record changes in the fair value of unconsolidated investments in "Other comprehensive income", except for investments in the process of liquidation.

In general, other investments acquired by the Group are strategic investments to prepare the Group's long-term development, and are therefore classified as assets/liabilities measured at fair value through other comprehensive income. Nonetheless, in application of IFRS 9 criteria for classification of investments, for investments due to be sold the Group can opt to recognize changes in fair value in profit and loss.

Loans and financial receivables

These financial assets are recognized at amortized cost. They are subject to impairment tests involving a comparison of their carrying amount to the present value of estimated recoverable future cash flows. These tests are carried out as soon as any indicator inferring that the present value of these assets is lower than their carrying amount is identified. As a minimum such tests are performed at each balance sheet date. Any impairment loss is recognized in recurring operating income.

Accounts receivable

Accounts receivable are initially recognized at their fair value. Subsequent to initial recognition, they are recognized at amortized cost. If required, a bad debt provision is recognized on the basis of the risk of non-recovery of the receivables.

Cash and cash equivalents

Cash and cash equivalents are liquid assets and assets which can be converted into cash within less than three months that are subject to a negligible risk of change in value.

Non-current and current debt (including accounts payable)

Non-current and current debt (other than derivatives) is recognized at amortized cost.

Derivatives

The Group may use derivatives to manage its exposure to foreign currency risks and risks of changes in the prices of raw materials and energy. Derivatives used by the Group are recognized at their fair value in the balance sheet, in accordance with IFRS 9. The fair value of these unlisted derivatives is determined by reference to current prices for contracts with similar maturity. They therefore correspond to the "Level 2" category defined in IFRS 7.

Changes in the fair value of these derivatives are recognized within operating income and, for foreign currency instruments, in financial result for the portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the differences between the spot exchange rate and the forward exchange rate, except for those on instruments which are considered to meet the criteria for cash flow hedge accounting or hedge accounting of a net investment in a foreign operation under IFRS 9.

For items that qualify for cash flow hedge accounting, the effective portion of the change in fair value is recognized in shareholders' equity under the "Total income and expenses recognized directly through equity" caption until such time as the underlying hedged item is recognized through the income statement. Any ineffective portion is recognized in operating income.

A hedge of a net investment in a foreign operation hedges the exposure to foreign exchange risk of the net assets of the foreign operation (IAS 21 "The effects of changes in foreign exchange rates"). The effects of this hedge are recorded directly in shareholders' equity under the "Total income and expenses recognized directly through equity" caption.

11.2.1 Financial assets and liabilities by accounting category

2021

IFRS 9 category: Class of instrument *(In millions of euros)*	Notes	Assets/liabilities measured at fair value through profit or loss	Assets/liabilities measured at fair value through other comprehensive income	Assets/liabilities measured at amortized cost	Total net carrying amount
Other investments	*(9.3)*	-	52	-	52
Other non-current assets (loans and advances, security deposits paid)	*(9.4)*	-	11	138	149
Accounts receivable	*(5.2)*	-	-	1,432	1,432
Cash and cash equivalents	*(11.4)*	2,285	-	-	2,285
Derivatives*	*(11.2.2)*	102	7	-	109
FINANCIAL ASSETS		**2,387**	**70**	**1,570**	**4,027**
Current and non-current debt	*(11.3)*	-	-	2,762	2,762
Accounts payable	*(5.2)*	-	-	1,274	1,274
Derivatives*	*(11.2.2)*	51	1	-	52
FINANCIAL LIABILITIES		**51**	**1**	**4,036**	**4,088**

* *Derivatives are carried in the balance sheet in the lines "Current financial derivative assets" and "Current financial derivative liabilities".*

2020

IFRS 9 category: Class of instrument *(In millions of euros)*	Notes	Assets/liabilities measured at fair value through profit or loss	Assets/liabilities measured at fair value through other comprehensive income	Assets/liabilities measured at amortized cost	Total net carrying amount
Other investments	*(9.3)*	-	57	-	57
Other non-current assets (loans and advances, security deposits paid)	*(9.4)*	-	-	112	112
Accounts receivable	*(5.2)*	-	-	1,131	1,131
Cash and cash equivalents	*(11.4)*	1,587	-	-	1,587
Derivatives*	*(11.2.2)*	22	18	-	40
FINANCIAL ASSETS		**1,609**	**75**	**1,243**	**2,927**
Current and non-current debt	*(11.3)*	-	-	2,797	2,797
Accounts payable	*(5.2)*	-	-	987	987
Derivatives*	*(11.2.2)*	13	1	-	15
FINANCIAL LIABILITIES		**13**	**1**	**3,784**	**3,799**

* *Derivatives are carried in the balance sheet in the lines "Current financial derivative assets" and "Current financial derivative liabilities".*

At 31 December 2021, as at 31 December 2020, the fair value of financial assets and liabilities is approximately equal to the net carrying amount, except in the case of bonds.

11.2.2 Derivatives

The main derivatives used by the Group are as follows:

	Notional amount of contracts at 31 December 2021			Notional amount of contracts at 31 December 2020			Fair value of contracts	
(In millions of euros)	< 1 year	< 5 years and > 1 year	> 5 years	< 1 year	< 5 years and > 1 year	> 5 years	31 December 2021	31 December 2020
Forward foreign currency contracts	3,044	12	-	1,917	7	-	53	26
Commodities and energy swaps	20	1	-	25	5	-	4	(1)
TOTAL	**3,064**	**13**	**-**	**1,942**	**12**	**-**	**57**	**25**

Forward foreign currency contracts at 31 December 2021 include hedging instruments used for the acquisition of the Ashland assets.

11.2.3 Impact of financial instruments on the income statement

The income statement includes the following items related to financial assets (liabilities):

(In millions of euros)	2021	2020
Total interest income (expenses) on financial assets and liabilities*	(46)	(54)
Impact on the income statement of valuation of derivatives at fair value	0	(11)
Impact on the income statement of operations on other investments	3	3

* *Excluding interest costs on pension obligations and the expected return on related plan assets.*

The amount of foreign exchange gains and losses recognized in recurring operating income in 2021 is a positive €15 million (negative €10 million in 2020).

11.2.4 Impact of financial instruments on shareholders' equity

At 31 December 2021, the impact of financial instruments net of deferred taxes on the Group's shareholders' equity is a negative €13 million (positive €23 million at 31 December 2020), essentially reflecting the net-of-tax fair value of foreign currency and commodity hedges.

11.3 Debt

Group net debt amounted to €477 million at 31 December 2021, taking account of cash and cash equivalents of €2,285 million.

11.3.1 Analysis of net debt by category

(In millions of euros)	31 December 2021	31 December 2020
Bonds	2,539	2,537
Bank loans	2	0
Other non-current debt	21	17
Non-current debt excluding IFRS 16 debt	**2,562**	**2,554**
Bonds	-	0
Syndicated credit facility	-	-
Negotiable European Commercial Paper	-	-
Other bank loans	9	46
Other current debt	23	42
Current debt excluding IFRS 16 debt	**32**	**88**
Debt excluding IFRS 16 debt	**2,594**	**2,642**
Non-current IFRS 16 debt	118	109
Current IFRS 16 debt	50	46
Debt	**2,762**	**2,797**
Cash and cash equivalents	2,285	1,587
NET DEBT	**477**	**1,210**

BONDS

- In December 2013, the Group issued a €150 million bond that will mature on 6 December 2023, with a fixed coupon of 3.125%.

  At 31 December 2021, the fair value of this bond is €157 million.

- In January 2015, the Group issued a €700 million bond that will mature on 20 January 2025, with a fixed coupon of 1.50%.

  At 31 December 2021, the fair value of this bond is €730 million.

- In April 2017, the Group issued a €700 million bond that will mature on 20 April 2027, with a fixed coupon of 1.50%. A further €200 million tap issue was undertaken in June 2017, bringing the total amount of this bond issue to €900 million.

  At 31 December 2021, the fair value of this bond is €955 million.

- In December 2019, the Group issued a €500 million bond that will mature on 3 December 2029, with a fixed coupon of 0.75%.

  At 31 December 2021, the fair value of this bond is €512 million.

- In October 2020, the Group issued a €300 million green bond that will mature on 14 October 2026, with a fixed coupon of 0.125%.

  At 31 December 2021, the fair value of this bond is €300 million.

These issues are part of the Group's Euro Medium Term Notes (EMTN) program introduced in October 2013.

Negotiable european commercial paper

In April 2013, the Group introduced an annually renewed Negotiable European Commercial Paper program with a ceiling of €1 billion.

No issues are outstanding as part of this program at 31 December 2021.

Syndicated credit facility

In line with its ambitions in terms of Corporate Social Responsibility, on 7 July 2021 Arkema signed an addendum to its €1 billion syndicated credit facility set up in July 2020 in order to integrate three key CSR criteria for the Group into the calculation of the cost of credit: greenhouse gas emissions, volatile organic compound emissions and the total recordable injury rate (TRIR). Arkema also obtained approval from all lenders for the first one-year extension, bringing the maturity date for the syndicated credit facility to 29 July 2024.

IFRS 16 liabilities

The maturities of the Group's future lease payments, at non-discounted value, are presented in note 8.4 "IFRS 16 leases".

11.3.2 Analysis of debt excluding IFRS 16 debt by currency

The Arkema Group's debt excluding IFRS 16 debt is mainly denominated in euros.

(In millions of euros)	**31 December 2021**	31 December 2020
Euros	2,571	2,567
Chinese Yuan	-	59
US Dollars	9	5
Other	14	11
TOTAL DEBT EXCLUDING IFRS 16 DEBT	**2,594**	**2,642**

Part of the debt in euros is converted through swaps to the accounting currency of internally financed subsidiaries, in line with the Group's policy. At 31 December 2021 the swapped portion, mainly in US dollars, represented approximately 29% of gross debt excluding IFRS 16 debt.

11.3.3 Analysis of debt excluding IFRS 16 debt by maturity

The breakdown of debt by maturity, excluding IFRS 16 debt and including interest costs, is as follows:

(In millions of euros)	**31 December 2021**	31 December 2020
Less than 1 year	45	102
Between 1 and 2 years	184	38
Between 2 and 3 years	30	184
Between 3 and 4 years	731	29
Between 4 and 5 years	319	729
More than 5 years	1,429	1,736
TOTAL DEBT EXCLUDING IFRS 16 DEBT	**2,738**	**2,818**

11.4 Cash and cash equivalents

(In millions of euros)	**31 December 2021**	31 December 2020
Short-term cash advances	4	5
Money market funds	830	579
Available cash	1,451	1,003
CASH AND CASH EQUIVALENTS	**2,285**	**1,587**

11.5 Interest paid and received

Additional information on the amounts of interest received and paid included in cash flow from operating activities is shown below:

(In millions of euros)	**31 December 2021**	31 December 2020
Interest paid	48	64
Interest received	(2)	(1)

The change in interest paid in 2021 compared with 2020 is attributable to the €480 million bond redeemed in April 2020. In 2020, the difference compared to the cost of debt as stated in note 11.1 "Financial result" was mainly explained by changes in current debt.

11.6 Management of risks related to financial assets and liabilities

The Arkema Group's businesses expose it to various risks, including market risks (risk of changes in exchange rates, interest rates and the prices of raw materials, energy and equities), credit risk and liquidity risk.

11.6.1 Foreign currency risk

The Group is exposed to transaction risks and translation risks related to foreign currencies.

The Group hedges the transaction risk mainly through spot foreign currency transactions or through forward transactions over short maturities generally not exceeding two years.

The fair value of the Group's forward foreign currency contracts is an asset of €52 million.

The amount of foreign exchange gains and losses recognized in recurring operating income at 31 December 2021 is a positive €15 million (net gain of €10 million at 31 December 2020).

The portion of foreign exchange gains and losses corresponding to the interest income/expense reflected by the difference between the spot exchange rate and the forward exchange rate is recorded in financial result. It amounts to a negative €4 million at 31 December 2021 (negative €17 million at 31 December 2020).

At 31 December 2021, the Group's balance sheet exposure in transaction currencies other than the euro is as follows:

Group exposure to operating foreign currency risk *(In millions of euros)*	USD	CNY	Other currencies
Accounts receivable	581	192	193
Accounts payable	(296)	(70)	(94)
Bank balances and loans/borrowings	(31)	154	141
Off-balance sheet commitments (forward currency hedging)	(846)	40	(156)
NET EXPOSURE	**(591)**	**316**	**84**

This net exposure comprises all Group companies' outstanding amounts stated in any of the above currencies, whether their accounting currency is one of those currencies or a different currency.

11.6.2 Interest rate risk

Exposure to interest rate risk is managed by the Group's Central Treasury department and simple derivatives are used as hedging instruments. The Group has not entered into any interest rate hedges at 31 December 2021.

An increase (decrease) of 1% (100 basis points) in interest rates would have the effect of decreasing (increasing) the interest on net debt by €11 million.

At 31 December 2021, debt excluding IFRS 16 debt is distributed between variable and fixed rates as follows:

	Variable rates	Fixed rates		
(In millions of euros)	Overnight-1 year	1-5 years	Over 5 years	Total
Current and non-current debt (excluding IFRS 16 debt)	(36)	(1,151)	(1,407)	(2,594)
Cash and cash equivalents	2,285	-	-	2,285
Net exposure before hedging	2,249	(1,151)	(1,407)	(309)
Hedging instruments	-	-	-	-
Off-balance sheet items	-	-	-	-
NET EXPOSURE AFTER HEDGING	**2,249**	**(1,151)**	**(1,407)**	**(309)**

11.6.3 Liquidity risk

The Group's Central Treasury department manages the liquidity risk associated with the Group's debt.

Liquidity risk is managed with the main objective of providing the Group with sufficient financial resources to honor its commitments, and, in the context of meeting this objective, optimizing the annual cost of the debt.

In almost all cases, Group companies obtain their financing from, and manage their cash with, Arkema France or other Group entities that manage cash pooling mechanisms.

The Group reduces the liquidity risk by spreading maturities, favoring long maturities and diversifying its sources of financing. The Group thus has:

- a €150 million bond maturing on 6 December 2023;

- a €700 million bond maturing on 20 January 2025;
- a €300 million bond maturing on 14 October 2026;
- a €900 million bond maturing on 20 April 2027;
- a €500 million bond maturing on 3 December 2029; and
- a €1 billion syndicated credit facility maturing on 29 July 2024. This credit facility is used particularly as a substitute line for the Negotiable European Commercial Paper program (see note 11.3 "Debt").

Apart from a change of control, the main circumstances in which early repayment or termination could occur concern the syndicated credit facility (see note 11.3 "Debt"), if the ratio of consolidated net debt to consolidated EBITDA exceeds 3.5 and the credit rating is Baa/BBB (Moody's/Standard & Poor's) or lower.

At 31 December 2021, the Group's debt maturing in more than one year is rated BBB+/stable outlook by Standard & Poor's and Baa1/stable outlook by Moody's.

Negotiable European Commercial Paper issues are rated A-2 by Standard & Poor's.

The Group's net debt at 31 December 2021 amounts to €477 million and represents 0.3 times the consolidated EBITDA for the year 2021.

At 31 December 2021, the amount of the unused syndicated credit facility is €1 billion and the amount of cash and cash equivalents is €2,285 million.

Note 11.3 "Debt" provides details of the maturities of debt.

11.6.4 Credit risk

The Group is potentially exposed to credit risk on its accounts receivable and as regards its banking counterparties.

Credit risk on accounts receivable is limited because of the large number of its customers and their geographical dispersion. No customer represented more than 3% of Group sales in 2021. The Group's general policy for managing credit risk involves assessing the solvency of each new customer before entering into business relations: each customer is allocated a credit limit, which constitutes the maximum level of outstandings (receivables plus orders) accepted by the Group, on the basis of the financial information obtained on the customer and the analysis of solvency carried out by the Group. These credit limits are revised regularly and, in any case, every time that a material change occurs in the customer's financial position. Customers who cannot obtain a credit limit because their financial position is not compatible with the Group's requirements in terms of solvency only receive deliveries when they have paid for their order.

For several years, the Group has covered its accounts receivable credit risk through a global credit insurance program. Given the statistically low bad debt rate experienced by the Group, the rate of cover is significant. Customers with whom the Group wishes to continue commercial relations but which are not covered by this insurance are subject to specific centralized monitoring.

In addition, the Group's policy for recognizing bad debt provisions in respect of receivables not covered by credit insurance, or the portion of receivables that are not so covered, has three components: receivables are individually provided against as soon as a specific risk of loss (economic and financial difficulties of the customer in question, entry into receivership, etc.) is clearly identified. The Group may also recognize general provisions for receivables that are overdue for such a period that the Group considers that a statistical risk of loss exists. These periods are adapted depending on the Business Lines and the geographical regions in question. Finally, the Group makes sure that the provisions determined in this way are not lower than expected credit losses, which are estimated based on individual credit scores for customers, multiplied by coefficients for the probability of default.

At 31 December 2021, the maturity status of accounts receivable net of provisions is as follows:

Accounts receivable net of provisions *(In millions of euros)*	**31 December 2021**	**31 December 2020**
Receivables not yet due	1,355	1,065
Receivables overdue by 1-15 days	61	35
Receivables overdue by 16-30 days	4	14
Receivables overdue by more than 30 days	12	17
TOTAL NET RECEIVABLES	**1,432**	**1,131**

Banking credit risk is related to financial investments, derivatives and credit facilities granted by banks. The Group limits its exposure to credit risk by only investing in liquid securities with first-class commercial banks.

The net carrying amount of financial assets indicated in note 11.2.1 "Financial assets and liabilities by accounting category" represents the maximum exposure to credit risk.

11.6.5 Risk related to raw materials and energy

The prices of certain raw materials used by the Group can be highly volatile, with fluctuations leading to significant variations in the cost price of the Group's products; in addition, because certain of its manufacturing processes have significant requirements in terms of energy resources, the Group is also sensitive to changes in the price of energy. In order to limit the impact of the price volatility of the principal raw materials it uses, the Group may decide to use derivatives matched with existing contracts, or negotiate fixed price contracts for limited periods.

Recognition of these derivatives resulted in an expense of €3 million in the income statement at 31 December 2021 (expense of €3 million at 31 December 2020).

11.6.6 Equity risk

At 31 December 2021, the Company holds 2,779,553 of its own shares in treasury. Of these shares, 329,118 will be used to cover free share grant plans and 2,450,435 will to be canceled (see note 14 "Subsequent events").

In compliance with IAS 32, changes in share price have no impact on the Group's consolidated net assets.

The equity risk is not material for the Company.

Note 12 Shareholders' equity and earnings per share

At 31 December 2021, Arkema's share capital amounted to €767 million, divided into 76,736,476 shares with a par value of €10.

12.1 Changes in share capital and paid-in surplus

	2021	2020
Number of shares at 1 January	**76,736,476**	**76,624,220**
Issuance of shares following the capital increase reserved for employees	-	112,256
Issuance of shares following the exercise of subscription options	-	-
Number of shares at 31 December	**76,736,476**	**76,736,476**

12.2 Hybrid bonds

At 31 December 2021, the total nominal value of Arkema's perpetual hybrid bonds is €700 million. The breakdown is as follows:

Issue date	Nominal value *(in millions)*	Currency	Redemption option	Annual coupon rate
17 June 2019	400	EUR	5.25 years	2.75%
21 January 2020	300	EUR	6 years	1.50%

Arkema has an option to defer payment of coupons for the above bonds.

In accordance with IAS 32, when there is an unconditional right to avoid delivering cash or another financial asset in the form of repayment of principal or interest, an instrument is recognized in shareholders' equity. In application of this principle, the hybrid bonds are recorded in shareholders' equity, and the coupons paid are recorded as dividends in the Group's consolidated financial statements.

12.3 Treasury shares

The Company purchased 3,033,726 treasury shares in 2021, including 2,726,829 treasury shares as part of the €300 million share buyback program. During the year, 3,608 free shares also vested to Arkema Group employees in May 2021 under plan 2018-1,2, followed by 310,321 shares in November 2021, mainly under plans 2017-2 and 2018-3.

	2021	2020
Number of treasury shares at 1 January	59,756	131,028
Purchase of treasury shares	3,033,726	321,785
Grants of treasury shares	(313,929)	(393,057)
Number of treasury shares at 31 December	2,779,553	59,756

5

€300 million share buyback program

Following the combined annual general meeting of 20 May 2021, which authorized the €300 million 2021 share buyback program, Arkema signed a share purchase agreement with an investment services provider over a period from 21 May to 24 November 2021. A total of €300 million worth of shares were bought back, of which €30 million for allocation to the implementation of performance share plans and employee share ownership operations and €270 million for cancellation (see note 14 "Subsequent events").

12.4 Dividends

The combined annual general meeting of 20 May 2021 approved the distribution of a €2.50 dividend per share in respect of the 2020 financial year, or a total amount of €191 million. This dividend was paid out on 28 May 2021.

12.5 Non-controlling interests

Non-controlling interests do not represent a significant share of the Group's consolidated financial statements.

12.6 Translation adjustments

The change in translation adjustments recognized in other recyclable comprehensive income mainly comprises the impacts of movements in the USD-EUR exchange rate.

12.7 Earnings per share

In accordance with IAS 33, the earnings per share and diluted earnings per share are calculated based on net income (Group share) less the net-of-tax interest paid to bearers of subordinated perpetual notes (hybrid bonds).

After this adjustment, the net income (Group share) is divided by the weighted average number of ordinary shares outstanding since the start of the year to calculate the earnings per share.

For the diluted earnings per share, the effect of dilution is thus calculated taking account of stock options and grants of free shares to be issued.

	2021	2020
Weighted average number of ordinary shares	75,409,368	76,457,875
Dilutive effect of stock options	0	0
Dilutive effect of free share grants	450,182	244,249
Weighted average number of potential ordinary shares	75,859,550	76,702,124

(In millions of euros)	2021	2020
Net income – Group share	1,309	332
Interest on subordinated perpetual notes, net of tax	(16)	(28)
Net income used in calculating earnings per share	1,293	304

	2021	2020
Earnings per share *(€)*	17.15	3.98
Diluted earnings per share *(€)*	17.04	3.96

Note 13 Statutory auditors' fees

	KPMG		Ernst & Young	
(In millions of euros)	**2021**	2020	**2021**	2020
Statutory audit, review of the individual and consolidated financial statements	**2.7**	**2.8**	**2.7**	**2.7**
Issuer	0.6	0.7	0.6	0.7
Fully consolidated subsidiaries	2.1	2.1	2.1	2.0
Other non-audit services*	**0.6**	**0.6**	**0.5**	**0.6**
Issuer	0.5	0.6	0.4	0.6
Fully consolidated subsidiaries	0.1	-	0.1	-
SUBTOTAL	**3.3**	**3.4**	**3.2**	**3.3**
Other services provided by the networks to fully consolidated subsidiaries	**-**	**-**	**-**	**-**
TOTAL	**3.3**	**3.4**	**3.2**	**3.3**

* *Non-audit services principally concerned due diligence work relating to auditing financial information prepared for the sale of the PMMA activity.*

In application of an internal rule validated by the Audit Committee, the amount of fees for other due diligence work and services directly related to the auditors' engagement cannot exceed 30% of fees for the audit of the individual and consolidated financial statements.

Note 14 Subsequent events

On 24 January 2022, the Board of Directors decided to reduce Arkema's share capital by canceling 2,450,435 treasury shares. Following this operation, Arkema's share capital amounted to €742,860,410, divided into 74,286,041 shares with a par value of €10.

Note 15 List of consolidated companies

The percentage of control indicated below also corresponds to the Group's ownership interest.

AEC Polymers		France	100.00	FC
Afinitica Technologies S.L.		Spain	100.00	FC
Agiplast Italia S.r.l.	(d)	Italy	100.00	FC
Altuglas International Denmark A/S	(g)	Denmark	100.00	FC
Altuglas International Mexico Inc.	(c)	United States	100.00	FC
Altuglas International SAS	(g)	France	100.00	FC
American Acryl LP		United States	50.00	JO
American Acryl NA, LLC		United States	50.00	JO
Arkema		South Korea	100.00	FC
Arkema		France		FC
Arkema Afrique	(b)	France	100.00	FC
Arkema Amériques S.A.S.		France	100.00	FC
Arkema Antwerp		Belgium	100.00	FC
Arkema Argentina S.A.U.		Argentina	100.00	FC
Arkema Asie S.A.S.		France	100.00	FC
Arkema B.V.		Netherlands	100.00	FC
Arkema Canada Inc.		Canada	100.00	FC
Arkema (Changshu) Chemicals Co., Ltd.		China	100.00	FC
Arkema (Changshu) Fluorochemical Co., Ltd.		China	100.00	FC

Arkema Chemicals India Private Ltd.		India	100.00	FC
Arkema (Changshu) Polyamides Co., Ltd.		China	100.00	FC
Arkema (China) Investment Co., Ltd.		China	100.00	FC
Arkema Coatex Brasil Indústria e Comércio Ltda.		Brazil	100.00	FC
Arkema Coating Resins Malaysia Sdn. Bhd.		Malaysia	100.00	FC
ARKEMA UK LIMITED		United Kingdom	100.00	FC
Arkema Company Ltd.		Hong Kong	100.00	FC
Arkema Advanced Fluorochemicals Co., Ltd.	(a) (f) (b)	China	100.00	FC
Arkema Delaware Inc.		United States	100.00	FC
Arkema Europe		France	100.00	FC
Arkema France		France	100.00	FC
Arkema GmbH		Germany	100.00	FC
Arkema (Hong Kong) Co., Ltd.		Hong Kong	100.00	FC
Arkema Hydrogen Peroxide Co., Ltd. Shanghai		China	66.67	FC
Arkema Inc.		United States	100.00	FC
Arkema Insurance Designated Activity Company		Ireland	100.00	FC
Arkema K.K.		Japan	100.00	FC
Arkema Kimya Sanayi ve Ticaret AS		Turkey	100.00	FC
ARKEMA Holding Limited		United Kingdom	100.00	FC
Arkema Mexico S.A. de C.V.		Mexico	100.00	FC
Arkema Mexico Servicios S.A. de C.V.		Mexico	100.00	FC
Arkema Peroxides India Private Limited		India	100.00	FC
Arkema Pte. Ltd.		Singapore	100.00	FC
Arkema Pty Ltd.		Australia	100.00	FC
Arkema Quimica Ltda	(b)	Brazil	100.00	FC
Arkema Quimica SAU		Spain	100.00	FC
Arkema Chemicals Saudi Arabia		Saudi Arabia	65.00	FC
Arkema (Shanghai) Distribution Co., Ltd.		China	100.00	FC
Arkema Sp z.o.o		Poland	100.00	FC
Arkema S.r.l		Italy	100.00	FC
Arkema (Suzhou) Polyamides Co., Ltd.		China	100.00	FC
Arkema Taixing Chemicals Co., Ltd.		China	100.00	FC
Arkema Thiochemicals Sdn Bhd		Malaysia	86.00	FC
Arkema Yoshitomi Ltd.		Japan	49.00	SI
AMP Trucking, Inc.		United States	100.00	FC
ARR MAZ GLOBAL HOLDINGS, S.L.		Spain	100.00	FC
ArrMaz Africa I, LLC	(c)	United States	100.00	FC
ArrMaz Africa II, LLC	(c)	United States	100.00	FC
ARR-MAZ Brazil LLC		United States	100.00	FC
ArrMaz Chemicals (Yunnan) Co., Ltd.		China	100.00	FC
ArrMaz Chemicals SAS	(b)	France	100.00	FC
ArrMaz China, LLC		United States	100.00	FC
ARR-MAZ DO BRASIL LTDA.		Brazil	99.99	FC
ArrMaz Gulf Chemical Company Ltd.		Saudi Arabia	100.00	FC
ARRMAZ MOROCCO SARLAU		Morocco	75.00	FC
ArrMaz Morocco, LLC		United States	75.00	FC
ArrMaz Products Inc.	(a)	United States	100.00	FC
ArrMaz Speciality Chemicals, Inc.		United States	100.00	FC
ARRMAZ TECHNOLOGY AFRICA, SARL		Morocco	100.00	FC

A/S LIP Bygningsartikler. Nørre Aaby		Denmark	100.00	FC
Barrflex TU LL		United States	49.00	JV
Bostik AB		Sweden	100.00	FC
Bostik Adhesives Limited	(d)	United Kingdom	100.00	FC
Bostik Aerosols GmbH		Germany	100.00	FC
Bostik Argentina S. A.		Argentina	100.00	FC
Bostik A/S		Denmark	100.00	FC
Bostik AS		Norway	100.00	FC
Bostik Australia Pty Ltd.		Australia	100.00	FC
Bostik Belux S.A. – N.V.		Belgium	100.00	FC
Bostik Benelux B.V.		Netherlands	100.00	FC
Bostik B.V.		Netherlands	100.00	FC
Bostik Canada Ltd.		Canada	100.00	FC
Bostik Egypt for production adhesive materials (Bostik Egypt) S.A.E	(a)	Egypt	100.00	FC
Bostik Findley China Co., Ltd		China	100.00	FC
Bostik Findley (Malaysia) Sdn. Bhd.		Malaysia	100.00	FC
Bostik GmbH		Germany	100.00	FC
Bostik Hellas S.A.		Greece	100.00	FC
Bostik Holding Hong Kong Ltd.		Hong Kong	100.00	FC
Bostik Holding	(a)	France	100.00	FC
Bostik Inc.		United States	100.00	FC
Bostik India Private Ltd.		India	100.00	FC
Bostik Industries Ltd.		Ireland	100.00	FC
Bostik Kimya Sanayi Ve Ticaret A.S		Turkey	100.00	FC
Bostik Korea Ltd.		South Korea	100.00	FC
Bostik Ltd.		United Kingdom	100.00	FC
Bostik Mexicana S.A. de C.V.		Mexico	100.00	FC
Bostik Nederland B.V.		Netherlands	100.00	FC
Bostik New Zealand Limited	(a)	New Zealand	100.00	FC
Bostik-Nitta Co., Ltd.		Japan	80.00	FC
Bostik L.L.C.		Russia	100.00	FC
Bostik OY		Finland	100.00	FC
Bostik Philippines Inc.		Philippines	100.00	FC
Bostik Portugal Unipessoal Lda		Portugal	100.00	FC
Bostik Technology GmbH		Germany	100.00	FC
Bostik Romania S.r.l		Romania	100.00	FC
Bostik SA		France	100.00	FC
Bostik S.A.		Spain	100.00	FC
Bostik (Shanghai) Management Co., Ltd.		China	100.00	FC
Bostik Sp z.o.o.		Poland	100.00	FC
Bostik (Thailand) Co., Ltd		Thailand	100.00	FC
Bostik UAB	(c)	Lithuania	100.00	FC
Bostik Vietnam Company Ltd.		Vietnam	100.00	FC
Casda Biomatérials Co., Ltd		China	100.00	FC
Changshu Coatex Additives Co., Ltd.		China	100.00	FC
Changshu Haike Chemical Co., Ltd.		China	49.00	FC
CJ Bio Malaysia Sdn. Bhd.		Malaysia	14.00	SI
Coatex Asia Pacific Inc.		South Korea	100.00	FC

Coatex CEE s.r.o		Slovakia	100.00	FC
Coatex Inc.		United States	100.00	FC
Coatex Netherlands B.V.		Netherlands	100.00	FC
Coatex		France	100.00	FC
CRACKLESS MONOMER Co Ltd		Taiwan	51.00	FC
Daikin Arkema Refrigerants Asia Ltd.	(g)	Hong Kong	40.00	JV
Daikin Arkema Refrigerants Trading (Shanghai) Co.,	(g)	China	40.00	JV
Den Braven France		France	100.00	FC
Den Braven SA (Proprietary) Ltd.		South Africa	100.00	FC
Delaware Chemicals Corporation		United States	100.00	FC
DIFI 13		France	100.00	FC
DIFI 16	(a)	France	100.00	FC
DIFI 17	(d)	France	100.00	FC
DIFI 18	(d)	France	100.00	FC
ERPRO 3D FACTORY	(d)	France	10.00	SI
Febex SA		Switzerland	96.77	FC
FIXATTI		Belgium	100.00	FC
FIXATTI (CHINA) POLYMER SPECIALTIES Co LTD		China	100.00	FC
Fixatti AG		Switzerland	100.00	FC
FIXATTI AMERICA Inc.	(b)	United States	100.00	FC
FIXATTI GmbH		Germany	100.00	FC
Fixatti Holding AG		Switzerland	100.00	FC
IDEAL WORK Srl		Italy	100.00	FC
Ihsedu Agrochem Private Ltd.		India	24.90	SI
Jiangsu Bostik Adhesive Co., Ltd		China	100.00	FC
Lambson Limited		United Kingdom	100.00	FC
Lip Norge AS		Norway	100.00	FC
Lip Sverige AB		Sweden	100.00	FC
MEM BAUCHEMIE GmbH	(b)	Germany	100.00	FC
Michelet Finance, Inc.		United States	100.00	FC
MLPC International		France	100.00	FC
Odor-Tech LLC	(b)	United States	100.00	FC
Ozark Mahoning Company		United States	100.00	FC
POLIPLAS SELANTES E ADESIVOS LIMITADA	(d)	Brazil	100.00	FC
Prochimir		France	100.00	FC
Prochimmo	(b)	France	100.00	FC
Prochimmo2	(b)	France	100.00	FC
PT.Bostik Indonesia		Indonesia	100.00	FC
Sartomer (Guangzhou) Chemicals Co., Ltd.		China	100.00	FC
Sartomer Distribution (Shanghai) Co., Ltd.	(c)	China	100.00	FC
SDP Holding		Belgium	100.00	FC
Seki Arkema Co. Ltd.		South Korea	51.00	FC
Siroflex LLC	(b)	United States	100.00	FC
Siroflex Ltd.		United Kingdom	100.00	FC
Société Marocaine des Colles		Morocco	97.01	FC
Sovereign Chemicals Ltd.		United Kingdom	100.00	FC
Taixing Sunke Chemicals Co., Ltd.		China	100.00	FC
Tamer Endüstriyel Madencilik Anonim Sirketi	(g)	Turkey	50.00	FC

The LightLock Company Limited	Hong Kong	55.00	FC
Termoplastic Powder Hold. AG	Switzerland	100.00	FC
Turkish Products, Inc.	United States	100.00	FC
Usina Fortaleza Industria E commercio de massa fina	Brazil	100.00	FC
Viking Chemical Company	United States	100.00	FC

(a) Companies that changed their name in the period.
(b) Companies merged in the period.
(c) Companies liquidated in the period.
(d) Companies consolidated for the first time in the period.
(e) Companies for which the percentage ownership changed in the period, with no change in control.
(f) Companies for which the percentage ownership changed in the period, with change in control.
(g) Companies deconsolidated in the period.

NB:
FC: *full consolidation.*
JO: *joint operation – consolidated based on shares of assets, liabilities, income and expenses.*
JV: *joint venture – consolidation by the equity method.*
SI: *significant influence – consolidation by the equity method.*

5.4 Company's annual financial statements

5.4.1 Statutory auditors' report on the financial statements

This is a translation into English of the statutory auditors' report on the financial statements of the Company issued in French and it is provided solely for the convenience of English-speaking users.

This statutory auditors' report includes information required by European regulation and French law, such as information about the appointment of the statutory auditors or verification of the management report and other documents provided to the shareholders.

This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Département de KPMG S.A.

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92066 Paris-La Défense
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Commissaire aux comptes

Membre de la Compagnie Régionale de Versailles et du Centre

ERNST & YOUNG Audit

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344 366 315 R.C.S. Nanterre

Commissaire aux comptes

Membre de la Compagnie Régionale de Versailles et du Centre

Arkema S.A.

Statutory auditors' report on the financial statements

Year ended 31 December 2021

To the annual general meeting of Arkema,

Opinion

In compliance with the engagement entrusted to us by your annual general meetings, we have audited the accompanying financial statements of Arkema for the year ended 31 December 2021.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Company as at 31 December 2021 and of the results of its operations for the year then ended in accordance with French accounting principles.

The audit opinion expressed above is consistent with our report to the Audit Committee.

Basis for Opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the "Statutory auditors' Responsibilities for the Audit of the Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence requirements of the French Commercial Code (Code de commerce) and the French Code of Ethics (Code de déontologie) for statutory auditors for the period from 1 January 2021 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in Article 5(1) of regulation (EU) No. 537/2014.

Emphasis of Matter

We draw your attention to the following matter described in Note B.7.4 Pension and similar benefit obligations to the financial statements which exposes the consequences of the application of the recommendation ANC no. 2013-02, as of 1 January 2021, modifying the calculation of obligations for certain defined benefit plans. Our opinion is not modified in respect of this matter.

Justification of Assessments – Key Audit Matters

Due to the global crisis related to the Covid-19 pandemic, the financial statements of this period have been prepared and audited under specific conditions. Indeed, this crisis and the exceptional measures taken in the context of the state of sanitary emergency have had numerous consequences for companies, particularly on their operations and their financing, and have led to greater uncertainties on their future prospects. Those measures, such as travel restrictions and remote working, have also had an impact on the companies' internal organization and the performance of the audits.

It is in this complex and evolving context that, in accordance with the requirements of Articles L. 823-9 and R. 823-7 of the French Commercial Code *(Code de commerce)* relating to the justification of our assessments, we inform you of the key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the financial statements of the current period, as well as how we addressed those risks.

These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the financial statements.

Valuation of investments in Arkema France

Risk identified

As at 31 December 2021, the investments in Arkema France recorded in the balance sheet at a net carrying amount of €1,775 million, represents 23% of total assets. They are recognised in the balance sheet at the lower of acquisition cost or value in use.

As disclosed in Note B1 to the financial statements, they are valued using the multiples method applied to the EBITDA of the company, adjusted for net debt within Arkema France.

The estimate of the value in use of these investments require Management's judgement in choosing the information to consider in relation to the investments concerned. Given the weight of investments in Arkema France in the balance sheet and the importance of Management's judgement in determining the assumptions on which the estimate of the value in use will be based, we considered the valuation of investments in Arkema France to be a key audit matter.

Audit procedures implemented to address the risk identified

In order to assess the reasonableness of the estimates of the value in use of investments in affiliates, our work consisted primarily in:

- examining that value in use as estimated by Management is supported by appropriate justification of the valuation method and amounts used;
- examining the constancy of the valuation method used;
- reconciling the data used in valuing investments in Arkema France with data from the accounting records, and verifying that adjustments made, if applicable, to this data are based on appropriate documentation;
- verifying the arithmetical accuracy of calculations;
- comparing the information disclosed in the notes to the financial statements to the French General Chart of Accounts *(plan comptable général)*.

Specific verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by laws and regulations.

Information given in the management report and in the other documents with respect to the financial position and the financial statements provided to the shareholders

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information given in the Board of Directors' management report and in the other documents with respect to the financial position and the financial statements provided to the shareholders.

We attest the fair presentation and the consistency with the financial statements of the information relating to payment terms, required under Article D. 441-6 of the French Commercial Code *(Code de commerce)*.

Information relating to corporate governance

We attest that the section of the management report of the Board of Directors on corporate governance sets out the information required by Articles L. 225-37-4, L. 22-10-10 and L. 22-10-9 of the French Commercial Code *(Code de commerce)*.

Concerning the information given in accordance with the requirements of Article L. 22-10-9 of the French Commercial Code *(Code de commerce)* relating to remunerations and benefits received by the directors and any other commitments made in their favour, we have verified its consistency with the financial statements, or with the underlying information used to prepare these financial statements and, where applicable, with the information obtained by your Company from controlled companies included in the scope of consolidation. Based on this work, we attest the accuracy and fair presentation of this information.

With respect to the information relating to items that your company considered likely to have an impact in the event of a public purchase offer or exchange, provided pursuant to Article L. 22-10-11 of the French Commercial Code *(Code de commerce)*, we have agreed these to the source documents communicated to us. Based on our work, we have no observations to make on this information.

Other information

In accordance with French law, we have verified that the required information concerning the identity of the shareholders or holders of the voting rights has been properly disclosed in the management report.

Report on Other Legal and Regulatory Requirements

Format of presentation of the financial statements intended to be included in the Annual financial report

We have also verified, in accordance with the professional standard applicable in France relating to the procedures performed by statutory auditors relating to the annual and consolidated financial statements presented in the European single electronic format, that the presentation of the financial statements intended to be included in the annual financial report mentioned in Article L. 451-1-2, I of the French Monetary and Financial Code *(Code monétaire et financier)*, prepared under the responsibility of your Chairman and Chief Executive Officer, complies with the single electronic format defined in the European Delegated regulation no. 2019/815 of 17 December 2018.

Based on the work we have performed, we conclude that the presentation of the financial statements intended to be included in the annual financial report complies, in all material respects, with the European single electronic format.

We have no responsibility for verifying that the financial statements that will ultimately be included by your company in the annual financial report filed with the AMF agree with the financial statements object of our work.

Appointment of the statutory auditors

We were appointed as statutory auditors of Arkema S.A. by your annual general meeting held on 23 June 2005 for KPMG Audit, Département de KPMG S.A., and on 10 May 2006 for ERNST & YOUNG Audit.

As at 31 December 2021, KPMG Audit, Département de KPMG S.A., was in the seventheenth year of total uninterrupted engagement, including sixteen years since securities of the Company were admitted to trading on a regulated market, and ERNST & YOUNG Audit in the sixteenth year.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with French accounting principles and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Company or to cease operations.

The Audit Committee is responsible for monitoring the financial reporting process and the effectiveness of internal control and risks management systems and where applicable, its internal audit, regarding the accounting and financial reporting procedures.

The financial statements were approved by the Board of Directors.

Statutory Auditors' Responsibilities for the Audit of the Financial Statements

Objectives and audit approach

Our role is to issue a report on the financial statements. Our objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As specified in Article L. 823-10-1 of the French Commercial Code *(Code de commerce)*, our statutory audit does not include assurance on the viability of the Company or the quality of management of the affairs of the Company.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- Identifies and assesses the risks of material misstatement of the financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control;
- Obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control;
- Evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management in the financial statements;
- Assesses the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein;
- Evaluates the overall presentation of the financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation.

Report to the Audit Committee

We submit to the Audit Committee a report which includes in particular a description of the scope of the audit and the audit program implemented, as well as the results of our audit. We also report, if any, significant deficiencies in internal control regarding the accounting and financial reporting procedures that we have identified.

Our report to the Audit Committee includes the risks of material misstatement that, in our professional judgment, were of most significance in the audit of the financial statements of the current period and which are therefore the key audit matters that we are required to describe in this report.

We also provide the Audit Committee with the declaration provided for in Article 6 of regulation (EU) No. 537/2014, confirming our independence within the meaning of the rules applicable in France such as they are set in particular by Articles L. 822-10 to L. 822-14 of the French Commercial Code *(Code de commerce)* and in the French Code of Ethics *(Code de déontologie)* for statutory auditors. Where appropriate, we discuss with the Audit Committee the risks that may reasonably be thought to bear on our independence, and the related safeguards.

Paris-La Défense, 23 February 2022

The statutory auditors

French original signed by

KPMG Audit
Département de KPMG S.A.

Bertrand Desbarrières
Partner

Éric Dupré
Partner

ERNST & YOUNG Audit

Christine Vitrac
Partner

5.4.2 Parent company financial statements at 31 December 2021

Balance sheet

		31/12/2021			31/12/2020
ASSETS	Note	Gross	Depreciation and impairment	Net	Net
Investments	*D1*	3,420	248	3,172	2,899
Other financial assets	*D1*	3,549	-	3,549	3,279
TOTAL FIXED ASSETS		**6,969**	**248**	**6,721**	**6,178**
Advances		-	-	-	-
Trade receivables	*D2*	24	-	24	25
Other receivables	*D2*	200	-	200	162
Subsidiary current accounts	*D2*	742	-	742	1,181
Treasury shares	*D2*	35	-	35	6
Cash and cash equivalents		-	-	-	1
TOTAL CURRENT ASSETS		**1,001**	**-**	**1,001**	**1,374**
Bond premium and issuing costs	*D2*	13	-	13	16
TOTAL ASSETS		**7,983**	**248**	**7,735**	**7,568**

		31/12/2021			31/12/2020
LIABILITIES AND SHAREHOLDERS' EQUITY	Note	Gross	Depreciation and impairment		
Share capital				767	767
Paid-in surplus				1,272	1,272
Legal reserve				77	77
Retained earnings				1,813	1,901
Net income for the year				282	103
TOTAL SHAREHOLDERS' EQUITY	*D3*			4,211	4,119
ADDITIONAL EQUITY	***D4***			**700**	**700**
PROVISIONS	***D5***			**69**	**58**
BONDS AND OTHER FINANCIAL DEBT	***D6***			**2,579**	**2,579**
Subsidiary current accounts	*D8*			37	
Trade payables	*D8*			18	13
Tax and employee-related liabilities	*D8*			11	8
Other payables	*D8*			110	91
TOTAL LIABILITIES				2,755	2,691
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY				**7,735**	**7,568**

Income statement

(In millions of euros)	Note	2021	2020
Services billed to related companies		114	99
Other purchases and external expenses		(100)	(83)
Taxes other than income taxes		(2)	(1)
Personnel expenses		(21)	(20)
Other operating income and expenses		(1)	(1)
Increases and reversals of provisions	*D5*	(1)	(1)
OPERATING INCOME (LOSS)		**(10)**	**(7)**
Dividends from investments		-	101
Interest income		54	72
Interest expenses		(48)	(66)
Net foreign exchange gains (losses)		-	-
Impairment of investments	*D1*	273	(6)
Increases and reversals of provisions for financial risks	*D5*	(2)	(2)
FINANCIAL RESULT	***D10***	**277**	**99**
INCOME BEFORE TAX AND EXCEPTIONAL ITEMS		**267**	**92**
Increases and reversals of exceptional provisions	*D5*	(11)	(1)
Other exceptional income		7	8
Income and expenses on capital transactions		(2)	(6)
EXCEPTIONAL ITEMS		**(6)**	**-**
Income taxes	*D11*	22	11
NET INCOME		**282**	**103**

Cash flow statement

(In millions of euros)	2021	2020
Net income	282	103
Changes in provisions	14	4
Changes in impairment	(273)	6
Gains and losses on sales of assets		
GROSS OPERATING CASH FLOW	**24**	**113**
Change in working capital	(40)	9
CASH FLOW FROM (USED IN) OPERATING ACTIVITIES	**(16)**	**122**
Cost of acquisition of investments	(270)	-
Change in loans	-	192
Sale of investments	-	-
CASH FLOW FROM (USED IN) INVESTING ACTIVITIES	**(270)**	**192**
Increase (decrease) in bonds	-	(194)
Increase in additional equity	-	-
Change in share capital and other equity	-	4
Dividends paid to shareholders	(191)	(168)
CASH FLOW FROM (USED IN) FINANCING ACTIVITIES	**(191)**	**(359)**
CHANGE IN NET CASH	**(477)**	**(44)**
Net cash at beginning of period*	1,182	1,226
Net cash at end of period*	705	1,182

* *Including current accounts with Arkema France.*

Table of subsidiaries and investments at 31 December 2021

Subsidiaries and investments *(In millions of euros)*	Share capital	Shareholders' equity other than share capital, excluding net income	Gross value of shares owned	Net carrying amount of shares owned	Number of shares owned	Ownership interest *(%)*	Loans, advances & current accounts – gross value	Guarantees given by the Company	Sales (excl. taxes) for 2021 (1)	Net income for 2021 (1)	Dividends received by the Company
French subsidiaries											
Arkema France 420, rue d'Estienne d'Orves 92705 Colombes Cedex – France	270	996	2,023	1,775	1,584,247	100.00%	3,992	1,126	2,984	27	-
Arkema Amériques SAS 420, rue d'Estienne d'Orves 92705 Colombes Cedex – France	1,049	267	1,057	1,057	104,918,729	100.00%	-	-	-	499	-
Arkema Europe SA 420, rue d'Estienne d'Orves 92705 Colombes Cedex – France	548	315	188	188	12,370,920	34.32%	-	-	-	65	-
Arkema Asie SAS 420, rue d'Estienne d'Orves 92705 Colombes Cedex – France	66	(67)	152	152	366,730	100.00%	-	-	-	73	-
TOTAL INVESTMENTS			**3,420**	**3,172**			**3,992**	**1,126**	**2,984**	**665**	

(1) *Financial statements not yet approved by the shareholders at the annual general meeting.*

5.4.3 Notes to the parent company financial statements

A. Highlights

- The combined annual general meeting of Arkema's shareholders approved the distribution of a €2.50 dividend per share in respect of the 2020 financial year.
- Following the combined annual general meeting of 20 May 2021, which authorized the 2021 share buyback program, Arkema signed a share purchase agreement with an investment services provider for a maximum amount of €300 million over a period from 21 May to 30 November 2021. A total of €300 million worth of shares were bought back, of which €30 million will be allocated to the implementation of performance share plans and employee share ownership operations and €270 million will be canceled (see note C "Subsequent events").

B. Accounting policies

The annual financial statements of Arkema S.A. were prepared under the responsibility of the Chairman and Chief Executive Officer of Arkema S.A. and approved for publication by the Board of Directors on 23 February 2022.

The annual financial statements of Arkema S.A. were prepared in accordance with French laws and regulations. It is specified that the presentation of the balance sheet and the income statement has been adapted to the Company's activity as a holding company.

French generally accepted accounting principles (GAAP) have been applied, including the principle of prudence, using the following basic assumptions:

- going concern basis;
- consistency of accounting policies from one financial year to the next; and
- accruals basis of accounting and cut-off.

The basic method used to value items recorded in the accounting records is the historical cost method.

The main accounting policies used by the Company are presented below.

1. Investments

Investments are stated at the lower of acquisition cost and value in use. Investment acquisition expenses are recognized in the income statement as incurred.

The value in use of the investments held by Arkema S.A. is assessed by reference to the share held in the investee's net assets. However, value in use may be assessed:

- by reference to an external valuation; or
- by standard valuation methods (multiples, discounted future cash flows) when these methods provide more relevant information than the share held in the investee's net assets.

In particular, the value of the investment in Arkema France is assessed by the multiples method applied to the EBITDA of the Company and its subsidiaries, adjusted for the net debt of Arkema France. The multiple of EBITDA used is established by reference to Arkema S.A.'s market capitalization, after corrections relating to certain specificities of Arkema France to take into consideration the operational activities and geographical markets concerned by the entity's operations.

2. Costs of capital increases

In accordance with opinion 2000D of the urgent issues committee of the French National Accounting Board (*Conseil national de la comptabilité* – CNC), issued on 21 December 2000, the Company has opted to recognize the costs of capital increases as a deduction from issue premiums.

3. Receivables

Receivables are recognized at their nominal value. A bad debt provision is recognized when the net realizable value is lower than the book value. Receivables denominated in foreign currencies are translated at the exchange rate at 31 December.

4. Treasury shares

Treasury shares held by Arkema S.A. are recognized at acquisition cost in current assets. They are valued in accordance with the FIFO (first-in, first-out) method. Treasury shares are normally written down, if necessary, on the basis of the average market price on the Paris stock exchange for the last month preceding the balance sheet date. By exception, and in accordance with regulation no. 2014-07 of 26 November 2014 of the French Accounting Standards Authority (*Autorité des normes comptables* – ANC), these shares are not written down on the basis of their market value when they have been allocated to a plan, because of the commitment to make grants to employees and the provision recognized in this respect in liabilities.

Treasury shares initially allocated to cover share grants to employees are reclassified as other financial assets in a "Treasury shares for cancellation" sub-account when a decision is made to cancel the shares. They are then recorded at their net carrying amount at the date on which their allocation is changed.

When the annual general meeting authorizes the Board of Directors to implement a share buyback program with a view to canceling the purchased shares, these shares are recognized directly in financial assets in accordance with article 942-27 of the French Chart of Accounts (*plan comptable général* – PCG).

5. Bonds

Bonds are recognized at nominal value in the balance sheet liabilities.

Bond issuing costs and bond premiums (arising when the bond is issued at a price below its nominal value) are recognized in the balance sheet as a separate asset. However, if the bond is issued at a price higher than the nominal value, the difference between the issue price and the nominal value minus issuing costs is recognized as a liability under "Bonds".

Issuing costs comprise bank charges for setting up the bond, and legal fees. They are spread over the duration of the bond under the effective interest rate method, with the corresponding expense recognized in operating income.

The bond premium is also spread over the duration of the bond under the effective interest rate method, with the corresponding expense recognized in financial result. If the bond is issued at a price higher than the nominal value, the same method is applied to the difference between the issue price and the nominal value, with the corresponding income recognized in financial result.

The effective interest rate corresponds to the interest rate which, when used to determine the discounted value of expected cash outflows till maturity date, leads to the initial book value of the bond.

6. Perpetual hybrid bonds

Perpetual bonds whose redemption remains under the exclusive control of the issuer are recorded as "Additional equity".

Costs and the premium related to the issue of such instruments are recorded in the balance sheet assets as prepaid expenses, and spread over the duration of the relevant tranche.

The expense resulting from spreading issuing costs is recognized in operating income by a direct credit to the bond issuing costs account (only the net amount is shown in the balance sheet).

The expense resulting from spreading issue premiums is recognized in financial expenses by a direct credit to the bond issue premium account (only the net amount of the premiums is shown in the balance sheet).

Accrued interest not yet due is included in other financial debt.

The annual interest expense on these instruments is included in financial expenses in the income statement.

7. Stock options and free share grants

7.1 Stock options

Stock options are accounted for, at the date of exercise, as a capital increase for an amount corresponding to the subscription price paid by the stock option holders. Any difference between the subscription price and the par value of the shares created represents an issue premium.

7.2 Free share grants

Arkema S.A. shares vest to beneficiaries at the end of a vesting period subject to the beneficiary remaining with the Company and fulfilling any performance conditions set by the Board of Directors.

7.2.1 Issue of new shares

When a free share grant is carried out by issuing new shares, a capital increase by means of a capitalization of reserves in the aggregate par value of the shares created is recognized in the financial statements at the end of the set vesting period.

7.2.2 Buyback of existing shares

When a free share grant is carried out through buybacks of existing shares (following a decision by the Board of Directors in relation to the plan in question), a provision representing the obligation to deliver the shares is recognized at year-end. The amount of this provision is equal to the probable purchase price, valued on the basis of the closing share price if the shares have not yet been purchased, or the net carrying amount of the treasury shares if they have already been purchased. On delivery at the end of the vesting period, the purchase price paid by the Company for the shares granted is recognized in exceptional expenses and the provision previously recorded is reversed. However, the expense related to delivery of vested shares to Arkema S.A. personnel under performance share plans is reclassified from exceptional items to operating income.

The provision is recognized on a time-proportion basis over the vesting period and takes into account, where relevant, the probability of the beneficiaries' remaining with the Company and fulfilling the performance conditions set by the Board of Directors.

7.3 Social security contributions on stock options and free share grants

The 2008 French social security financing act (law 2007-1786 of 19 December 2007) created a new employer contribution on stock options and free share grants. This contribution is payable to the mandatory health insurance schemes to which the beneficiaries are affiliated.

For free share grants, starting from the 2016 plan, the 20% contribution is calculated on the basis of the value of the shares granted at their vesting date, and is payable the month after the shares vest to the beneficiary. The provision corresponding to the contribution payable for Arkema S.A. personnel is established progressively over the vesting period.

7.4 Pension and similar benefit obligations

The complementary "top hat" defined benefit pension plan was terminated in 2016 following a decision by the Board of Directors on 9 March 2016. Other non-pension benefits (lump-sum payments on retirement, long service awards, death and disability benefits, contributions to healthcare bodies) remained unchanged, and provisions are recognized in respect of these obligations in the financial statements.

The amount of the provision corresponds to the actuarial value of employees' vested rights at the balance sheet date.

The valuation of obligations under the projected unit credit method principally takes into account:

- a discount rate, which depends on the duration of the obligations (1.4% at 31 December 2021 *versus* 1% at 31 December 2020);
- an assumption concerning the date of retirement;
- an inflation rate;
- assumptions in respect of future increases in salaries, rates of employee turnover and increases in health costs.

Actuarial gains and losses are fully recognized in the income statement.

ANC decision on attributing benefit to periods of service:

- The French Accounting Standards Authority, ANC, has amended its recommendation no. 2013-02 to allow for a choice between two accounting methods when calculating obligations for certain defined benefit plans.
- For the French statutory financial statements, the Arkema Group has chosen to apply the option that aligns with the new method applicable to the consolidated financial statements in 2021.
- This method has led to a review of how benefit costs are spread over periods of service and, by extension, to a change in how obligations are valued for plans capped at a specified number of years of service.

The following plans are concerned:

Plans with lump-sum payments on retirement, where benefits are calculated in terms of months and capped at a specified number of years of service in the company.

This adjustment has been treated as a change in accounting regulations, leading to a change in accounting policy.

Under French GAAP, the impact of such a change is recognized at the beginning of the financial year in progress, with an offsetting entry to retained earnings.

The new policy has resulted in a decrease in the provision for pensions, recognized at 1 January 2021, with an offsetting entry to retained earnings.

In the income statement as of 2021, the new policy for valuing obligations will give rise to a proportional decrease in the discounting expense (financial expense) and an increase in the future service cost.

This change in accounting policy has no material impact on the Company's financial statements.

7.5 Tax consolidation

The tax consolidation agreements signed between Arkema S.A. and the other companies in the tax consolidation group refer to a neutrality principle in accordance with which each tax consolidated subsidiary must recognize in its own financial statements, during the entire period of its inclusion in the tax consolidation group, a tax expense (or benefit) corresponding to income tax and additional levies, identical to that which it would have recognized had it not formed part of the tax consolidation group.

In its accounting records, Arkema S.A. recognizes:

a. in "other receivables", with an offsetting entry to income taxes, the amount of income taxes due by profitable companies in the tax consolidation group;

b. in "other payables", with an offsetting entry to income taxes, the amount of taxes due by the tax consolidation group.

The tax consolidation agreements also state that Arkema S.A. will benefit from the tax savings generated by the use of its subsidiaries' tax losses without any obligation to refund them (even if the said subsidiaries leave the tax consolidation group). On this basis, in accordance with opinion 2005-G of the CNC urgent issues committee, Arkema S.A. does not recognize any provision for taxes.

C. Subsequent events

On 24 January 2022, the Board of Directors decided to reduce Arkema's share capital by canceling 2,450,435 treasury shares. Following this operation, Arkema's share capital amounted to €742,860,410, divided into 74,286,041 shares.

D. Notes to the parent company financial statements

The figures presented in the notes to the parent company financial statements are expressed in millions of euros (unless otherwise indicated).

Note 1 Investments and other financial assets

1.1 Investments

(In millions of euros)	31/12/2020	Increase	Decrease	31/12/2021
Gross value	3,420		-	3,420
Impairment	(521)	-	273	(248)
NET VALUE	**2,899**		**273**	**3,172**

Arkema Afrique has merged with Arkema Asie in accordance with article 710-2 of the French Chart of Accounts, with no exchange of shares.

Impairment concerns shares in Arkema France for €248 million following the reversal of €248 million of impairment for this investment and of €25 million of impairment on shares in Arkema Asie made at the time of the merger with Arkema Afrique.

1.2 Other financial assets

Arkema S.A. transferred to its subsidiary Arkema France the cash received from the various bond issues (see notes D4 and D6), in the form of loans with the same maturity.

The corresponding loans total €3,250 million (excluding accrued interest) at 31 December 2021.

1.3 Treasury shares for cancellation

As at 31 December 2021, Arkema S.A. holds 2,450,435 shares under the 2021 share buyback program authorized by the combined annual general meeting of 20 May 2021, for a total of €270 million (see note C "Subsequent events").

Note 2 Current assets

2.1 Breakdown of receivables

The breakdown by maturity of the Company's receivables at 31 December 2021 is as follows:

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing after 1 year
Operating receivables and taxes [(a)]	24	24	-
Cash advances to the subsidiary [(b)]	742	742	-
Other receivables [(c)]	200	149	51
TOTAL	**966**	**915**	**51**

(a) Since 2018, Arkema S.A. has invoiced support functions to all Arkema Group entities.
(b) Arkema France current account.
(c) Mainly income tax receivables and intragroup receivables.

2.2 Treasury shares

As at 31 December 2021, Arkema S.A. holds 329,118 treasury shares, which are recorded at a total value of €35 million. These shares are allocated to the free share grant plans (see note D13).

No impairment was therefore recognized in the financial statements at 31 December 2021.

The Company purchased 583,291 treasury shares in 2021, including 276,394 treasury shares as part of the 2021 share buyback program. During the year, 3,608 free shares vested to Arkema Group employees in May 2021 under the 2018 plan, followed by 310,321 shares in November 2021, mainly under the 2017 and 2018 plans.

	2021	2020
Number of treasury shares at 1 January	59,756	131,028
Repurchases of treasury shares	583,291	321,785
Grants of treasury shares	(313,929)	(393,057)
Number of treasury shares at 31 December	329,118	59,756

2.3 Bond premium and issuing costs

The following amounts are recognized in this item:

(In millions of euros)	31/12/2020	Increase	Decrease	**31/12/2021**
Bonds				
Issue premiums	11.5	-	2 [(1)]	9.5
Issuing costs	2.9	-	0.5 [(1)]	2.4
Subtotal	**14.4**	**-**	**2.5**	**11.9**
Perpetual hybrid bonds				
Issue premiums	-	-	-	-
Issuing costs	1.1	-	0.3 [(1)]	0.8
Subtotal	**1.1**	**-**	**0.3**	**0.8**
TOTAL	**15.5**	**-**	**2.8**	**12.7**

(1) Amount charged to expenses for the period.

Note 3 Shareholders' equity

At 31 December 2021, Arkema's share capital comprises 76,736,476 shares with a par value of €10, unchanged from 31 December 2020.

Changes in shareholders' equity are as follows:

(In millions of euros)	Opening balance at 01/01/2021	Appropriation of 2020 net income	Distribution of dividends [(1)]	2021 net income	31/12/2021 before appropriation
Share capital	767.4				767.4
Issue premium	521.1				521.1
Paid-in surplus	625.8				625.8
Merger surplus	124.8				124.8
Legal reserve	76.6	0.1			76.7
Other reserves	0				0
Retained earnings	1,900.5	(87.8)			1,812.7
2020 net income	102.8	87.9	(190.7)		0
2021 net income		-		282.4	282.4
TOTAL SHAREHOLDERS' EQUITY	**4,119.0**	**0**	**(190.7)**	**282.4**	**4,210.9**

(1) On 20 May 2021, the annual general meeting of shareholders adopted a resolution to distribute a dividend of €2.50 per share, or a total amount of €190.7 million, in respect of the 2020 financial year.

Note 4 Additional Equity

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing after 1 year
Issue of perpetual hybrid bonds	700	-	700

At 31 December 2021, the total nominal value of Arkema's perpetual hybrid bonds amounts to €700 million. The breakdown is as follows:

Issue date	Nominal value *(in millions)*	Currency	Redemption option	Annual coupon rate	
17 June 2019	400	EUR	5.25 years	2.75	%
21 January 2020	300	EUR	6 years	1.50	%

Arkema has an option to defer payment of coupons for the above bonds.

Note 5 Provisions

Changes in provisions recognized in the Company's balance sheet are set out in the table below:

(In millions of euros)	31/12/2020	Increase	Decrease	31/12/2021
Provisions for pensions and similar benefits [(a)]	2.0	0.2	0.1	2.10
Provisions for long service awards	0.4	0.1	0.1	0.4
Provisions for free share grants [(b)]	55.4	38.9	28.2 [(c)]	66.1
Provisions for risks related to subsidiaries	-	-	-	-
Provisions for other risks	0.1	0.7	-	0.8
TOTAL	**57.9**	**39.9**	**28.4**	**69.4**

These movements break down as follows:

Recognized in operating income	**0.3**	**(0.2)**
Recognized in financial result	0	0
Recognized in exceptional items	39.6	(28.2)
TOTAL	**39.9**	**(28.4)**

(a) The increase mainly corresponds to entitlements earned over the year.
(b) Increases and reversals of these provisions are recorded in exceptional items.
(c) The decrease corresponds to a reversal following delivery of shares under plans 2017-2 and 2018-1.

Note 6 Bonds and other financial debt

This item covers:

- the €150 million bond issued in December 2013 that will mature on 6 December 2023, with a fixed coupon of 3.125%;
- the €700 million bond issued in January 2015 that will mature on 20 January 2025, with a fixed coupon of 1.5%;
- the bond issued in April 2017 that will mature on 20 April 2027, with a fixed coupon of 1.5%, and the tap issue undertaken in June 2017 bringing its total amount to €900 million;
- the €500 million bond issued in December 2019 that will mature on 3 December 2029, with a fixed coupon of 0.75%;
- the €300 million green bond issued in October 2020 that will mature on 14 October 2026, with a fixed coupon of 0.125%;

  (These issues were made as part of the Group's Euro Medium Term Notes (EMTN) program introduced in October 2013.)
- the difference between the issue price and the nominal value of the 2017 bond, recorded in liabilities in the amount of €2.2 million (net of issuing costs); after a €0.2 million charge to the period, the balance of this difference amounts to €1.2 million at 31 December 2021;
- the accrued interest on bonds, amounting to €20.1 million;
- the accrued interest on the perpetual hybrid bond, amounting to €7.4 million.

Note 7 Negotiable European Commercial Paper

In April 2013, the Group introduced a Negotiable European Commercial Paper program with a ceiling of €1 billion.

No issues are outstanding as part of this program at 31 December 2021.

Note 8 Liabilities

The breakdown by maturity of the Company's liabilities at 31 December 2021 is as follows:

(In millions of euros)	**Gross amount**	**Maturing within 1 year**	**Maturing in 1 to 5 years**	**Maturing after 5 years**
Bonds and other financial debt	2,616	66 (a)	1,150 (b)	1,400 (b)
Trade payables	18	18	-	-
Tax and employee-related liabilities	11	11	-	-
Other payables	110 (c)	74	36	-
TOTAL	**2,755**	**169**	**1,186**	**1,400**

(a) Accrued interest on bonds and accrued interest on the perpetual hybrid bond, as well as the 2022 share of the issue premium recognized in liabilities and the current account with Arkema Insurance.
(b) Long-term bonds issued by Arkema S.A. (see note D6).
(c) Income tax payables owed to the tax authorities and to companies in the tax consolidation group.

Note 9 Details of items concerning related companies

(In millions of euros)	
Investments	
Investments in other companies*	3,147
Receivables related to subsidiaries	3,279
Receivables	
Trade receivables	20
Other receivables (current account)	742
Other amounts receivable	98
Liabilities	
Financial debt	37
Trade payables	10
Other payables	81
Sales	
Services billed to related companies	114
Financial income and expenses	
Dividends from investments	0
Income on loans and current accounts	51

* *Net book value.*

Note 10 Financial result

Interest income corresponds to the remuneration of the amounts made available to Arkema France in the context of the Group's cash pooling system.

Note 11 Income taxes

In 2021, application of the French tax consolidation system resulted in an income tax benefit of €21.8 million for Arkema S.A.

This amount breaks down as:

- income of €38.1 million corresponding to the income tax paid by subsidiaries included in the tax consolidation group as if they were taxed separately;
- an income tax expense of €16.3 million relating to the tax consolidation group.

France's National and International Audit Administration (*Direction des vérifications nationales et internationales* – DVNI) has contested that the full amount of depreciation and amortization expense for research center assets can be used when calculating France's research tax credit (CIR), arguing that only a percentage of this amount proportionate to the use of such assets for CIR-eligible projects should apply. Discussions with the authorities are continuing. A provision for the risk of a tax reassessment has been recognized in liabilities for the years audited (2016-2018) and the following years, including 2021.

Note 12 Deferred tax position

Temporarily non-deductible expenses relating to provisions for pensions and similar benefits at 31 December 2021 amount to €2 million.

After integration of €82.1 million corresponding to the 2021 taxable income under the French tax consolidation system, the tax loss carryforwards of the Company's tax consolidation group at 31 December 2021 amount to €1,367 million, and can be used indefinitely.

Note 13 Stock option plans and free share grants

13.1 Stock options

The Board of Directors has decided not to introduce any further stock option plans.

13.2 Free share grants

On 9 November 2021, the Board of Directors decided to introduce two free performance share plans for employees, particularly people in positions of responsibility whose work has an influence on the Group's results.

Movements in the free share grant plans existing at 31 December 2021 are as follows:

Plan	Grant date	Vesting period	Holding period	Total number of free shares granted	Number of shares subject to performance conditions	Number of shares vested in 2021	Number of shares canceled in 2021	Total number of shares still to be granted at 31/12/2021
2017-2	8 Nov. 2017	4 years	-	**129,405** (1)	114,845	121,687	2,900	-
2018-1, 2	2 May 2018	3-4 years	0-3 years	**41,137**	-	3,621	145	37,252
2018-3	5 Nov. 2018	3 years	2 years	**231,820** (2)	217,570	181,162	48,638	-
2018-4	5 Nov. 2018	4 years	-	**127,665** (3)	111,235	-	25,852	94,538
2019-1	29 Oct. 2019	3 years	2 years	**237,945** (4)	225,015	3,745	970	231,775
2019-2	29 Oct. 2019	4 years	-	**131,035** (5)	112,740	-	3,785	124,675
2020-1, 2	5 May 2020	3-4 years	0-3 years	**9,129**	-	14	-	9,115
2020-3	4 Nov. 2020	3 years	2 years	**238,550** (6)	226,000	3,700	1,330	233,520
2020-4	4 Nov. 2020	4 years	-	**128,245** (7)	111,365	-	3,155	125,090
2021-1	9 Nov. 2021	3 years	2 years	**239,575** (8)	227,387	-	90	239,485
2021-2	9 Nov. 2021	4 years	-	**124,713** (9)	105,293	-	630	124,083

(1) *May be raised to 140,890 in the event of outperformance.*
(2) *May be raised to 253,577 in the event of outperformance.*
(3) *May be raised to 138,789 in the event of outperformance.*
(4) *May be raised to 282,948 in the event of outperformance.*
(5) *May be raised to 153,583 in the event of outperformance.*
(6) *May be raised to 283,750 in the event of outperformance.*
(7) *May be raised to 150,518 in the event of outperformance.*
(8) *May be raised to 285,052 in the event of outperformance.*
(9) *May be raised to 145,772 in the event of outperformance.*

13.3 Income and expenses in the financial year in respect of delivered plans

The delivery of shares in respect of plans 2017-2, 2018-1, 2019-1 and 2020-1 led to recognition of a net exceptional expense of €0.9 million in the 2021 financial statements (exceptional expense of €29.1 million partly offset by a €28.2 million provision reversal).

The provision for free share grants was increased in 2021 by €38.9 million (of which €2.8 million in respect of the 2021 plans).

The total amount of provisions in respect of all plans is €66.1 million at 31 December 2021.

Note 14 Off-balance sheet commitments

The information set out below concerns Arkema S.A. or certain of its subsidiaries, and is disclosed on account of Arkema S.A.'s holding company status.

On 29 July 2020, Arkema secured refinancing for its €900 million credit facility maturing on 29 October 2021 by setting up a new multi-currency syndicated credit facility whose amount was raised to €1 billion. This new facility has an initial term of three years with a maturity date of 29 July 2023 and two 1-year extension options exercisable, subject to the lenders' approval, at the end of the first and the second year. It is intended to finance the Group's general corporate needs and to serve as a back-up facility for the Negotiable European Commercial Paper program.

In line with its ambitions in terms of Corporate Social Responsibility, on 7 July 2021 Arkema signed an addendum to its €1 billion syndicated credit facility set up in July 2020 in order to integrate three key CSR criteria for the Group into the calculation of the cost of credit: greenhouse gas emissions, volatile organic compound emissions and the total recordable injury rate (TRIR). Arkema also obtained approval from all lenders for the first one-year extension, bringing the maturity date for the syndicated credit facility to 29 July 2024.

Note 15 Liabilities and contingent liabilities

As a result of Hurricane Harvey in late August 2017, Arkema Inc.'s Crosby, Texas plant experienced unprecedented flooding, leading to a loss of power, the loss of back-up refrigeration, the decomposition of certain organic peroxide products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, more than thirty civil lawsuits have been filed against Arkema Inc., and are still ongoing. Arkema S.A. is currently a named defendant in four of those lawsuits. At this time, Arkema S.A. has not been formally served and cannot estimate any potential losses associated with these lawsuits; if formally served, Arkema S.A. will vigorously defend against such claims. A number of U.S., Texas, and local regulatory authorities have reviewed the incident at the Crosby plant, including Arkema Inc.'s compliance with regulatory environmental requirements, and the schedule and actions taken to ensure the safety of the site, the surrounding community and environment. On 24 May 2018, the U.S. Chemical Safety and Hazard Investigation Board issued its final investigation report on the incident and Arkema Inc. implemented its recommendations.

Note 16 Employees

The average number of employees by category of personnel is as follows:

Engineers and managers	**9**
Supervisors and technicians	0
TOTAL	**9**

Note 17 Transactions with related parties

The compensation and benefits of any kind awarded to directors and Executive Committee members are recognized as expenses in the Arkema S.A. financial statements as follows:

(In millions of euros)	**2021**	**2020**
Salaries and other short-term benefits	10	9
Pensions, other post-employment benefits and contract termination benefits	-	-
Other long-term benefits	-	-
Share-based payments	4	7

Salaries and other short-term benefits comprise all types of compensation recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and Chief Executive Officer is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of twice his total gross annual compensation (fixed and variable), subject to achievement of performance criteria.

Other transactions with related parties involve subsidiaries directly or indirectly wholly owned by Arkema S.A. and do not fall within the scope of article 831-3 of ANC regulation no. 2014-03 of 5 June 2014.

5.4.4 Information on Company payment terms (articles L. 441-6-1 and D. 441-4 of the French Commercial Code)

The following table shows the number and total amount of supplier invoices received, due and not yet settled at 31 December 2021:

(In € k)	Article D. 441 I-1°: invoices received and overdue at the year-end					
	by 0 days (indicative)	**by 1-30 days**	**by 31-60 days**	**by 61-90 days**	**by 91 days and more**	**Total (1 day and more)**
(A) Period overdue						
Number of invoices concerned	0	0	0	0	0	0
Total amount of invoices concerned	0	0	0	0	0	0
Percentage of annual purchases, excluding taxes	N/A	N/A	N/A	N/A	N/A	N/A
(B) Invoices excluded from (A) relating to disputed or unrecognized liabilities and payables						
Number of invoices excluded	0	0	0	0	0	0
Total amount of invoices excluded	0	0	0	0	0	0
(C) Standard payment terms used (contractual or defined by law)						
Payment terms used to calculate overdue payments	Contractual payment terms					

The following table shows the number and total amount of customer invoices issued, due and not yet settled at 31 December 2021:

(In € k)	Article D. 441 I-1°: invoices issued and overdue at the year-end					
	by 0 days (indicative)	**by 1-30 days**	**by 31-60 days**	**by 61-90 days**	**by 91 days and more**	**Total (1 day and more)**
(A) Period overdue						
Number of invoices concerned	-					200
Total amount of invoices concerned	-	6,314	90	-	1,086	7,490
Percentage of annual sales	0.00%	5.55%	0.08%	0.00%	0.95%	6.58%
(B) Invoices excluded from (A) relating to disputed or unrecognized liabilities and payables						
Number of invoices excluded	0	0	0	0	0	0
Total amount of invoices excluded	0	0	0	0	0	0
(C) Standard payment terms used (contractual or defined by law)						
Payment terms used to calculate overdue payments	Contractual payment terms defined in the invoice					

5.4.5 Results of the Company in the last five years (articles R. 225-81, R. 225-83 and R. 225-102 of the French Commercial Code)

In millions of euros (unless otherwise indicated)	2017	2018	2019	2020	2021
TYPE OF DISCLOSURES					
I – Financial position at year-end					
a) Share capital	759	766	766	767	767
b) Number of shares issued	75,870,506	76,581,492	76,624,220	76,736,476	76,736,476
II – Operations and results					
a) Sales (excluding taxes)	66	86	109	99	114
b) Income before tax, depreciation, impairment and provisions	60	2	155	103	2
c) Income taxes	(51)	18	9	11	22
d) Employee profit-sharing					
e) Income after tax, depreciation, impairment and provisions	485	522	165	103	282
f) Amount of dividends distributed	176	190	168	191	NC
III – Earnings per share (in euros)					
a) Income after tax but before depreciation, impairment and provisions	0.12	0.26	2.15	1.48	0.31
b) Income after tax, depreciation, impairment and provisions	6.39	6.82	2.15	1.34	3.68
c) Net dividend per share	2.30	2.50	2.20	2.50	NC
IV – Employee data					
a) Number of employees	9	8	8	10	9
b) Total payroll	7	8	9	9	10
c) Amounts paid for employee benefits in the year	4	6	7	7	4

5.5 Information on Arkema's Green Bond issue

Fully in line with its CSR policy, Arkema issued its first green bond on 14 October 2020 for a total of €300 million, with a maturity of six years and an annual coupon of 0.125%. This bond is entirely dedicated to the financing of Arkema's new, world-scale plant in Singapore (the "Eligible Project"), a major, innovative and sustainable project at the heart of its organic growth strategy.

Information on the issue can be found on the Group's website: https://www.arkema.com/global/en/investor-relations/regulated-information/

The commitments made by Arkema under its Green Bond Framework are aligned with the four components of the International Capital Market Association's Green Bond Principles. They are outlined below.

Use of proceeds

The proceeds of the green bond issue will be used to finance or refinance, in whole or in part, investments made by Arkema in the Eligible Project, which meet the three eligibility criteria described in the Green Bond Framework. Scheduled to come on stream in 2022, the Singapore-based, world-class plant is designed with state-of-the-art technology to maximize its efficiency and minimize its environmental impact. The facility will produce 100% bio-based amino 11 monomer and Rilsan® polyamide 11 from castor oil, a renewable and sustainable feedstock.

Project evaluation and selection process

The Eligible Project was selected by the Group Executive Committee given:

- The unique contribution of Arkema's bio-based polyamide 11 to the development of sustainable solutions in fast-growing areas such as mobility, and in particular new energy vehicles; 3D printing; and consumer goods; and
- The project's importance in ensuring this product's worldwide development and growth.

A Green Bond Committee was set up at the time of the issue's structuring. It is comprised of members from the Financing and Treasury, Sustainable Development and Investor Relations departments, as well as the High Performance Polymers Business Line. The committee will meet at least once a year until the bond matures to ensure that the project is compliant with the eligibility criteria described in the Green Bond Framework and to validate the allocation and impact reports.

Management of proceeds

The proceeds are managed by the Finance and Treasury department, which makes sure they are allocated solely to the Eligible Project and do not exceed the total investment amount. All capital expenditure related to the Eligible Project is monitored locally and reported to the Accounting and Consolidation department on a monthly basis. The balance of the proceeds is invested in cash or cash equivalent products or in liquid marketable instruments, as per the Group's financial policy.

Reporting

In accordance with the Green Bond Framework, Arkema will publish:

- An annual report on the allocation of the proceeds until they have been fully allocated; and
- An impact report on the progress of the Eligible Project, each year during the construction phase of the plant. After the start-up of operations, scheduled for 2022, and at least once during the green bond's lifetime, Arkema will publish an impact indicator assessing the number of tons of CO_2 avoided by the Eligible Project.

Every year, an independent auditor will express a limited assurance conclusion on the conformity of the proceeds allocation process and the validity of the impact indicator.

Allocation report

(In millions of euros)	Amount	%
Aggregate nominal amount of the 14 October 2020 issue	300	100%
Aggregate amount allocated to the project on 31 December 2020	89	30%
Aggregate amount allocated to the project on 31 December 2021	271	90%
of which refinancing share (from 1 January 2019 to 14 October 2020)	*68*	*23%*
of which financing share (from 15 October 2020 to 31 December 2021)	*203*	*67%*
Balance at 31 December 2021	29	10%

Impact report

The Eligible Project had an overall rate of completion of 64% at the end of 2021, compared with 25% at the end of 2020, with construction starting in first-half 2020. This rate of progress is completely on target with the project timeline, which calls for construction work to end and production to start in 2022.

Once the project has been completed and the plant is running, Arkema will provide an assessment of the Eligible Project's impact on climate change, at least once during the lifetime of the green bond. This impact assessment, expressed in tons of CO_2 avoided, will be based on data provided by Arkema's High Performance Polymers Business Line and the Analysis, Environment and Process Evaluation department's life-cycle assessment team. As a reminder, a critical review of the Rilsan® polyamide 11 life cycle assessment was performed by a third party. The findings, published in February 2021, confirm that the study was carried out in accordance with ISO 14040/44 and ISO 14067.

Limited assurance report on selected information published in the Group universal registration document for fiscal year 2021 relating to the Green Bond issuance on October 14th 2020

This is a free English translation of the Assurance Report issued in French and is provided solely for the convenience of English-speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

KPMG S.A.

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France

ARKEMA

Registered Office: 420, rue d'Estienne d'Orves, 92705 COLOMBES Cedex

Limited assurance report on selected information published in the Group universal registration document for fiscal year 2021 relating to the Green Bond issuance on October 14th 2020

In our capacity as statutory auditor of your company and in compliance with the engagement entrusted to us, we hereby provide a limited assurance conclusion on whether the information (the **Verified information**) published in the Group Universal Registration Document for fiscal year 2021 relating to the Green Bond issued on October 14th 2020 (the **Annual report**) has been presented, in all material respects, in accordance with the Guidelines defined below.

The **Guidelines** comprise the following documents:

- the Green Bond Framework prepared by ARKEMA (the **Group**) and recapped in the Second Party Opinion issued by Vigeo Eiris prior to the Green Bond issuance available on the Group website [1]; and
- the reporting procedures developed by the Group for the production of the Annual report.

Management's responsibility with regard to the Verified information

The Group Management is responsible for preparing the Annual report, including the Verified information presented in the table below, in accordance with the methods and processes described in the Guidelines, based on:

- the accounting records used to prepare the Group's consolidated financial statements for the fiscal year 2021 (the **Financial statements**);
- the internal controls it deems necessary to ensure that the information is free from material misstatement, whether due to fraud or error.

Verified information	Section of the Guidelines
Project compliance with the Green Bond eligibility criteria	• Framework § 2.1 Use of Proceeds • Framework § 2.2 Process for Project Evaluation and Selection
Allocation of proceeds from the issuance to the eligible project	• Framework § 2.4 Reporting
The compliance of the management of proceeds regarding the rules set out in the Framework before their allocation	• Framework § 2.3 Management of proceeds

(1) *https://www.arkema.com/global/fr/investor-relations/regulated-information/*

Independence and quality control

We apply International Standard on Quality Control 1 (1) and accordingly maintain a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants.

KPMG's responsibility

Our responsibility is to carry out a limited assurance engagement and to express a conclusion on the Verified information, based on the work performed. We conducted our engagement in accordance with International Standard on Assurance Engagements (ISAE) 3000. The standard requires that we plan and perform our work to obtain limited assurance about whether the information has been prepared, in all material respects, in accordance with the Guidelines, based on the accounting records used to prepare the Group Financial statements and based on non-financial data.

It is not our responsibility to provide an opinion on:

- the project eligibility criteria validated in the Second Party Opinions provided by Vigeo Eiris prior to issuance of the Green Bond;
- the use of proceeds for the eligible project subsequent to allocation;
- the impact indicators published in the Annual report.

Our work only focuses on the Verified information and not the Annual report taken as a whole.

Nature and scope of our work

We used our professional judgement to select procedures for our limited assurance engagement, and to assess the risk of material misstatement in the Verified information, whether due to fraud or error.

To assess risk, we took into account the Group's internal controls on the preparation of the Verified information in order to design appropriate assurance procedures, and not to express a conclusion as to the effectiveness of the entity's internal control system.

We conducted several interviews with the persons responsible for preparing the Verified information, with those in charge of collecting the information and, where appropriate, with those responsible for internal control and risk management procedures.

Our work entailed:

- gaining an understanding of the sustainability strategy of the Group, the environmental impact of its activities and any actions or programmes arising from them;
- assessing the appropriateness of the Guidelines in terms of relevance, completeness, reliability, neutrality and understandability;
- verifying the implementation of a process to collect, compile, process and control data to ensure completeness and consistency of the Verified information and gain an understanding of the internal control and risk management procedures used to prepare the Verified information;
- reviewing the consolidated financial statements and the reports of the Group's statutory auditors;
- carrying out the necessary reconciliations for the verification of financial information related to the eligible project, including the reconciliation of capital expenditure allocated to the selected project *via* the South East Asia Shared Service Centre;
- verifying that the central treasury's outstanding amounts remain higher or equal to the unallocated outstanding amounts;
- verifying the amount of allocated funds, at the end of the considered fiscal years;
- verifying the correct application of the reporting procedures and carry out detailed tests on the basis of sampling, consisting in checking the calculations made and reconciling the data with supporting documents;
- performing analytical review procedures on the Verified information, checking the calculations using sampling techniques, and determining whether they are consistent with the information provided in the Annual report.

We believe that the sampling methods and sample sizes we have used, based on our professional judgement, are sufficient to provide a basis for our limited assurance conclusion; a higher level of assurance would have required us to carry out more extensive procedures. Due to the use of sampling techniques and other limitations inherent to information and internal control systems, the risk of not detecting a material misstatement in the Verified information cannot be totally eliminated.

(1) Quality control of firms conducting audit or review engagements, as well as other assurance and related services.

Conclusion

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our conclusion.

Based on the procedures performed, nothing has come to our attention that causes us to believe that the Verified information is not presented fairly in the Annual report, in all material respects, in accordance with the Guidelines, including with regard to:

- compliance of the project mentioned with the eligibility criteria defined by the Group in its "Green Bond Framework";
- allocation of proceeds from the issuance to the selected project mentioned in paragraph "Allocation report" – in the reporting part in paragraph 5.5;
- the description of the proceeds management policy mentioned in paragraph "Management of proceeds" – in the reporting part in paragraph 5.5.

Paris-La Défense, February 23 2022

KPMG S.A.

Anne Garans	**Éric Dupré**
Partner Sustainability Services	Partner

INFORMATION ABOUT THE COMPANY AND ITS SHARE CAPITAL

6

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

6.1 Legal presentation of the Group

6.1.1 Information about the Company

Arkema was established in October 2004 within Total's Chemical business to bring together the Vinyl Products, Industrial Chemicals and Performance Products businesses. On 18 May 2006, the Company's stock market listing marked the Group's independence.

Since 2006, a number of significant operations, as mentioned below, have enabled the Group to strengthen its portfolio of businesses and to refocus on specialty chemical activities.

Date	Nature of operation	Company	Products	Segment
October 2007	Acquisition	Coatex	Rheology additives	Coating Solutions
January 2010	Acquisition	Certain assets of The Dow Chemical Company in North America	Acrylics and emulsions	Coating Solutions
July 2011	Acquisition	Cray Valley, Cook Composites & Polymers Sartomer	Coating resins Photocure resins	Coating Solutions Coating Solutions
February 2012	Acquisition	Suzhou Hipro Polymers Co. Ltd.	Specialty polyamides	Advanced Materials
July 2012	Divestment	Vinyl Products division	Vinyls	Vinyl Products
October 2014	Joint venture	Taixing Sunke Chemicals	Acrylics	Intermediates
February 2015	Acquisition	Bostik	Adhesive solutions and sealants	Adhesive Solutions
December 2016	Acquisition	Den Braven	High performance sealants	Adhesive Solutions
January 2018	Acquisition	XL Brands	Flooring adhesives	Adhesive Solutions
July 2019	Acquisition	ArrMaz	Specialty surfactants	Advanced Materials
September 2019	Acquisition	Sunke (buyback of 45% interest held by Taixing Jurong Chemical)	Acrylics	Intermediates
June 2020	Divestment	Functional polyolefins	Ethylene polymers	Intermediates
May 2021	Divestment	Altuglas (PMMA business)	Polymethyl methacrylate	Intermediates
February 2022	Acquisition	Ashland	Performance adhesives	Adhesive Solutions

Arkema is a French joint stock corporation (*société anonyme*) with a share capital of €742,860,410 and its registered office is located at 420 rue d'Estienne d'Orves, 92700 Colombes (telephone: +33 1 49 00 80 80). It is governed by French law and, as a result, is subject to the legislative and regulatory provisions of the French Commercial Code (*Code de commerce*).

The Company is registered with the Nanterre Trade and Companies Registry (*Registre du commerce et des sociétés*) under number 445 074 685. Its SIRET number is 445 074 685 00030. Its NAF code is 6420 Z. Its legal entity identifier ("LEI") is 9695000EHMS84KKP2785.

It is specified that the information displayed on the Company's website is not part of this Universal Registration Document, except that expressly incorporated by reference in this Universal Registration Document. Therefore, such information has not been reviewed nor approved by the French financial markets authority (*Autorité des marchés financiers* – AMF).

The Company was incorporated on 31 January 2003 for a fixed period of 99 years from its date of registration at the Trade and Companies Registry, until 31 January 2102, unless the term is extended or the Company is wound up earlier.

The Company's corporate purpose (article 3 of its Articles of Association), directly or indirectly, in any country, is:

- to carry out all operations directly or indirectly relating to research, production, processing, distribution and marketing of all chemical and plastic products and their derivatives, by-products thereof and of all parachemical products;
- to acquire, hold and manage all securities, negotiable or otherwise, in French and foreign companies, through newly-created companies, contributions, limited partnerships, or by subscribing for or purchasing securities or corporate rights, or through mergers, combinations, joint venture companies, or by obtaining the use of or providing any property or rights under a lease or lease management agreement or otherwise; and
- more generally, to enter into all financial, commercial, industrial, real estate or securities transactions that may be directly or indirectly related to any of the purposes referred to above or to any other similar or connected purposes, and designed to promote the Company's purpose, expansion or development.

The Company's Articles of Association, minutes of general meetings, statutory auditors' reports and other Company documents may be consulted at the Group's Legal department at the registered office located at 420, rue d'Estienne d'Orves, 92700 Colombes, France. Furthermore, historical financial information, regulated information, reference documents, Universal Registration Documents, annual and sustainable development reports and others are available on the Company's website: www.arkema.com.

6.1.2 Subsidiaries and shareholdings of the Company

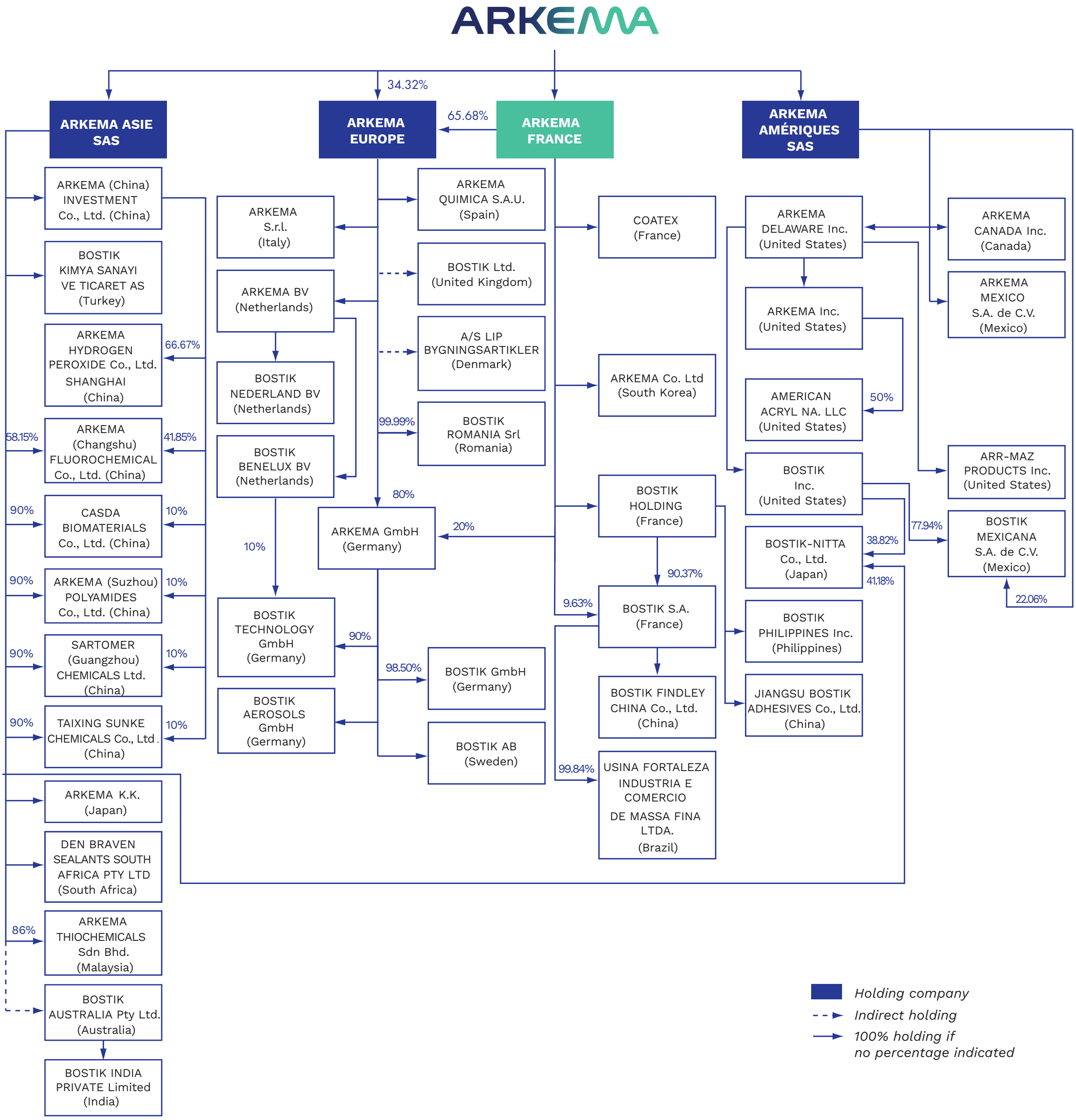
The Company is the Group's ultimate parent company. It is also the head of the French tax group put in place between companies subject to French corporation tax.

The Company is a holding company that does not have its own operational or industrial activity.

The Company indirectly holds – *via* French sub-holding companies, including Arkema France – all the Group's French and foreign subsidiaries, which are grouped by region (France, America, Africa, Asia and Europe).

Arkema France is both a holding and an operating company and holds in particular all of the Group's French operational subsidiaries.

The Company's main direct and indirect subsidiaries at the date of this document are shown in the following simplified organizational chart:



A comprehensive list of all of the Group's consolidated subsidiaries and their geographical location is given in the notes to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

Detailed information on the Company's main subsidiaries is also given in section 5.4.2 of this document.

Information on the Group's structure and the results of each segment are presented respectively in section 1.2 and chapter 5 of this document.

6.1.3 Related-party transactions

Arkema, the Group's ultimate parent company, is a holding company and provides administrative services to Group companies. The related service agreements are not material and are entered into under ordinary conditions comparable to those applicable to similar transactions with third parties.

Some of the Group's non-consolidated companies sell products or provide services to consolidated Group companies. In addition, certain consolidated Group companies sell products or provide services to certain non-consolidated companies.

These transactions, taken separately or together, are not material. They are carried out under ordinary conditions comparable to those applicable to similar transactions with third parties.

A description of related-party transactions is provided in notes 6.5 and 9 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document and in the statutory auditors' special report on related-party agreements and commitments, which is included in chapter 7 of this document.

6.2 Share capital

6.2.1 Amount of share capital

At 31 December 2021, the Company's share capital was €767,364,760. Further to the share capital reduction on 24 January 2022 by way of canceling 2,450,435 shares purchased under the share buyback program completed on 24 November 2021, at the date of this document, the share capital is €742,860,410 divided into 74,286,041 fully paid-up ordinary shares of the same class with a par value of €10 per share. At 25 January 2022, 329,118 shares were held in treasury. At 1 January 2021, the Company's share capital was comprised of 76,736,476 shares.

6.2.2 History of the Company's share capital over the past three years

Date	Amount of capital	Total number of shares	Nature of operation	Number of shares issued/ canceled	Capital increase/ reduction	Share premium
25 April 2018	€764,809,110	76,480,911	Capital increase reserved for employees	610,405	€6,104,050	€43,930,847.85
30 June 2018	€765,324,560	76,532,456	Exercise of stock options outstanding in first-half 2018	51,545	€515,450	€1,278,107.85
31 December 2018	€765,814,920	76,581,492	Exercise of stock options outstanding in second-half 2018	49,036	€490,360	€2,742,093.12
30 June 2019	€766,242,200	76,624,220	Exercise of stock options outstanding from 1 January 2019 to 4 May 2019	42,728	€427,280	€2,389,349.76
21 April 2020	€767,364,760	76,736,476	Capital increase reserved for employees	112,256	€1,122,560	€6,573,711.36
24 January 2022	€742,860,410	74,286,041	Capital reduction by cancellation of shares	-2,450,435	-€24,504,350	-€245,495,513.71

6.2.3 Pledges, guarantees, securities

At 31 December 2021, existing pledges on the Company's direct registered shares and administered registered shares respectively concerned 327 shares held by three shareholders, and 17,323 shares held by four shareholders, representing 0.02% of the share capital.

The Company has no knowledge of pledges concerning other shares of its share capital.

The shares held by the Company in its subsidiaries have not been pledged.

6.2.4 Treasury shares

At 31 January 2022, the Company directly held 329,118 treasury shares.

This section includes (i) a review of the share buyback program authorized in 2021, and (ii) the information that must be given in the description of the share buyback program in accordance with article 241–2 of the general regulations of the French financial markets authority (*Autorité des marchés financiers* – AMF) as well as information required under article L. 225-211 of the French Commercial Code.

Review of share buyback program authorized on 20 May 2021 (2021 share buyback program)

The combined annual general meeting of 20 May 2021 authorized the Board of Directors to implement a share buyback program capped at 10% of the total number of shares comprising the share capital and subject to a maximum purchase price per share of €135. This authorization, which supersedes the unused portion of the authorization granted by the annual general meeting of 19 May 2020, was granted for a 18-month period from the annual general meeting of 20 May 2021, *i.e.*, until 19 November 2022. It is therefore still in force at the date of this document.

By way of illustration, based on the share capital at the date of this document, the theoretical maximum amount of funds to be allocated to the implementation of the share buyback program may not exceed €1,002,861,554.

At its meeting of 24 February 2021, the Board of Directors decided to implement the share buyback program subject to the authorization of the combined annual general meeting of 20 May 2021.

Transactions carried out as part of the 2021 share buyback program

At 20 May 2021, when the annual general meeting approved the 2021 share buyback program, the Company held, directly or indirectly, 363,031 treasury shares.

The following tables give a summary of the transactions carried out as part of the 2021 share buyback program, and in particular under the three hundred (300) million euro program launched on 21 May 2021 and completed on 24 November 2021.

Summary statement at 31 January 2022	
Number of shares comprising the Company's share capital at 20 May 2021	76,736,476
Treasury shares held directly or indirectly at 20 May 2021	363,031
Number of shares purchased between 20 May 2021 and 31 January 2022	2,726,829
Weighted average gross price of shares purchased *(in euros)*	110.02
Number of shares canceled in the last 24 months	2,450,435
Number of treasury shares at 31 January 2022	329,118
Par value of treasury shares	3,291,180
Book value of portfolio *(in euros)*	34,990,225
Market value of portfolio *(in euros)* based on closing price at 31 January 2022, *i.e.*, €130.45	42,933,443

	Aggregate gross movements		Open positions at 31 January 2022	
Summary of transactions carried out through the program between 20 May 2021 and 31 January 2022	**Purchases**	**Sales/transfers**	**Open buying positions**	**Open selling positions**
Number of shares	2,726,829	310,307	-	-
Average price of transaction *(in euros)*	110.02	-	-	-
Amounts *(in euros)*	299,999,935	-	-	-

Breakdown of treasury shares by objective

At 31 January 2022, the Company's 329,118 treasury shares were allocated for the purpose of covering the Company's plans to grant free shares to its employees and executive officers and those of its affiliated companies.

Share buyback program submitted to the annual general meeting of 19 May 2022 (2022 share buyback program)

The Board of Directors would like the Company to continue to have a share buyback program.

To this end, the Board of Directors proposes to the combined annual general meeting of 19 May 2022 to cancel the twelfth resolution voted by the combined annual general meeting of 20 May 2021, for its unused portion, and to authorize the implementation of a new share buyback program in accordance with the provisions of regulation (EU) no. 596/2014 of the European Parliament and of the Council of 16 April 2014 and Title IV of Book II of the general regulations of the French financial markets authority (*Autorité des marchés financiers* – AMF).

In accordance with articles 241-2 and 241-3 of the AMF's general regulations, the following sections give a description of the share buyback program subject to the authorization of the Company's next annual general meeting.

Objectives of the 2022 share buyback program

As part of the 2022 share buyback program that is submitted to the combined annual general meeting of 19 May 2022, the Company is considering purchasing its own shares for any purpose permitted by law either now or in the future, and notably for the following purposes (unchanged compared to the previous program):

- implementing market practices allowed by the AMF such as purchasing or selling shares within the scope of a liquidity agreement entered into with an investment services provider and compliant with the Code of Conduct approved by the AMF, as well as any market practice subsequently permitted by the AMF or by law;
- purchasing shares in the Company in order to hold them and subsequently tender them in exchange or as payment for any potential external growth operations, it being specified that the number of shares acquired for this purpose may not exceed 5% of the share capital at the time of the acquisition;
- putting in place and complying with obligations and in particular delivering shares upon the exercise of rights attached to negotiable securities giving immediate or future access by any means to shares in the Company, as well as carrying out any hedging transactions in respect of the Company's obligations regarding such securities, in accordance with the conditions provided for by the market authorities and at the times the Board of Directors or its delegated representative deems appropriate;
- covering stock option plans granted to employees or executive officers of the Company or its group;
- granting free shares in the Company to the employees or executive officers of the Company or its group, particularly under the conditions provided for in articles L. 225-197-1 to L. 225-197-3, L. 22-10-59 and L. 22-10-60 of the French Commercial Code;
- offering employees the opportunity to acquire shares, whether directly or *via* a company savings plan (*Plan d'Épargne d'Entreprise*), under the terms defined by law, and notably articles L. 3332-1 *et seq.* of the French Labor Code (*Code du travail*); and
- canceling all or some of the purchased shares in order to reduce the Company's share capital.

Maximum portion of share capital to be bought back and maximum number of shares that may be acquired under the 2022 share buyback program

The maximum portion of the share capital that may be bought back under the 2022 share buyback program shall be 10% of the total number of shares making up the Company's share capital (*i.e.*, 74,286,041 shares at the date of this document).

In accordance with article L. 225-210 of the French Commercial Code, the number of shares held by the Company at any given date may not be greater than 10% of the shares constituting the Company's share capital on that date.

The securities that the Company is considering acquiring are shares.

Maximum unit purchase price authorized

The maximum purchase price would be €160 per share, it being specified that this purchase price may be adjusted to account for the impact on the share price resulting from transactions such as a capitalization of share premiums, reserves or earnings giving rise either to an increase in the par value of the shares or to the issuance and distribution of free shares as well as a stock split or reverse stock split or any other transaction affecting equity.

Based on the share capital at the date of this document, the theoretical amount that may be dedicated to this share buyback program may not exceed €1,188,576,656.

Terms and conditions for the 2022 share buyback program

The shares may be purchased or transferred at any time, except during a takeover bid for the Company's shares, under the conditions and within the limits, particularly as regards volume and price, permitted by law at the date of the transaction concerned, by any and all means, including on the market or over the counter, by way of block trades or by way of derivatives traded on a regulated or over-the-counter market, under the conditions permitted by the market authorities and at the times that the Board of Directors or its delegated representative deems appropriate.

Duration of the 2022 share buyback program

In accordance with the resolution to be submitted for the approval of the combined annual general meeting of 19 May 2022, the 2022 share buyback program would be authorized for a period of 18 months from the date of its approval, *i.e.*, until 18 November 2023.

6.2.5 Summary of authorizations and their application

At 31 December 2021, there were no securities, other than the Company's shares, giving access to the Company's share capital.

The following table summarizes the outstanding delegations of authority and authorizations granted by the annual general meeting to the Board of Directors, in particular to increase the share capital, as well as their use:

Type of authorization	Description	Date of annual general meeting	Duration of authorization	Maximum authorized nominal amount or percentage	Use at 31 December 2021 *(unless otherwise specified)*
Capital increase*	Issue shares in the Company and/or securities giving access to shares in the Company **with** preferential subscription rights (A)	19 May 2020	26 months	50% of the Company's share capital at 19 May 2020 €1 billion (debt securities)	None
Capital increase*	Issue shares in the Company and/or securities giving access to shares in the Company by means of a public offering other than those referred to in article L. 411-2 1° of the French Monetary and Financial Code (*Code monétaire et financier*), **without** preferential subscription rights but with a priority period of at least three days (B)	19 May 2020	26 months	10% of the Company's share capital at 19 May 2020 €1 billion (debt securities)	None
Capital increase*	Increase the Company's share capital, **without** preferential subscription rights, through the issue of shares and/or securities giving access to shares in the Company, by means of a public offering referred to in article L. 411-2 1° of the French Monetary and Financial Code (C)	19 May 2020	26 months	10% of the Company's share capital at 19 May 2020 €1 billion (debt securities)	None
Capital increase*	In the event of the issue of shares **without** preferential subscription rights, set the issue price in accordance with the terms set forth by the annual general meeting up to a maximum of 10% of the share capital over a 12-month period (D)	19 May 2020	26 months	10% of the share capital over a 12-month period (amount included in the (B) or (C) limit, as appropriate)	None
Capital increase*	Increase the Company's share capital, within the limit of 10% of the share capital, as compensation for contributions in kind (E)	19 May 2020	26 months	10% of the Company's share capital at 19 May 2020 (amount included in the (C) limit)	None
Capital increase*	In the event of a share capital increase with or without preferential subscription rights, increase the number of shares to be issued (F)	19 May 2020	26 months	15% of the initial issue, subject to the limit stated in the resolution authorizing the issue	None
Capital increase*	Place an overall limit on authorizations to increase the Company's share capital immediately and/or in the future	19 May 2020	26 months	50% of the Company's share capital at 19 May 2020: maximum overall nominal amount of the capital increases set out in (A) to (F); 10% of the Company's share capital at 19 May 2020: overall amount of the capital increases set out in (C) and (E)	None
Capital increase*	Carry out capital increases reserved for members of a company savings plan	19 May 2020	26 months	€13.5 million	None
Share buyback*	Carry out a share buyback program	20 May 2021	18 months	€135 per share 10% of the total number of shares comprising the Company's share capital	Use at 31 January 2022: see section 6.2.4 of this chapter

Type of authorization	Description	Date of annual general meeting	Duration of authorization	Maximum authorized nominal amount or percentage	Use at 31 December 2021 *(unless otherwise specified)*
Performance shares*	Grant free shares in the Company subject to performance conditions	21 May 2019	38 months	1,500,000 shares (less than 2% of the share capital at 21 May 2019)	Grant of 368,980 shares** (29 October 2019) Grant of 366,795 shares** (4 November 2020) Grant of 364,288 shares** (9 November 2021)
Capital reduction	Reduce the share capital by canceling shares	20 May 2021	24 months	10% of the share capital over a 24-month period	Use at 31 January 2022: see section 6.2.2 of this chapter

* *This new authorization is detailed in chapter 7 of this document and will be submitted to the vote of the combined annual general meeting of 19 May 2022.*

** *This number could be increased to 436,535 for 2019, 434,268 for 2020 and 430,824 for 2021 in case of outperformance.*

There are no other securities giving access to the Company's capital either immediately or in the future (see section 6.2.6 of this chapter for a description of these options).

6.2.6 Stock options and performance share plans

In order to retain executives and certain employees and to involve them more closely in the Group's future growth as well as its stock market performance, the Board of Directors has put in place stock option plans and free performance share plans, subject to performance conditions.

In accordance with the applicable stock-based compensation policy, the Board of Directors ceased to grant stock subscription and purchase options in 2012. Since 4 May 2019, there has been no plan in place and there are no longer any stock options outstanding.

Additional information on the performance share plans put in place by the Group is given in section 3.5 of this document, as well as in note 6.4 to the consolidated financial statements at 31 December 2021 in section 5.3.3 of this document.

6.2.7 Share capital increase reserved for employees

The Board of Directors regularly reaffirms its intention to pursue a dynamic employee share ownership policy by offering Group employees the opportunity to purchase Arkema shares every two years, with the following preferential terms: 20% discount until 2020, with a maximum subscription of 1,000 shares and the allocation of free shares to employees in countries outside France participating in the operation in order to make the offer more attractive.

As the delegation of authority granted to the Board of Directors by the annual general meeting of 19 May 2020 to carry out capital increases reserved for members of a company savings plan without preferential subscription rights expires on 19 July 2022, it is proposed to the annual general meeting of 19 May 2022 to renew this delegation for a further period of 26 months (23rd resolution).

In 2022, the Group intends to pursue its dynamic employee share ownership policy in order to continue to give the greatest number of employees possible a stake in its growth. This new authorization will give the Board of Directors the option to initiate a transaction, which would take place in the second half of 2022. Taking advantage of the discount opportunities provided by France's Pacte law, an attractive offer would be developed, the details of which will be decided by the Board of Directors, subject to shareholder approval, after the annual general meeting.

6.2.8 Stock transactions by the Company's executives

Pursuant to article 223-26 of the AMF general regulations, the following table details the transactions declared by the individuals concerned by article L. 621-18-2 of the French Monetary and Financial Code in 2021:

2021		Acquisition (1)	Subscription (including dividend conversion)	Disposal
Thierry Le Hénaff, Chairman and Chief Executive Officer	Arkema shares	-	-	7,464
	FCPE units	-	-	-
Bernard Boyer, member of the Executive Committee of the Arkema Group	Arkema shares	-	-	2,689
	FCPE units	-	-	760.53
Luc Benoit-Cattin, member of the Executive Committee of the Arkema Group	Arkema shares	-	-	1,274
	FCPE units	-	154.78	-
Marie-Pierre Chevallier, member of the Executive Committee of the Arkema Group	Arkema shares	-	-	-
	FCPE units	-	330.43	-
Vincent Legros, member of the Executive Committee of the Arkema Group	Arkema shares	-	-	7,700
	FCPE units	-	-	-
Nathalie Muracciole, director representing employees	Arkema shares	-	-	165
	FCPE units	-	-	-
Erwoan Pezron, member of the Executive Committee of the Arkema Group	Arkema shares	-	-	847
	FCPE units	-	-	-
Philippe Sauquet, independent director	Arkema shares	80	-	-
	FCPE units	-	-	-
Marc Schuller, member of the Executive Committee of the Arkema Group	Arkema shares	-	-	8,000
	FCPE units	-	-	574.90

(1) *Performance shares also vested to Thierry Le Hénaff, Jean-Marc Bertrand, Luc Benoit-Cattin, Bernard Boyer, Erwoan Pezron, Marc Schuller, Marie-Pierre Chevallier, Marie-José Donsion and Nathalie Muracciole under the 5 November 2018 plan and were declared to the AMF on 15 November 2021.*
Performance shares vested to Richard Jenkins under the 8 November 2017 plan and were declared to the AMF on 15 November 2021.

6.3 Share ownership

6.3.1 Breakdown of share ownership and voting rights at 31 December 2021

At 31 December 2021, the share capital of the Company was made up of a total of 76,736,476 shares (of which 10,873,625 shares with double voting rights), carrying 84,830,548 voting rights (including double voting rights and after deduction of treasury shares). The breakdown of share ownership at 31 December 2021 was established on this basis, drawing on an analysis carried out by the Company based on identifiable bearer shares (*titres au porteur identifiable* – TPI) and taking into account threshold declarations made to the AMF or the Company. TPI procedures were carried out at the end of 2021, 2020 and 2019.

To the best of the Company's knowledge, the breakdown of Arkema's share ownership and voting rights at 31 December 2021 was as follows:

Main shareholders owning at least 5% of the share capital and/or voting rights	% of share capital	% of voting rights	% of theoretical voting rights*
Fonds Stratégique de Participations	7.7	12.6	12.2
Lac I SLP	7.0	6.3	6.1
Employee share ownership** (1)	6.0	10.4	10.1
Norges Bank	5.7	5.2	5.0
BlackRock Inc.	5.6	5.1	4.9
NNS	5.1	4.6	4.5
Treasury shares	3.6	0.0	3.2
Public	59.3	55.8	54.0
TOTAL	**100**	**100**	**100**

* *Pursuant to article 223-11 of the AMF's general regulations, the number of theoretical voting rights is calculated on the basis of all shares.*

** *See details presented in section 6.3.4 of this chapter.*

(1) *To the Company's knowledge, the Arkema Actionnariat France and Arkema Actionnariat International company mutual funds (Fonds Commun de Placement d'Entreprise – FCPE) held 4.8% of the Company's share capital at 31 December 2021, representing 8.7% of the Company's voting rights. These funds include the shareholdings of employees of the Arkema Group (see section 6.3.4 of this chapter), Total and businesses divested by the Group.*

To the Company's knowledge, based on its registers and except for the pledges described in section 6.2.3 of this chapter, no shares of the Company have been pledged or used as a guarantee or a surety.

The Company has also put in place an American Depositary Receipt (ADR) program in the United States. For this purpose, it entered into a deposit agreement with Bank of New York Mellon on 18 May 2006. At 31 December 2021, 959,116 shares were held by Bank of New York Mellon on behalf of ADR bearers.

6.3.2 Control of the Company

At the date of this document:

- the Company is not controlled, either directly or indirectly, by any single shareholder; and
- to the Company's knowledge, there is no agreement or pact between shareholders, the implementation of which would result in the takeover of the Company.

6.3.3 Clauses likely to have an effect on the control of the Company

No provision of the Articles of Association can delay, defer or prevent a change of control over the Company. However, there are provisions pertaining to double voting rights and limitations on voting rights in articles 17.3 and 17.4 of the Articles of Association, which are presented in section 6.5.2 of this chapter.

6.3.4 Employee share ownership

According to the definition of employee share ownership under the terms of article L. 225-102 of the French Commercial Code, the number of Arkema shares held by employees at 31 December 2021 was 4,621,918 representing 6.0% of the share capital and, taking into account double voting rights, 10.4% of the voting rights. This may be broken down as follows:

Shares held by Group employees within the Arkema Actionnariat France FCPE	2,408,719
Shares held by Group employees within the Arkema Actionnariat International FCPE	338,875
Direct registered shares held within a Group savings plan (*Plan d'Épargne Groupe*)	275,931
Shares arising from the exercise of stock options and held as direct registered shares within a Group savings plan	214,429
Free shares	1,383,964
TOTAL EMPLOYEE SHARE OWNERSHIP	**4,621,918**

6.3.5 Legal threshold disclosures

The following legal threshold disclosures were made to the AMF in 2021 and up to the date of this document:

Company	Date threshold crossed	Threshold crossed
Norges Bank	29 September 2021	dropped below the 5% voting rights threshold
BlackRock Inc.	7 October 2021	dropped below the 5% voting rights threshold
Norges Bank	8 November 2021	exceeded the 5% voting rights threshold
Norges Bank	20 December 2021	dropped below the 5% voting rights threshold
NNS	10 January 2022	dropped below the 5% share capital threshold
Norges Bank	14 February 2022	exceeded the 5% voting rights threshold

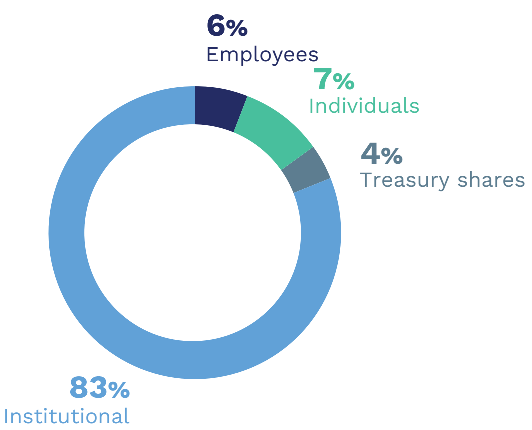
6.3.6 Breakdown of share ownership and voting rights

To the best of the Company's knowledge, Arkema's estimated share ownership at 31 December 2021, 2020 and 2019 was as follows [(1)]:

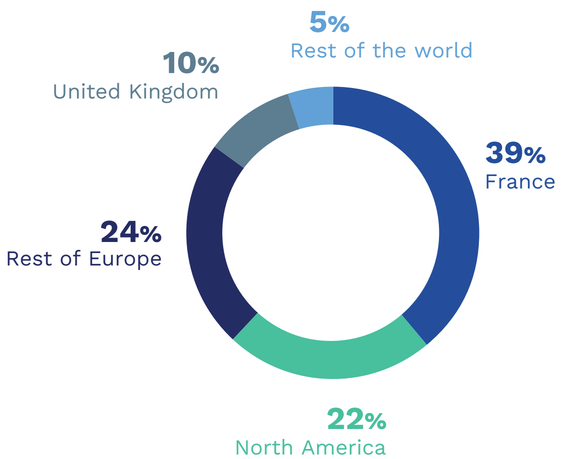
	31 December 2021		31 December 2020		31 December 2019	
	% of share capital	% of voting rights	% of share capital	% of voting rights	% of share capital	% of voting rights
Fonds Stratégique de Participations	7.7	12.6	7.7	12.3	6.2	11.0
Lac I SLP	7.0	6.3	6.4	5.6	N/A	N/A
Norges Bank	5.7	5.2	7.0	6.1	N/A	N/A
BlackRock Inc.	5.6	5.1	5.9	5.2	5.0	4.5
NNS	5.1	4.6	5.4	4.8	N/A	N/A
Other institutional shareholders	52.0	46.9	54.0	47.4	74.5	66.0
Individual shareholders	7.3	8.9	6.8	8.0	7.8	8.5
Employee share ownership	6.0	10.4	6.7	10.6	6.3	10.0
Treasury shares	3.6	0.0	0.1	0.0	0.2	0.0
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**
Number of shares/voting rights	76,736,476	84,830,548	76,736,476	87,311,494	76,624,220	86,506,631

(1) *Only shareholdings in excess of 5% of the share capital threshold are shown in the table above.*

BREAKDOWN OF SHARE OWNERSHIP BY SHAREHOLDER TYPE (AT 31 DECEMBER 2021)



BREAKDOWN OF SHARE OWNERSHIP BY REGION (AT 31 DECEMBER 2021)



6.4 Stock market

6.4.1 Stock market information

The Arkema share is listed on Euronext Paris, compartment A. It is eligible for the Deferred Settlement Service (*Système de Règlement Différé* – SRD) as well as the Personal Equity Savings Plan (*Plan d'Épargne en Actions*).

An American Depositary Receipt (ADR) program has been in place in the United States since 18 May 2006. Each ADR represents one American Depositary Share (ADS), and each ADS in turn represents one Arkema share.

Codes

ISIN	FR0010313833
Ticker	AKE
Reuters	AKE.PA
Bloomberg	AKE FP

Indexes

The Arkema share is included in the following indexes:

- CAC Next 20;
- CAC Large 60;
- CAC 40 ESG;
- SBF 120;
- Euro Stoxx Chemicals; and
- MSCI.

Arkema share performance

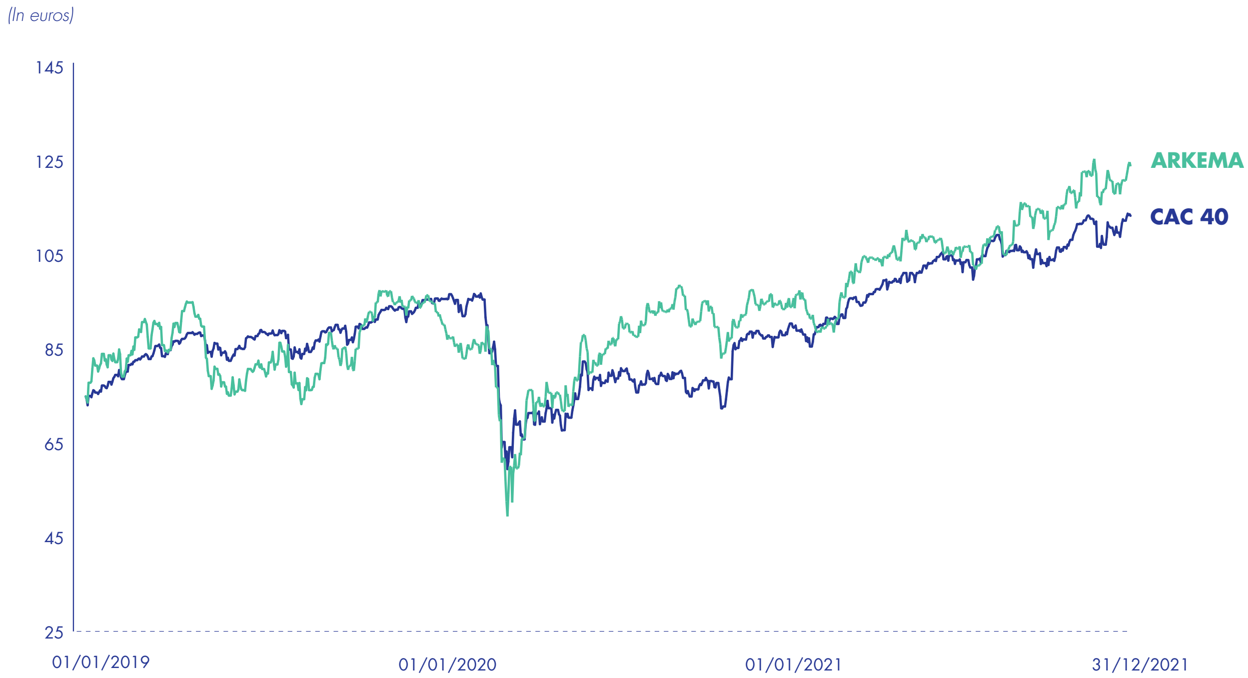
	2021	2020	2019
Market capitalization at year-end *(in billions of euros)*	9.5	7.2	7.3
Performance since 1 January *(situation at 31 December)*	+32.5%	-1.3%	+26.3%
Last closing price of the year *(in euros)*	123.85	93.50	94.70
Average of last 30 closing prices *(in euros)*	120.71	94.81	94.91
Highest closing price of the year *(in euros)*	125.45	98.66	97.54
Lowest closing price of the year *(in euros)*	88.52	49.46	73.32

Arkema share historical data since 1 January 2021

Month	Number of shares traded *(Euronext volumes)* (1)	Trading volume on Euronext *(in millions of euros)* (1)	Highest price *(in euros)*	Lowest price *(in euros)*
January 2021	4,285,252	406.52	98.74	90.36
February 2021	3,785,777	341.33	94.80	87.64
March 2021	4,684,835	469.17	105.35	91.96
April 2021	3,185,595	332.94	107.55	102.15
May 2021	4,851,922	524.28	110.75	103.00
June 2021	3,610,822	386.78	109.95	103.95
July 2021	4,250,306	445.90	107.90	101.70
August 2021	2,976,477	322.94	114.90	104.40
September 2021	4,289,882	489.03	117.35	108.75
October 2021	3,521,808	401.59	120.10	108.05
November 2021	4,737,337	569.31	126.45	112.55
December 2021	3,308,700	397.69	124.85	116.15
January 2022	3,667,644	474.48	134.95	121.95
February 2022	3,260,951	409.64	132.90	114.80

(1) Source - Euronext monthly statistics.

Arkema share price changes since 1 January 2019



6.4.2 Financial communication

The Group regularly provides information on its activities, results and outlook to its shareholders, investors and analysts, and to the financial community at large. Group press releases, financial reports, presentations and minutes of annual general meetings are available in the "Investors" section on the Group's website (www.arkema.com/global/en/investor-relations/).

Every year, the Group files a Universal Registration Document with the AMF. This document is available on the AMF website (www.amf-france.org) and on the Group's website (www.arkema.com/global/en/investor-relations/). A French version of this Universal Registration Document is also available on the Group's website.

6.4.3 Relations with institutional investors and financial analysts

The Group is committed to maintaining an active and permanent dialogue with institutional investors and financial analysts, in particular through roadshows and conferences that may be held in person or virtually. Representatives from the Group's executive management, primarily the Chairman and Chief Executive Officer and the Chief Financial Officer, regularly meet with portfolio managers and financial analysts of the main financial hubs in Europe, North America and Asia. The Investor Relations team also regularly meets with the financial community. The purpose of these various meetings is to inform the market of the Group's results and main operations and improve investors' and analysts' understanding of its activities, strategy and outlook.

On the publication of its quarterly, half-yearly and annual results, a conference call and a webcast are hosted by the Chairman and Chief Executive Officer and the Chief Financial Officer for the financial community.

In 2021, the Group held approximately 600 meetings as part of roadshows and conferences, almost all of which were virtual events given the exceptional circumstances surrounding the Covid health crisis.

6.4.4 Relations with individual shareholders

The Group aims to inform its individual shareholders about its strategy, results and activities, with an emphasis on open dialogue, discussion and meetings.

Arkema meets with its individual shareholders on a regular basis, in particular at the annual general meeting, which is a special opportunity for information and dialogue about the Group's strategy and development. This year again, due to government Covid restrictions in France, the annual general meeting of 20 May 2021 was held behind closed doors, with no shareholders attending in person and a live webcast and replay available on the website (www.arkema.com/global/en/investor-relations/). In addition, as the health situation remained challenging throughout the year, the Group did not take part in the meetings and trade fairs for individual shareholders that it usually attends. Arkema did, however, use digital technology to engage with its individual shareholders, for example taking part in Boursolive, the first digital trade show for individual shareholders organized by Boursorama.

Additionally, through its shareholders' club, the Group organizes various activities throughout the year that give its members the opportunity to discover the world of chemistry, and the innovations and applications of chemical products in everyday life. No visits were scheduled in 2021 due to the pandemic.

Presentations, shareholder newsletters and other documents intended for individual shareholders are available in the dedicated section of the Group's website (https://www.arkema.com/global/en/investor-relations/individual-shareholder/).

6.4.5 Investor relations contacts

Institutional investor relations department

Telephone:

+33 (0)1 49 00 74 63

Email address: investor-relations@arkema.com

Individual shareholder relations department

Telephone:

0 800 01 00 01 (free to call within France)

+33 (0) 1 86 86 05 90 (outside France)

Email address: actionnaires-individuels@arkema.com

6.4.6 Registered shares

Arkema shares can be registered in the name of the holders. In this case, shareholders are identified by Arkema in its capacity as issuer, or by its agent BNP Paribas Securities Services, which is responsible for the shareholders' register.

Advantages of registered shares include:

- double voting rights if shares are held for two years continuously (see section 6.5.2 of this chapter); and
- the possibility of directly receiving the notice of the annual general meeting.

Contact details for registered shares:

BNP Paribas Securities Services

CTO – Services aux Émetteurs

Les Grands Moulins de Pantin

9, rue du Débarcadère

93761 Pantin Cedex – France

Telephone:

0 800 115 153 (within France)

+33 (0)1 55 77 41 17 (outside France)

Website: https://planetshares.bnpparibas.com

6.4.7 Dividend policy

Dividends are a key component of the Group's shareholder return policy. During the Capital Markets Day of 2 April 2020, the Group reiterated its determination to progressively increase the dividend, aiming for a 40% payout ratio by 2024.

The Board of Directors thus decided at its meeting on 23 February 2022 that, at the annual general meeting of 19 May 2022, it will recommend a dividend payment of €3.0 per share in respect of 2021 (*vs.* €2.5 per share in respect of 2020), to be paid entirely in cash. Shares will be traded ex-dividend on 23 May 2022 and the dividend will be paid as from 25 May 2022.

In addition, on 24 November 2021, the Group finalized its share buyback program for an aggregate amount of €300 million that began on 21 May 2021.

	2021 (1)	2020	2019	2018	2017
Dividend per share *(in euros)* (2)	3.00	2.50	2.20	2.50	2.30
Payout ratio (dividend per share/adjusted net income per share)	25%	49%	27%	26%	29%

(1) Dividend proposed to the annual general meeting of 19 May 2022.
(2) Dividend eligible for the 40% deduction under article 158.3-2° of the French Tax Code (Code général des impôts).

Since 2007, the first year during which the Group distributed a dividend, the dividend has increased by an average of nearly 10% per year.

6.5 Extract from the Articles of Association

6.5.1 General meetings (articles 16, 17.1 and 17.2)

Notice of meeting – place of meeting – admission

General meetings are called under the conditions provided for by applicable laws and regulations.

Meetings are held at the registered office or at any other place indicated in the notice of meeting.

In compliance with current regulatory requirements, all shareholders have the right to attend general meetings and to participate in the deliberations or to be represented, regardless of the number of shares they own, provided that it can be proven in accordance with legal and regulatory provisions that the shares have been registered in their name or in that of an intermediary duly authorized on their behalf under the terms of paragraph 7 of article L. 228-1 of the French Commercial Code, within the regulatory period, either in the registered share accounts held by the Company or in the bearer securities accounts held by the authorized intermediary.

The registration or accounting entry of the shares in bearer securities accounts held by the authorized intermediary shall be evidenced by a shareholding certificate issued by the intermediary of the account holder under applicable legal and regulatory conditions.

Exercise of voting rights

As from the time the meeting is called, any shareholder may request from the Company in writing a paper absentee ballot, or, if the Board of Directors provides for this option in both the announcement and notice of meeting, an electronic absentee ballot. Such requests must be delivered to or received at the registered office of the Company no later than six days before the date of the meeting. The Board of Directors has the power to reduce or waive this period.

Paper absentee ballots must be delivered to or received by the Company at least three days before the date of the general meeting. Electronic absentee ballots may be delivered to or received by the Company until 3.00pm (CET) on the eve of the general meeting. The Board of Directors or Chairman, if so authorized by delegation, has the power to reduce or waive this period.

Representation

A shareholder may be represented at general meetings by another shareholder, his or her spouse, civil union partner, or by any other person or legal entity under the terms provided for in articles L. 225-106 *et seq.* and L. 22-10-39 *et seq.* of the French Commercial Code.

Shareholders that are legal entities attend meetings through their legal representatives or any proxy appointed for this purpose.

Any member of the meeting who wishes to be represented by proxy must send a proxy form to the Company, either on paper, or, if the Board of Directors provides for this option in both the announcement and notice of meeting, in electronic format, at least three days before the meeting. However, the Board of Directors, or by delegation, the Chairman, has the power to reduce or waive such notice periods and to accept proxy forms that do not fall within this limit.

Proxies in electronic format may be delivered or received by the Company until 3.00pm (CET) on the eve of the general meeting. The Board of Directors, or by delegation, the Chairman, has the power to reduce or waive this period.

Use of telecommunications

The Board of Directors has the power to decide that shareholders who take part in the general meeting by video conference or other means of telecommunication that enable them to be identified, and where the nature and conditions of such means of participation are determined by the French Commercial Code, shall be deemed present for the purposes of calculating the quorum and majority.

Chairman of the general meeting

General meetings are chaired by the Chairman of the Board of Directors or, in his or her absence, by a director who is appointed specifically for this purpose by the Board of Directors. Failing this, the meeting elects its own Chairman.

Quorum and majority

General meetings, whether they are ordinary, extraordinary, combined or special, are duly constituted when they meet the quorum and majority conditions provided for by applicable laws and regulations governing such meetings, and exercise the powers ascribed to them by the law.

6.5.2 Voting rights (articles 17.3 and 17.4)

Voting rights, double voting rights (article 17.3 of the Articles of Association)

Subject to the provisions set forth below, each member of the meeting is entitled to as many voting rights and votes as the number of shares he owns or represents, providing that all payments due for such shares have been met.

However, double voting rights are conferred on all fully paid up shares in registered form that have been registered in the name of the same shareholder for at least two years, under the conditions applicable by law and by regulations.

Furthermore, in the event of a capital increase by capitalization of reserves, profits or share premiums, double voting rights are conferred, as of their issue, to shares in registered form allocated to shareholders on the basis of existing shares held by such shareholders and conferring such entitlement.

The merger or spin-off of the Company has no effect on double voting rights, which may be exercised within the beneficiary company or companies if the Articles of Association of such company provide for such rights.

Any share converted to a bearer share or the ownership of which is transferred loses the double voting rights gained under the three provisions above. However, a transfer resulting from inheritance, the separation of assets between spouses or an *inter vivos* gift to a spouse or close relative does not result in the loss of rights acquired nor interrupt the qualifying period indicated above.

Limitation on voting rights (article 17.4 of the Articles of Association)

In a general meeting, no shareholder may, directly or through a proxy, express more than 10% of the total voting rights attached to the Company's shares, taking into account single voting rights attached to shares that he directly or indirectly holds and to the powers conferred to him. However, if such a shareholder also holds double voting rights personally or as a proxy, the 10% limit may be exceeded, taking into account only the additional voting rights resulting therefrom, and the combined voting rights expressed shall not exceed 20% of the total voting rights attached to the Company's shares.

In application of the foregoing provisions:

- the total number of voting rights attached to the Company's shares that is taken into consideration is calculated as of the date of the general meeting and the shareholders are notified thereof at the beginning of such general meeting;
- the number of voting rights held directly or indirectly means those that are attached to shares held by an individual, either personally or jointly, or by a company, group, association or foundation, and those that are attached to shares held by a company that is controlled within the meaning of article L. 233-3 of the French Commercial Code, by another company or by an individual, association, group or foundation; and
- a shareholder's proxy returned to the Company without stating the name of the proxy is subject to the foregoing limitations. However, such limitations do not apply to the Chairman of a general meeting who is voting by virtue of all such proxies combined.

The limitations provided in the foregoing paragraphs have no impact on the calculation of the total number of voting rights, including double voting rights, which are attached to the Company's shares and which must be taken into account when applying the legal, regulatory or statutory provisions providing for specific obligations by reference to the number of voting rights existing in the Company or the number of shares having voting rights.

The limitations set forth above shall lapse, without any need for a new resolution by an extraordinary general meeting, whenever an individual or a legal entity, acting separately or in concert with one or more individuals or legal entities, should come to hold at least two-thirds of the total number of shares in the Company following a takeover bid for all of the Company's shares. The Board of Directors then recognizes that the limitations have lapsed, and carries out the related formalities to amend the Articles of Association.

6.5.3 Rights and obligations attached to the shares (article 9)

In addition to the right to vote, each share gives the holder the right of ownership of a portion of the Company's assets, profits and winding-up dividends (*boni de liquidation*), determined proportionately to the shareholding it represents.

Ownership of a share entails compliance with the Articles of Association of the Company and with all resolutions approved by the Company's shareholders at general meetings.

Any changes to the rights attached to the shares are subject to legal provisions.

6.5.4 Thresholds (article 8)

In addition to the legal obligation to inform the Company of any shareholdings or voting rights that they may hold, any individual or legal entity acting alone or in concert that has come into possession, within the meaning of articles L. 233-9 and L. 233-10 of the French Commercial Code, either directly or indirectly, of a percentage of the share capital or voting rights equal to or greater than 1%, is required to inform the Company, by registered mail with return receipt, of the total number of shares, voting rights and securities giving future access to the Company's capital, as well as the voting rights attached thereto, whether they are held alone or in concert, directly or indirectly, within five stock market trading days starting on the date on which it crossed this threshold.

Above this 1% threshold and up to 30%, this disclosure requirement must be fulfilled under the conditions set forth above, each time the shareholder crosses a multiple of 0.5% of the share capital or voting rights.

Failure to make the threshold disclosures as set forth in the first two paragraphs above shall result in those shares that should have been disclosed being disqualified for voting purposes at general meetings, if such failure is acknowledged and if so requested at a meeting by one or more shareholders together holding at least 3% of the Company's share capital or voting rights.

All shareholders, whether natural persons or legal entities, must also notify the Company in the manner and within the time limits indicated in the first two paragraphs above, whenever their direct, indirect or joint holdings fall below any of the thresholds mentioned in the said paragraphs.

ANNUAL GENERAL MEETING

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The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

7.1 Statutory auditors' special report on related party agreements

This is a translation into English of the statutory auditors' report on related-party agreements issued in French and it is provided solely for the convenience of English-speaking readers. This report should be read in conjunction with, and construed in accordance with, French law and professional standards applicable in France.

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Department of KPMG S.A.

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Statutory auditors
Member of the "Compagnie régionale de Versailles et du Centre"

Arkema

Annual general meeting held to approve the financial statements for the year ended 31 December 2021

Statutory auditors' report on related party agreements

To the annual general meeting of Arkema,

In our capacity as statutory auditors of your Company, we hereby present to you our report on related party agreements.

We are required to inform you, on the basis of the information provided to us, of the terms and conditions of those agreements indicated to us, or that we may have identified in the performance of our engagement, as well as the reasons justifying why they benefit the Company. We are not required to give our opinion as to whether they are beneficial or appropriate or to ascertain the existence of other agreements. It is your responsibility, in accordance with Article R. 225-31 of the French Commercial Code *(Code de commerce)*, to assess the relevance of these agreements prior to their approval.

We are also required, where applicable, to inform you in accordance with Article R. 225-31 of the French Commercial Code *(Code de commerce)* of the implementation, during the year ended 31 December 2021, of the agreements previously approved by the annual general meeting.

We performed those procedures which we deemed necessary in compliance with professional guidance issued by the French Institute of statutory auditors *(Compagnie nationale des commissaires aux comptes)* relating to this type of engagement. These procedures consisted in verifying the consistency of the information provided to us with the relevant source documents.

Agreements submitted for approval to the annual general meeting

In accordance with Article L. 225-40 of the French Commercial Code *(Code de commerce)*, we have been notified of the following related party agreement which received prior authorization from your Board of Directors.

- With JP Morgan, Natixis and Securities PLC

Persons concerned

Mr. Laurent Mignon, Director of your Company.

Amendment to the Syndicated Loan Agreement

Nature and purpose

This amendment to the existing Syndicated Loan Agreement, authorized by the Board of Directors on 5 May 2021, consists in the inclusion of a Corporate Social Responsibility (CSR) clause of the multi-currency syndicated loan agreement entered into between your company and, among others, Natixis on 29 July 2020.

Conditions

The amendment adds CSR criteria to the existing multi-currency Syndicated Loan Agreement allowing the adjustment of the margin applicable to the credit, upwards of downwards, depending on the annual performance of the CSR objectives set by your Group and in line with your Company's long-term strategy.

Reasons justifying why the Company benefits from this agreement

The purpose of the amendment is to take into account the CSR objectives of your Group in the context of its financing.

Agreements and commitments previously approved by the annual general meeting

In accordance with Article R. 225-30 of the French Commercial Code *(Code de commerce)*, we have been notified of the following related party agreement previously approved by the annual general meeting, whose implementation continued during the year ended 31 December 2021.

- With JP Morgan, Natixis and Securities PLC

Persons concerned

Messrs. Marc Pandraud et Laurent Mignon, Directors of your Company.

Syndicated Loan Agreement

Nature and purpose

This Agreement, authorized by your Board of Directors on 29 July 2020, consists in the setting up by nine banks, including JP Morgan, Natixis and Securities PLC, in favor of your Company and its subsidiary Arkema France, of a syndicated loan to finance the general needs of your Company for a period of three years, and two extension options of one year each, guaranteed by your Company, also acting as joint and several guarantor.

Conditions

The Agreement is a multi-currency syndicated line of credit in the amount of one billion euros, the equivalent of which is at most of USD 200,000,000. The financial terms of the Agreement reflect the market conditions at the time of its execution, and no participating bank benefits from special financial conditions.

This Agreement is accompanied by cases of early repayments, including the change in control of your Group, and includes (i) reporting obligations and customary commitments for this type of financing and (ii) a financial commitment, under which the Group undertakes to respect a consolidated net debt to consolidated EBITDA ratio (tested half-yearly) of less than 3.5.

Paris La Défense, 23 February 2022

The Statutory Auditors

French original signed by

KPMG Audit *Département de KPMG S.A.*		ERNST & YOUNG Audit
Bertrand Desbarrières	Eric Dupré	Christine Vitrac

7.2 Proposed agenda and proposed resolutions submitted to the combined annual general meeting

7.2.1 Proposed agenda for the combined annual general meeting of 19 May 2022

Resolutions submitted to the ordinary general meeting

- Approval of the Company's financial statements for the year ended 31 December 2021.
- Approval of the consolidated financial statements for the year ended 31 December 2021.
- Allocation of profit for the year ended 31 December 2021 and setting of the dividend.
- Approval of the agreements referred to in articles L. 225-38 *et seq.* of the French Commercial Code (*Code de commerce*).
- Ratification of the co-optation of Philippe Sauquet as a member of the Board of Directors.
- Reappointment of Philippe Sauquet as a member of the Board of Directors.
- Reappointment of the Fonds Stratégique de Participations as a member of the Board of Directors.
- Reappointment of Marie-Ange Debon as a member of the Board of Directors.
- Appointment of Nicolas Patalano as director representing shareholder employees [(1)].
- Appointment of Uwe Michael Jakobs as director representing shareholder employees [(1)].
- Approval of the compensation policy for directors, other than the Chairman and Chief Executive Officer.
- Approval of the compensation policy for the Chairman and Chief Executive Officer.
- Setting of the maximum amount of total annual compensation for directors.
- Approval of the information provided for in the corporate governance report and relating to the compensation of executive officers.
- Approval of the components of compensation paid or awarded to the Chairman and Chief Executive Officer for the year ended 31 December 2021.
- Authorization granted to the Board of Directors to carry out a share buyback program.

Resolutions submitted to the extraordinary general meeting

- Delegation of authority granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, with preferential subscription rights.
- Delegation of authority granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, by means of a public offering other than that referred to in article L. 411-2 1° of the French Monetary and Financial Code (*Code monétaire et financier*), without preferential subscription rights but with a mandatory priority period.
- Delegation of authority granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, without preferential subscription rights, by means of a public offering referred to in article L. 411-2 1° of the French Monetary and Financial Code.
- Authorization granted to the Board of Directors, in the event of the issue of shares in the Company and/or securities giving access to shares in the Company, without preferential subscription rights, to set the issue price in accordance with the terms set forth by the annual general meeting up to a maximum of 10% of the share capital over a 12-month period.
- Delegation of authority granted to the Board of Directors to carry out capital increases as compensation for contributions in kind.
- Authorization granted to the Board of Directors to increase the number of shares to be issued in the event of excess demand.
- Overall limit on authorizations to issue shares in the Company immediately and/or in the future.
- Delegation of authority granted to the Board of Directors to carry out capital increases reserved for members of a company savings plan (*Plan d'Épargne d'Entreprise*), without preferential subscription rights.
- Delegation of authority granted to the Board of Directors to award free shares in the Company subject to performance conditions.
- Powers to carry out formalities.

(1) *As there is only one position of director representing shareholder employees to be filled, only the candidate having obtained the greatest number and at least the majority of votes shall be appointed. The Board of Directors has approved the candidacy of Nicolas Patalano.*

7.2.2 Proposed resolutions submitted to the combined annual general meeting of 19 May 2022

Resolutions submitted to the ordinary general meeting

First resolution

(Approval of the Company's financial statements for the year ended 31 December 2021)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Company's financial statements for the year ended 31 December 2021, the Board of Directors' management report and the statutory auditors' reports, approves said financial statements, as well as the transactions reflected therein and described in said reports.

In accordance with the provisions of article 223 *quater* of the French Tax Code (*Code général des impôts*), the annual general meeting approves the expenses and charges mentioned in article 39-4 of said Code, which amounted to €77,087 for the year ended 31 December 2021, and given the Company's tax position in 2021, the non-deductibility of these expenses resulted in an additional current tax charge of €21,900.

Second resolution

(Approval of the consolidated financial statements for the year ended 31 December 2021)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the consolidated financial statements for the year ended 31 December 2021, the Board of Directors' Group management report and the statutory auditors' report on the consolidated financial statements, approves said financial statements, as well as the transactions reflected therein and described in said reports.

Third resolution

(Allocation of profit for the year ended 31 December 2021 and setting of the dividend)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having noted that the Company's financial statements for the year ended 31 December 2021 show a profit of €282,358,263.44, plus prior retained earnings of €1,812,685,091.48, decides, as recommended by the Board of Directors, to allocate the distributable profit for the financial year as follows:

Source	
Profit for the period	€282,358,263.44
Prior retained earnings	€1,812,685,091.48
Distributable profit	€2,095,043,354.92

Allocation	
Legal reserve	€-
Dividend distribution (1)	€222,858,123
Retained earnings	€1,872,185,231.92

(1) The total dividend distribution is calculated on the basis of the number of shares carrying dividend rights at 24 January 2022 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions and therefore granting dividend rights. The total may vary if the number of shares carrying dividend rights changes up to the ex-dividend date depending, for example, on the number of treasury shares held by the Company.

The abovementioned dividend distribution is the gross amount, calculated before any taxes or social security contribution that may apply to shareholders depending on their particular situation. Dividends paid to individual shareholders domiciled for tax purposes in France are in principle subject either to a 12.8% flat tax (prélèvement forfaitaire unique – PFU), calculated on the gross amount of the dividend (article 200 A of the French Tax Code), or, if the beneficiary expressly and irrevocably so elects, to taxation on the progressive income tax scale, after application of 40% tax relief (article 158, 3-2° of the French Tax Code). This option is applicable to all income subject to the PFU flat tax, with no possibility of a partial option. It must be exercised by beneficiaries each year when filing their income tax return and no later than the filing deadline. In addition, the dividend is subject to social security contributions at a rate of 17.2%, a percentage of which may be deductible in the event of election of taxation on the progressive income tax scale. Beneficiaries whose reference taxable income exceeds certain thresholds are also subject to an exceptional surtax on high incomes (contribution exceptionnelle sur les hauts revenus – CEHR), provided for in article 223 sexies of the French Tax Code, on a scale adjusted for family status (single persons or equivalent, couples with joint taxation). Shareholders are invited to contact their tax advisor.

Accordingly, the annual general meeting decides to pay a dividend of €222,858,123 with regard to the 74,286,041 shares carrying dividend rights on 24 January 2022 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions, corresponding to a distribution of three (3) euros per share, it being specified that full powers are granted to the Board of Directors to set the definitive total amount of the dividend, the balance of distributable income and consequently the amount to be allocated to retained earnings.

The shares will be traded ex-dividend as of 23 May 2022 and the dividend for the 2021 financial year will be paid as of 25 May 2022.

This dividend will be eligible in full for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158, 3-2° of the aforementioned Tax Code, provided notably that the beneficiary has elected for taxation on the progressive income tax scale (*see above*).

In accordance with the provisions of article 243 *bis* of the French Tax Code, it is recalled that the dividend paid for the last three financial years was as follows:

Financial year	2020	2019	2018
Dividend distribution *(in euros)*	190,660,817.50	168,171,755.40	190,282,390.00
Net dividend per share *(in euros)*	2.50 (1)	2.20 (1)	2.50 (1)

(1) Eligible in full for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3-2° of the French Tax Code, applicable, under certain conditions, in the event of election of taxation on the progressive income tax scale.

Fourth resolution

(Approval of the agreements referred to in articles L. 225-38 et seq. of the French Commercial Code)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the statutory auditors' special report provided for in article L. 225-40 of the French Commercial Code, duly notes the information relating to the agreements entered into and the commitments made during prior financial years and approved by the annual general meeting, and approves the agreement authorized and entered into during the financial year ended 31 December 2021 referred to in this report.

Fifth resolution

(Ratification of the co-optation of Philippe Sauquet as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, ratifies the appointment, decided on a provisional basis by the Board of Directors at its meeting on 9 November 2021, of Philippe Sauquet as director, in place of Alexandre de Juniac who resigned, for the remainder of the term of his office, *i.e.*, until the close of the ordinary general meeting to be held in 2022 to approve the financial statements for the year ended 31 December 2021.

Sixth resolution

(Reappointment of Philippe Sauquet as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, having considered the Board of Directors' report and noting that the term of office of Philippe Sauquet expires at the close of this annual general meeting, decides to reappoint him for a term of four (4) years expiring at the close of the ordinary general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Seventh resolution

(Reappointment of the Fonds Stratégique de Participations as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, having considered the Board of Directors' report and noting that the term of office as director of the Fonds Stratégique de Participations expires at the close of this annual general meeting, decides to reappoint it for a term of four (4) years expiring at the close of the ordinary general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Eighth resolution

(Reappointment of Marie-Ange Debon as a member of the Board of Directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, having considered the Board of Directors' report and noting that the term of office of Marie-Ange Debon expires at the close of this annual general meeting, decides to reappoint her for a term of four (4) years expiring at the close of the ordinary general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Ninth resolution (1)

(Appointment of Nicolas Patalano as director representing shareholder employees)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, decides, pursuant to article 10.2 of the Company's Articles of Association, to appoint Nicolas Patalano as director representing shareholder employees for a term of four (4) years expiring at the close of the ordinary general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Resolution A (1)

(Appointment of Uwe Michael Jakobs as director representing shareholder employees)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, decides, pursuant to article 10.2 of the Company's Articles of Association, to appoint Uwe Michael Jakobs as director representing shareholder employees for a term of four (4) years expiring at the close of the ordinary general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Tenth resolution

(Approval of the compensation policy for directors, other than the Chairman and Chief Executive Officer)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the corporate governance report referred to in article L. 225-37 of the French Commercial Code describing the compensation policy for directors, other than the Chairman and Chief Executive Officer, approves said policy as presented in section 3.4.1.1 of this document, in compliance with article L. 22-10-8 II of the French Commercial Code.

Eleventh resolution

(Approval of the compensation policy for the Chairman and Chief Executive Officer)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the corporate governance report referred to in article L. 225-37 of the French Commercial Code describing the compensation policy for the Chairman and Chief Executive Officer, approves said policy as presented in section 3.4.2.1 of this document, in compliance with article L. 22-10-8 II of the French Commercial Code.

(1) 9th resolution and resolution A: pursuant to article 10.2 of the Company's Articles of Association, as there is only one position of director representing shareholder employees to be filled, only the candidate having obtained the greatest number and at least the majority of votes shall be appointed. The Board of Directors has approved the candidacy of Nicolas Patalano.

Twelfth resolution

(Setting of the maximum amount of total annual compensation for directors)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, decides to set at €900,000 the maximum amount of the annual fixed sum provided for in article L. 225-45 of the French Commercial Code, which the Company may allocate to directors as compensation for their duties as of 2022 and for each subsequent year, until a new decision is adopted by the annual general meeting.

Thirteenth resolution

(Approval of the information provided for in the corporate governance report and relating to the compensation of executive officers)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the corporate governance report referred to in article L. 225-37 of the French Commercial Code, approves the information provided for in article L. 22-10-9 of said Code and presented in sections 3.4.1.2 and 3.4.2.2 of this document, in compliance with article L. 22-10-34 I of the French Commercial Code.

Fourteenth resolution

(Approval of the components of compensation paid or awarded to the Chairman and Chief Executive Officer for the year ended 31 December 2021)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the corporate governance report referred to in article L. 225-37 of the French Commercial Code, approves the fixed, variable and exceptional components of the total compensation and benefits of any kind paid in or awarded for the year ended 31 December 2021 to Thierry Le Hénaff, as presented in section 3.4.2.2 of this document, in compliance with article L. 22-10-34 II of the French Commercial Code.

Fifteenth resolution

(Authorization granted to the Board of Directors to carry out a share buyback program)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having considered the Board of Directors' report, authorizes the Board of Directors, or any person duly authorized to act on its behalf, to purchase or arrange to have purchased shares in the Company in accordance with articles L. 22-10-62 *et seq.* of the French Commercial Code, regulation (EU) no. 596/2014 of the European Parliament and of the Council of 16 April 2014 and Title IV of Book II of the general regulations of the French financial markets authority (*Autorité des marchés financiers* – AMF). The number of shares that may be held by the Company under this authorization at any given date may not be greater than 10% of the share capital. The number of shares held by the Company may be adjusted as necessary to take into account transactions that affect the share capital occurring after this annual general meeting. The authorization is granted under the following conditions:

(i) the maximum purchase price is €160 per share. However, the Board of Directors may adjust the aforementioned purchase price to take into account the impact on the share price of transactions such as a capitalization of share premiums, reserves or earnings giving rise either to an increase in the par value of the shares or the issuance and award of free shares, a stock split or reverse stock split, or any other transaction affecting shareholders' equity;

(ii) based on the share capital at 31 January 2022, the theoretical amount that may be dedicated to this share buyback program may not exceed €1,188,576,656;

(iii) under no circumstances may the Company hold, directly or indirectly, more than 10% of its share capital as a result of the purchases made pursuant to this authorization;

(iv) the shares bought back and held by the Company shall have no voting or dividend rights; and

(v) such shares may be purchased or transferred at any time, except from the date of a takeover bid until the end of the offer period, under the conditions and within the limits, particularly as regards volume and price, permitted by law at the date of the transaction in question, by any and all means, including on the market or over the counter, by way of block trades or derivative financial instruments or warrants traded on a regulated market or over the counter, or through an investment services provider or a member of a regulated market referred to in article L. 225-206 of the French Commercial Code, under the conditions permitted by the market authorities and at the times the Board of Directors or its delegated representative deems appropriate.

The annual general meeting decides that these share purchases can be made for any purpose permitted by law either now or in the future, and notably for the following purposes:

(i) implementing market practices allowed by the AMF such as purchasing or selling shares within the scope of a liquidity agreement entered into with an investment services provider and compliant with the Code of Conduct approved by the AMF, as well as any market practice subsequently permitted by the AMF or by law;

(ii) purchasing shares in the Company in order to hold them and subsequently tender them in exchange or as payment for any potential external growth transactions, it being specified that the shares purchased for this purpose may not exceed 5% of the Company's share capital at the time of the acquisition;

(iii) putting in place and complying with obligations and in particular delivering shares upon the exercise of rights attached to securities giving immediate or future access by any means to shares in the Company, as well as carrying out any hedging transactions in respect of the Company's obligations regarding such securities, in accordance with the conditions provided for by the market authorities and at the times the Board of Directors or its delegated representative deems appropriate;

(iv) covering stock option plans granted to employees or executive officers of the Company or its group;

(v) granting free shares in the Company to employees or executive officers of the Company or its group, particularly under the conditions provided for in articles L. 225-197-1 to L. 225-197-3, L. 22-10-59 and L. 22-10-60 of the French Commercial Code;

(vi) offering employees the opportunity to acquire shares, whether directly or *via* a Company savings plan (*Plan d'Épargne d'Entreprise*), under the terms provided for by law and notably articles L. 3332-1 *et seq.* of the French Labor Code (*Code du travail*); and

(vii) canceling all or some of the purchased shares in order to reduce the Company's share capital.

The annual general meeting grants full powers to the Board of Directors, with the possibility to sub-delegate such powers under the conditions set by law, to ensure the implementation of this authorization, and in particular to set the terms and conditions thereof, carry out the share buyback program and notably place all stock market orders, enter into any agreements, prepare and amend any documents, in particular information documents, carry out all formalities, including assigning or reassigning the purchased shares to the various purposes pursued, make all declarations to the AMF and any other bodies and, in general, do whatever may be necessary.

The annual general meeting decides that this authorization is granted for a period of eighteen (18) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior authorization granted for the same purpose and in particular that given by the combined annual general meeting of 20 May 2021 in its 12th resolution.

Resolutions submitted to the extraordinary general meeting

Sixteenth resolution

(Delegation of authority granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, with preferential subscription rights)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with the provisions of the French Commercial Code, and in particular articles L. 225-129, L. 225-129-2, L. 225-132 to L. 225-134, L. 228-91 *et seq.* and L. 22-10-49:

(i) authorizes the Board of Directors to carry out one or more capital increases, in the proportions and at the times that it deems appropriate, *via* the issue, with preferential subscription rights, in France or any other country, in euros or any other currency, for subscription in cash or by offsetting due and payable receivables, of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company;

(ii) decides that the maximum nominal amount of the capital increase resulting immediately or in the future from all the issues made pursuant to this delegation of authority is 50% of the Company's share capital at the date of this annual general meeting, which will be included in the overall maximum nominal amount provided for in the 22nd resolution and which may be increased, where applicable, by the additional nominal amount of the shares to be issued in order to preserve the rights of holders of securities and other rights giving access to shares in the Company, in accordance with the law and any applicable contractual provisions providing for other adjustments;

(iii) decides that the maximum nominal amount of debt securities giving immediate or future access to shares in the Company that may be issued pursuant to this resolution is one billion five hundred million euros (€1,500,000,000) or the euro equivalent in a foreign currency or unit of account based on a basket of currencies at the date of the decision to carry out the issue. This amount (a) does not include any redemption premium(s) in excess of par value and (b) applies to all the debt securities that may be issued pursuant to the 16th to 21st resolutions submitted to this annual general meeting, but (c) is independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code;

(iv) decides that existing shareholders shall have, in proportion to their shareholding, preferential rights to subscribe for the shares and securities issued pursuant to this resolution, and that the Board of Directors may grant shareholders a right to subscribe for additional shares or securities in proportion to their subscription rights and within the limit of their requests;

(v) decides that, if subscriptions made by shareholders on the basis of the shares they hold and, where applicable, for additional shares or securities, have not covered the full number of shares or securities issued, the Board of Directors will be able to make use of the possibilities provided for in article L. 225-134 of the French Commercial Code or certain of them in the order it chooses;

(vi) duly notes that this delegation of authority automatically entails a waiver by the shareholders of their preferential right to subscribe for the Company shares that result from the securities giving access to shares in the Company that could be issued pursuant to this delegation of authority;

(vii) decides that the Board of Directors may not use this delegation of authority without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period; and

(viii) grants full powers to the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, to *inter alia*:

- set the amount of the issues, the issue price, the nature and characteristics of the securities to be issued, as well as the other terms and conditions of the issue thereof,
- carry out the planned issues and, where applicable, suspend them,
- deduct the costs of issuing shares in the Company and the fees related to their admission to trading on a regulated market from the share premium amount related to such transactions, and withhold the necessary sums to bring the legal reserve up to one-tenth of the new share capital after each capital increase and, generally, enter into any agreement, in particular in order to successfully complete the planned issues, take all steps and carry out all appropriate formalities for the issue, listing and financial servicing of the shares and securities issued pursuant to this delegation of authority as well as the exercise of the rights attached thereto.

The annual general meeting decides that this delegation of authority is granted to the Board of Directors for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 12th resolution.

Seventeenth resolution

(Delegation of authority granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, by means of a public offering other than that referred to in article L. 411-2 1° of the French Monetary and Financial Code (Code monétaire et financier), without preferential subscription rights but with a mandatory priority period)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with the provisions of the French Commercial Code, and in particular articles L. 225-129, L. 225-129-2, L. 225-135 to L. 225-136, L. 228-91 *et seq.*, L. 22-10-51 and L. 22-10-52:

(i) authorizes the Board of Directors to carry out one or more capital increases, in the proportions and at the times that it deems appropriate, *via* the issue, without preferential subscription rights, by means of a public offering (other than that referred to in article L. 411-2 1° of the French Monetary and Financial Code), in France or any other country, in euros or any other currency, for subscription in cash or by offsetting due and payable receivables, of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company;

(ii) decides to cancel the shareholders' preferential subscription rights to the securities to be issued pursuant to this resolution;

(iii) decides that the shareholders will benefit, in accordance with the provisions of articles L. 225-135 and L. 22-10-51 of the French Commercial Code and without giving rise to a negotiable right, from a priority period of at least three (3) stock market trading days for subscriptions in proportion to their shareholding and for any additional subscriptions; any remaining unsubscribed securities may be the subject of a public placement in France or any other country, or on the international market;

(iv) decides that the maximum nominal amount of the capital increase resulting immediately or in the future from all the issues made pursuant to this delegation of authority is 10% of the Company's share capital at the date of this annual general meeting, which will be included in the overall maximum nominal amount provided for in the 22nd resolution and which may be increased, where applicable, by the additional nominal amount of the shares to be issued in order to preserve the rights of holders of securities and other rights granting access to shares in the Company, in accordance with the law and any applicable contractual provisions;

(v) decides that the maximum nominal amount of debt securities giving immediate or future access to shares in the Company that may be issued pursuant to this resolution is one billion five hundred million euros (€1,500,000,000) or the euro equivalent in a foreign currency or unit of account based on a basket of currencies at the date of the decision to carry out the issue. This amount (a) does not include any redemption premium(s) in excess of par value and (b) applies to all the debt securities that may be issued pursuant to the 16th to 21st resolutions submitted to this annual general meeting, but (c) is independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code;

(vi) decides that if the subscriptions, including where applicable those by shareholders, have not covered the full amount of the issue, the Board of Directors will be able to limit the amount of the transaction under the conditions provided for in article L. 225-134 of the French Commercial Code;

(vii) duly notes that this delegation of authority automatically entails a waiver by the shareholders of their preferential right to subscribe for the Company shares that result from the securities that could be issued pursuant to this delegation of authority;

(viii) decides that the issue price of shares issued or resulting from securities issued pursuant to this delegation of authority will be set on the basis of the conversion or exchange rate to ensure that the issue price of the shares that may be created by conversion, exchange or in any other manner, shall be at least equal to the minimum amount provided for by the laws and regulations in force at the time of use of this delegation of authority (at this date, the weighted average of the Arkema share price for the three trading days prior to the opening date of the public offering within the meaning of regulation (EU) no. 2017/1129 of 14 June 2017, less a potential discount of up to 10%) after correction, if any, of this amount to take into account the difference in the dividend entitlement date;

(ix) decides that the Board of Directors may not use this delegation of authority without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period; and

(x) grants full powers to the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, to *inter alia*:

- set the amount of the issues, the issue price, the nature and characteristics of the securities to be issued, as well as the other terms and conditions of the issue thereof,
- carry out the planned issues and, where applicable, suspend them,
- deduct the costs of issuing shares in the Company and the fees related to their admission to trading on a regulated market from the share premium amount related to such transactions and withhold the necessary sums to bring the legal reserve up to one-tenth of the new share capital after each capital increase, and

- and generally, enter into any agreement, in particular in order to successfully complete the planned issues, take all steps and carry out all appropriate formalities for the issue, listing and financial servicing of the shares and securities issued pursuant to this delegation of authority as well as the exercise of the rights attached thereto.

The annual general meeting decides that this delegation of authority is granted to the Board of Directors for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 13th resolution.

Eighteenth resolution

(Delegation of authority granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, without preferential subscription rights, by means of a public offering referred to in article L. 411-2 1° of the French Monetary and Financial Code)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with the provisions of the French Commercial Code, and in particular articles L. 225-129-2, L. 225-135, L. 225-136, L. 22-10-52 and L. 228-91 *et seq.*, and article L. 411-2 of the French Monetary and Financial Code:

(i) authorizes the Board of Directors to carry out one or more capital increases, in the proportions and at the times that it deems appropriate, *via* the issue, without preferential subscription rights, by means of a public offering referred to in article L. 411-2 1° of the French Monetary and Financial Code, in France or any other country, in euros or any other currency, for subscription in cash or by offsetting due and payable receivables, of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company;

(ii) decides that these issues may only be made in order to (a) directly or indirectly finance an external growth transaction, (b) issue convertible bonds, or (c) repay a financing arrangement put in place by the Company;

(iii) decides to cancel the shareholders' preferential subscription right to the shares and other securities to be issued pursuant to this resolution;

(iv) decides that the maximum nominal amount of the capital increases that may be carried out, immediately or in the future, pursuant to this delegation of authority is 10% of the Company's share capital at the date of this annual general meeting, which is included in the overall limit for issues without preferential subscription rights provided for in the 22nd resolution below and which may be increased, where applicable, by the additional nominal amount of the shares to be issued in order to preserve the rights of holders of securities and other rights granting access to shares in the Company, in accordance with the law and any applicable contractual provisions;

(v) decides that the maximum nominal amount of debt securities giving immediate or future access to shares in the Company that may be issued pursuant to this resolution may not exceed one billion five hundred million euros (€1,500,000,000) or the euro equivalent in a foreign currency or unit of account based on a basket of currencies at the date of the issue. This amount (a) does not include any redemption premium(s) in excess of par value and (b) applies to all the debt securities that may be issued pursuant to the 16th to 21st resolutions submitted to this annual general meeting, but (c) is independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code;

(vi) duly notes that this delegation of authority automatically entails a waiver by the shareholders of their preferential right to subscribe for the Company shares that result from the securities giving access to shares in the Company that could be issued pursuant to this resolution;

(vii) decides that the issue price of shares issued or resulting from securities issued pursuant to this delegation of authority will be set on the basis of the conversion or exchange rate to ensure that the issue price of the shares that may be created by conversion, exchange or in any other manner, shall be at least equal to the minimum amount provided for by the laws and regulations in force at the time of use of this delegation of authority (at this date, the weighted average of the Arkema share price for the three trading days prior to the opening date of the public offering within the meaning of regulation (EU) no. 2017/1129 of 14 June 2017, less a potential discount of up to 10%) after correction, if any, of this amount to take into account the difference in the dividend entitlement date;

(viii) decides that the Board of Directors may not use this delegation of authority without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period; and

(ix) grants full powers to the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, to *inter alia*:

- set the amount of the issues, the issue price, the nature and characteristics of the securities to be issued, as well as the other terms and conditions of the issue thereof,
- carry out the planned issues and, where applicable, suspend them,
- deduct the costs of issuing shares in the Company and the fees related to their admission to trading on a regulated market from the share premium amount related to such transactions and withhold the necessary sums to bring the legal reserve up to one-tenth of the new share capital after each capital increase,
- and generally, enter into any agreement, in particular in order to successfully complete the planned issues, take all steps and carry out all appropriate formalities for the issue, listing and financial servicing of the shares and securities issued pursuant to this delegation of authority as well as the exercise of the rights attached thereto.

The annual general meeting decides that this delegation of authority is granted to the Board of Directors for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 14th resolution.

Nineteenth resolution

(Authorization granted to the Board of Directors, in the event of the issue of shares in the Company and/or securities giving access to shares in the Company, without preferential subscription rights, to set the issue price in accordance with the terms set forth by the annual general meeting up to a maximum of 10% of the share capital over a 12-month period)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with articles L. 225-136 and L. 22-10-52 of the French Commercial Code:

(i) authorizes the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, in the event of implementation of the 17th or 18th resolution, to deviate from the terms for setting the issue price for ordinary shares outlined in the aforementioned resolutions and to set the price based on the following terms:

- issue price of shares to be issued or resulting from securities to be issued under the aforementioned resolutions will, at the Board of Directors' discretion, be equal to (i) the volume weighted average price on the Euronext Paris regulated market on the last trading day preceding the day the issue price is set, or (ii) the volume weighted average price on the Euronext Paris regulated market determined during the trading session when the issue price is set, less, in either case as appropriate, a maximum discount of 10%,
- issue price of securities giving immediate or future access to shares in the Company shall be set to ensure that the amount received immediately by the Company, increased where applicable by the amount that it is likely to receive at a later date for each share issued as a result of the securities issued, shall be at least equal to the amount mentioned in the bullet point above,
- maximum nominal amount of capital increases resulting from the implementation of this resolution is 10% of the share capital (as it stands after adjustment for the impact of any transactions subsequent to this annual general meeting and assessed on the date the Board of Directors uses this delegation of authority) over a 12-month period, and will be included in the limit provided for in the 17th or 18th resolution as applicable and in the overall limits provided for in the 22nd resolution below; and

(ii) decides that the Board of Directors may not use this delegation of authority without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period.

This authorization is granted for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 15th resolution.

Twentieth resolution

(Delegation of authority granted to the Board of Directors to carry out capital increases as compensation for contributions in kind)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' report, in accordance with the provisions of the French Commercial Code, and in particular articles L. 225-129, L. 225-129-2, L. 225-147, L. 22-10-53 and L. 228-91 *et seq.*:

(i) gives full powers to the Board of Directors to carry out one or more capital increases, as compensation for contributions in kind granted to the Company in the form of shares or securities giving access to shares in other companies, *via* the issue of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company, when the provisions of article L. 22-10-54 do not apply;

(ii) decides that the maximum nominal amount of the capital increase that may be carried out, immediately or in the future, pursuant to this delegation of authority is 10% of the Company's share capital at the date of this annual general meeting, which will be included in the overall limit on the nominal amount provided for in the 18th resolution of this annual general meeting;

(iii) decides that the maximum nominal amount of debt securities giving immediate or future access to shares in the Company that may be issued pursuant to this resolution may not exceed one billion five hundred million euros (€1,500,000,000) or the euro equivalent in a foreign currency or unit of account based on a basket of currencies at the date of the issue. This amount (a) does not include any redemption premium(s) in excess of par value and (b) applies to all the debt securities that may be issued pursuant to the 16th to 21st resolutions submitted to this annual general meeting, but (c) is independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code;

(iv) duly notes that this delegation of authority automatically entails a waiver by the shareholders of their preferential right to subscribe for the Company shares that result from the securities giving access to shares in the Company that could be issued pursuant to this resolution;

(v) decides that the Board of Directors, or any person duly authorized to act on its behalf, will have full powers to implement this delegation of authority; and

(vi) decides that the Board of Directors may not use this delegation of authority without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period.

The annual general meeting decides that this delegation of authority is granted to the Board of Directors for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 16th resolution.

Twenty-first resolution

(Authorization granted to the Board of Directors to increase the number of shares to be issued in the event of excess demand)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with article L. 225-135-1 of the French Commercial Code:

(i) authorizes the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, to decide, in the event of the use of the delegations of authority granted by the 16th to 20th resolutions set out above and within thirty days of the close of the subscription period for the initial issue, to increase the number of shares to be issued, within the limit of 15% of the initial issue and at the same price as that applied for the initial issue, and up to the limit provided for in the resolution authorizing the issue;

(ii) decides that the Board of Directors may not use this delegation of authority without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period; and

(iii) gives full powers to the Board of Directors to implement this authorization in accordance with the law and the regulations.

The annual general meeting decides that this authorization is granted for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior authorization granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 17th resolution.

Twenty-second resolution

(Overall limit on authorizations to issue shares in the Company immediately and/or in the future)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report, decides to set:

(i) the maximum overall nominal amount of the immediate or future capital increases that may be carried out pursuant to the delegations of authority and authorizations granted by the 16th to 21st resolutions at 50% of the share capital on the date of this annual general meeting; and

(ii) the overall limit for issues without preferential subscription rights that may be carried out pursuant to the delegations of authority and authorizations granted by the 17th, 18th and 20th resolutions at 10% of the share capital on the date of this annual general meeting.

It is specified that, where applicable, the nominal amount of the shares to be issued pursuant to adjustments made to protect holders of rights attached to securities giving access to shares in the Company shall be added to these nominal amounts.

Twenty-third resolution

(Delegation of authority granted to the Board of Directors to carry out capital increases reserved for members of a company savings plan (Plan d'Épargne d'Entreprise), without preferential subscription rights)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with articles L. 225-129, L. 225-129-2, L. 225-129-6, L. 228-91, L. 228-92, L. 225-138 I and II, and L. 225-138-1 of the French Commercial Code and articles L. 3332-18 *et seq.* of the French Labor Code:

(i) authorizes the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, to carry out one or more capital increases *via* the issue, in the proportions and at the times that it deems appropriate, of shares and/or securities giving immediate and/or future access by any means to the Company's share capital, reserved for employees and former employees of the Company and of any French or foreign related companies or groups within the meaning of article L. 225-180 of the French Commercial Code and article L. 3344-1 of the French Labor Code, who are members of a company savings plan (hereinafter, the "Beneficiaries");

(ii) decides to cancel the shareholders' preferential subscription rights to the shares and securities giving access to shares to be issued pursuant to this delegation of authority and, where applicable, to the shares and other securities granted free of consideration pursuant to this delegation of authority;

(iii) duly notes that this delegation of authority automatically entails a waiver by the shareholders of their preferential right to subscribe for the Company shares that result from the securities giving access to shares in the Company that could be issued pursuant to this delegation of authority;

(iv) decides that the maximum nominal amount of the capital increase resulting immediately or in the future from all the issues made pursuant to this delegation of authority is thirteen million five hundred thousand euros (€13,500,000). This limit does not include the nominal amount of any shares issued pursuant to the adjustments made to protect the holders of rights attached to securities giving access to shares in the Company, in accordance with the law and any applicable contractual provisions;

(v) decides that the subscription price of the shares to be issued will be equal to the average Arkema share price on Euronext Paris for the twenty (20) trading days prior to the date of the decision setting the subscription period opening date, less the maximum discount provided for by law on the date of the Board of Directors' decision. The Board of Directors may however, if it considers it appropriate, reduce or eliminate the abovementioned discount, in order to take into account, in particular, the local legal requirements applicable in the event of a share offering to members of a company savings plan on the international market or in a foreign country; and

(vi) decides that the Board of Directors may grant free shares or securities giving access to shares in the Company to replace all or part of the abovementioned discount and/or the employer's top-up contribution. The total benefit resulting from this grant may not exceed the limits provided for by the laws or regulations pursuant to articles L. 3332-21 and L. 3332-11 of the French Labor Code, and the maximum nominal amount of the capital increases that may be carried out, immediately or in the future pursuant to the grant of free shares or securities giving access to shares in the Company shall be included in the limits referred to in paragraph (iv) above.

The annual general meeting decides that the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf, will have full powers to implement this resolution and in particular to:

- determine that the subscriptions can be carried out directly by the Beneficiaries or *via* a mutual fund or any other collective undertaking authorized by the regulations;
- establish, under the conditions required by law, the list of companies or groups whose employees and former employees that are members of one or more company savings plans will be able to subscribe to the shares or securities issued and, where applicable, receive the shares or securities granted free of consideration;
- set the subscription price of the shares and the opening and closing dates of the subscription period;
- set the amount of the issues that may be made pursuant to this authorization and, in particular, set the issue price, dates, periods, terms and conditions of subscription, payment, delivery and dividend entitlement (which may be retroactive) and all other terms and conditions of the issues, within the applicable legal and regulatory limits;
- in the event of a grant of free shares or securities giving access to shares of the Company, set the number of shares or securities giving access to shares in the Company to be issued and the number of shares or securities to be awarded to each Beneficiary, and set the dates, periods, terms and conditions of the grant within the applicable legal and regulatory limits, and in particular, elect either to substitute in whole or in part the grant of said shares or securities giving access to shares in the Company for the discounts provided for above or deduct the equivalent value of the shares or securities granted from the total amount of the employer's top-up contribution, or a combination of both;
- record the completion of the capital increase for the amount of the shares that will actually be subscribed, after any reduction in the event of oversubscription;
- determine, where appropriate, the amount of the sums to be capitalized within the limit set above, the shareholders' equity account(s) from which they will be deducted and the dividend entitlement date of the shares created;
- at its sole discretion and as it deems appropriate, charge the costs of capital increases against the share premium amounts relating thereto and withhold the necessary sums to bring the legal reserve up to one-tenth of the new share capital after each capital increase; and
- take all necessary measures to complete the capital increases, carry out the related formalities, particularly those concerning the listing of the shares created, amend the Articles of Association accordingly, and generally do whatever may be necessary.

The annual general meeting decides that this authorization is granted for a period of twenty-six (26) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 19 May 2020 in its 19th resolution.

Twenty-fourth resolution

(Delegation of authority granted to the Board of Directors to award free shares in the Company subject to performance conditions)

The annual general meeting, voting in accordance with the quorum and majority requirements for extraordinary general meetings, and having considered the Board of Directors' report and the statutory auditors' special report, in accordance with articles L. 225-197-1 *et seq.* and L. 22-10-59 and L. 22-10-60 of the French Commercial Code:

(i) authorizes the Board of Directors to award existing shares or shares to be issued in the Company free of consideration, on one or more occasions, to grantees or categories of grantees determined by the Board of Directors among the employees and/or eligible executive officers (within the meaning of articles L. 225-197-1. II and L. 22-10-59 III of the French Commercial Code) of the Company or of related companies or groups within the meaning of articles L. 225-197-2 and L. 22-10-60 of said Code;

(ii) decides that the free shares granted to the aforementioned eligible executive officers of the Company and Executive Committee members shall be subject to at least two performance criteria (one internal criterion and one external criterion) decided by the Board of Directors, on the basis of which the number of vested shares shall be determined. These criteria shall be assessed over a minimum period of three financial years;

(iii) decides that, pursuant to this authorization, the total grant of the Company's existing shares or shares to be issued may not exceed 1,500,000 shares (*i.e.*, 2.02% of the share capital at the date of this annual general meeting). This limit is fixed without taking into account the adjustments that may be made to preserve the rights of holders of securities giving access to shares in the Company, in accordance with the applicable legal and regulatory provisions or any contractual provisions;

(iv) decides that the Board of Directors shall determine, under the conditions required by law, at the time of each grant:

  - the vesting period of the granted shares, which shall last at least one year, and
  - the holding period for grantees following the vesting of the shares, which for all or some of the shares shall be a minimum of one year, with the exception of shares with a vesting period of at least two years, for which the holding period can be eliminated or shortened;

(v) decides that the shares awarded to grantees will vest before the end of the aforementioned vesting period in the event of second or third category disability within the meaning of article L. 341-4 of the French Social Security Code (*Code de la sécurité sociale*), and that in the event of the grantee's death, his or her heirs may request the vesting of the shares within six months of the date of death; these shares will be freely transferable;

(vi) decides that the existing shares that can be granted pursuant to this resolution may be acquired by the Company through the share buyback program authorized by the annual general meeting pursuant to article L. 22-10-62 of the French Commercial Code;

(vii) acknowledges that in the event of an issue of free shares, this authorization shall entail a capital increase at the end of the vesting period through incorporation of reserves, profits or premiums in favor of the grantees and a waiver by the shareholders of (i) their preferential subscription rights to the shares that will be issued in the course of the vesting of the shares, (ii) any right to the free shares granted on the basis of this delegation of authority, and (iii) any right to the amount of the reserves and premiums against which, if applicable, the issuance of the new shares shall be charged; and

(viii) grants full powers to the Board of Directors, or any person duly authorized under the conditions set by law to act on its behalf within the abovementioned limits, to implement this authorization and in particular to:

- determine whether the free shares being granted exist or must be issued,
- determine the identity of the grantees or the category or categories of grantees, the grant criteria, the number of shares granted to each of them, the terms and conditions for the share grant and, in particular, the vesting and holding periods,
- define the performance criteria, in particular for the shares granted to eligible executive officers of the Company and Executive Committee members,
- for the free shares granted to eligible officers of the Company, decide either that they cannot be sold by the interested parties before they cease to hold office, or stipulate the quantity of free shares that they are required to hold in registered form until they cease to hold office,
- determine, under the conditions defined by law and within legal limits, the dates on which the free shares shall be granted,
- decide on the newly issued shares' dividend entitlement date, even if retroactive,
- decide on the conditions under which the number of free shares granted shall be adjusted,
- more generally, with the possibility to sub-delegate such powers under the conditions set by law, enter into all agreements, draw up all documents, record capital increases following the vesting of shares, make any necessary amendments to the Articles of Association, perform all formalities, make all required declarations and do whatever is otherwise necessary.

Each year, the Board of Directors shall inform the ordinary general meeting of each grant made pursuant to this resolution, in accordance with article L. 225-197-4 of the French Commercial Code.

The annual general meeting decides that this authorization is granted for a period of thirty-eight (38) months from the date of this annual general meeting. It renders ineffective the unused portion of any prior delegation of authority granted for the same purpose and in particular that given by the combined annual general meeting of 21 May 2019 in its 13th resolution.

Twenty-fifth resolution

(Powers to carry out formalities)

The annual general meeting grants full powers to the bearer of an original, a copy or an excerpt of the minutes of this annual general meeting for the purposes of performing all filing, publicity or other formalities that may be required.

7.3 Board of Directors' report on the resolutions submitted to the combined annual general meeting of 19 May 2022

The Board of Directors proposes to submit the resolutions described below to the vote of the shareholders at the combined annual general meeting of 19 May 2022.

Resolutions submitted to the ordinary general meeting

Approval of the annual financial statements (1st and 2nd resolutions)

The purpose of the **1st and 2nd resolutions** is to approve the Company's financial statements and the Group's consolidated financial statements, respectively, for the year ended 31 December 2021.

In the **1st resolution**, the Board recommends that you approve the Company's financial statements for the year ended 31 December 2021 as presented in the Board of Directors' management report, as well as all the transactions reflected or described therein. In accordance with article 223 *quater* of the French Tax Code (*Code général des impôts*), you are also asked to approve the amount of the expenses and charges referred to in article 39-4 of said Code which amounted to €77,087 in the past year. Given the Company's tax position in 2021, the non-deductibility of these expenses resulted in an additional current tax charge of €21,900.

In the **2nd resolution**, in accordance with the provisions of article L. 225-100 of the French Commercial Code (*Code de commerce*), it is recommended that you approve the consolidated financial statements for the year ended 31 December 2021, as well as all the transactions reflected or described therein.

Allocation of profit and setting of the dividend (3rd resolution)

The purpose of the **3rd resolution** is to decide the allocation of the Company's profit for the year ended 31 December 2021 amounting to €282,358,263.44, as presented in the Company's financial statements, plus prior retained earnings of €1,812,685,091.48. The Board of Directors recommends consequently that the distributable profit be allocated as follows:

Source	
Profit for the period	€282,358,263.44
Prior retained earnings	€1,812,685,091.48
Distributable profit	€2,095,043,354.92

Allocation	
Legal reserve	€-
Dividend distribution (1)	€222,858,123
Retained earnings	€1,872,185,231.92

(1) *The total dividend distribution is calculated on the basis of the number of shares carrying dividend rights at 24 January 2022 and existing on the date of the Board of Directors' meeting adopting the proposed resolution and therefore granting dividend rights. The total may vary if the number of shares carrying dividend rights changes up to the ex-dividend date depending, for example, on the number of treasury shares held by the Company.*

The abovementionned dividend distribution is the gross amount, calculated before any taxes or social security contribution that may apply to shareholders depending on their particular situation. Dividends paid to individual shareholders domiciled for tax purposes in France are in principle subject either to a 12.8% flat tax (prélèvement forfaitaire unique – PFU), calculated on the gross amount of the dividend (article 200 A of the French Tax Code), or, if the beneficiary expressly and irrevocably so elects, to taxation on the progressive income tax scale, after application of 40% tax relief (article 158, 3-2° of the French Tax Code). This option is applicable to all income subject to the PFU flat tax, with no possibility of a partial option. It must be exercised by beneficiaries each year when filing their income tax return and no later than the filing deadline. In addition, the dividend is subject to social security contributions at a rate of 17.2%, a percentage of which may be deductible in the event of election of taxation on the progressive income tax scale. Beneficiaries whose reference taxable income exceeds certain thresholds are also subject to an exceptional surtax on high incomes (contribution exceptionnelle sur les hauts revenus – CEHR), provided for in article 223 sexies of the French Tax Code, on a scale adjusted for family status (single persons or equivalent, couples with joint taxation). Shareholders are invited to contact their tax advisor.

The payment of the dividend of €222,858,123 with regard to the 74,286,041 shares carrying dividend rights at 24 January 2022 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions, would correspond to a distribution of three (3) euros per share.

The shares would be traded ex-dividend as of 23 May 2022 and the dividend for the 2021 financial year would be paid as of 25 May 2022.

In accordance with article 243 *bis* of the French Tax Code, this dividend would be eligible for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3-2° of the aforementioned Tax Code, provided notably that the beneficiary has elected for taxation on the progressive income tax scale.

It is recalled that the dividend paid for the last three financial years was as follows:

Financial year	2020	2019	2018
Dividend distribution *(in euros)*	190,660,817.50	168,171,755.40	190,282,390.00
Net dividend per share *(in euros)*	2.50 (1)	2.20 (1)	2.50 (1)

(1) *Eligible in full for the 40% tax relief available to individual shareholders domiciled for tax purposes in France as provided for in article 158.3-2° of the French Tax Code, applicable, under certain conditions, in the event of election of taxation on the progressive income tax scale.*

The distribution of a dividend of three (3) euros per share for the year ended 31 December 2021 would represent an increase of 20% compared with the previous year.

Approval of the agreements referred to in articles L. 225-38 et seq. of the French Commercial Code (4th resolution)

In accordance with the law, the Board of Directors performed its annual review of agreements entered into and authorized during previous financial years and implemented in the financial year ended 31 December 2021.

In the **4th resolution**, the Board of Directors invites you to duly note the information relating to the agreements entered into and the commitments made during the 2021 financial year and prior financial years and approved by the annual general meeting, as set out in the statutory auditors' special report in section 7.1 of this chapter.

Composition of the Board of Directors: reappointments and appointments (5th to 9th resolutions and resolution A)

At its meeting on 23 February 2022, the Board of Directors noted that the terms of office of Philippe Sauquet, the Fonds Stratégique de Participations (whose permanent representative is Isabelle Boccon-Gibod), Marie-Ange Debon and Jean-Marc Bertrand, director representing shareholder employees, were due to expire at the close of the annual general meeting of 19 May 2022.

The Board of Directors warmly thanked Jean-Marc Bertrand, a member of the Board of Directors since 2018, for his active contribution to its work and to that of the Innovation and Sustainable Growth Committee.

The Board of Directors also reminds shareholders of the co-optation of Philippe Sauquet as director, decided on a provisional basis by the Board of Directors on 9 November 2021, to replace Alexandre de Juniac, who resigned.

Consequently, in the **5th to 9th resolutions**, the Board of Directors, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, recommends the following ratification, reappointments and appointment. The directors' selection process followed by the Nominating, Compensation and Corporate Governance Committee is detailed in section 3.2.1.1 of this document.

Ratification of the co-optation of Philippe Sauquet as member of the Board of Directors (5th resolution)

In the **5th resolution**, the Board of Directors recommends that you ratify the co-optation of Philippe Sauquet as director, which took place on a provisional basis on 9 November 2021, for the remainder of the term of office of Alexandre de Juniac, *i.e.*, until the close of the annual general meeting to be held on 19 May 2022 to approve the financial statements for the year ended 31 December 2021.

Philippe Sauquet is an independent director.

The ratification of his appointment will allow the Board of Directors to benefit from his experience as a high-level executive in the chemical industry within a listed company, and in particular his work on the strategy to diversify into renewable energies and low-carbon solutions. He will thus be able to make a valuable contribution to Arkema's reflection on sustainable development.

Reappointment of Philippe Sauquet as member of the Board of Directors (6th resolution)

At its meeting on 23 February 2022, the Board of Directors noted that the term of office of Philippe Sauquet was due to expire at the close of this annual general meeting and, in the **6th resolution**, recommends that you reappoint him as director for a term of four (4) years, *i.e.*, until the close of the annual general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Biographical information concerning Philippe Sauquet is set out in section 3.2.1.3 of this document.

Reappointments of the Fonds Stratégique de Participations, represented by Isabelle Boccon-Gibod, and of Marie-Ange Debon as directors (7th and 8th resolutions)

At its meeting on 23 February 2022, the Board of Directors noted that the terms of office of the Fonds Stratégique de Participations and Marie-Ange Debon were due to expire at the close of the annual general meeting of 19 May 2022. Accordingly, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, in the **7th and 8th resolutions**, the Board of Directors recommends that you reappoint them as directors for terms of four (4) years expiring at the close of the annual general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025. The Fonds Stratégique de Participations continues to be represented by Isabelle Boccon-Gibod. Information concerning Marie-Ange Debon as well as the Fonds Stratégique de Participations and Isabelle Boccon-Gibod is set out in section 3.2.1.3 of this document.

At the close of the annual general meeting, and subject to approval of the 5th to 9th resolutions, seven of the fourteen members of the Board of Directors will be women, *i.e.*, 45% (excluding directors representing employees and employee shareholders). In addition, with eight independent members, the independence rate will amount to 73% (excluding directors representing employees and employee shareholders), unchanged compared to 2021. Lastly, with three foreign nationals and seven members who have spent a large part of their careers abroad, the internationalization rate will come to 50%.

Appointment of Nicolas Patalano as director representing shareholder employees (9th resolution and resolution A)

As Jean-Marc Bertrand's term of office as director is due to expire at the close of this annual general meeting, and given that the Board of Directors has noted that employee share ownership, within the meaning of article L. 225-102 of the French Commercial Code, represented 6% of the Company's share capital at 31 December 2021, it is recommended that you appoint a director representing shareholder employees for a term of four (4) years expiring at the close of the annual general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

The following candidates are put forward for your approval:

- appointment of Nicolas Patalano (**9th resolution**)

Nicolas Patalano, currently Medium Term Project Technician in the High Performance Polymers Business Line, has held various positions within Arkema, including Process Technician, Industrial Hygiene Manager and Site Contract Manager in the HSE department, as well as Medium Term Correspondent in the Orgasol manufacturing line since he joined the company in 1998.

In addition, he has held several positions within employee representative bodies for the CFE-CGC trade union, including Union Delegate, Central Union Representative and Group Coordinator. He is also Chairman of the regional union body Syndicat Régional Chimie Pyrénées Garonne; or

- appointment of Uwe Michael Jakobs (**resolution A**)

Uwe Michael Jakobs has been a member of the Supervisory Board of the Arkema Actionnariat International company mutual fund (FCPE) since 2016 and his appointment is proposed by this fund.

Uwe Michael Jakobs, currently Senior Area Sales Manager of the Specialty Polyamides business in Germany, Austria, Switzerland and BeNeLux, has held various positions as Global and Local Key Account Manager and Business Development Manager for this business which he joined in 2008, and before that for the PMMA division in Western Europe.

He is also a member of the Arkema GmbH works council and is currently chairman of the Group's consolidated works council in Germany.

In accordance with article 10.2 of the Company's Articles of Association, the candidate who obtains the greatest number of votes from the shareholders present or represented at the annual general meeting will be appointed as director representing shareholder employees, provided that the resolution relating to his/her appointment has also obtained a majority vote.

Taking account of the number of shares held by the Arkema Actionnariat France company mutual fund (3,196,514 or 4.2% of the share capital and 87% of the total number of shares held by employees at 31 December 2021 through the company mutual funds), the Board of Directors recommends that you appoint Nicolas Patalano as director representing shareholder employees and, to this end, approves the proposed 9th resolution. Accordingly, the Board of Directors has not approved resolution A.

Approval of the compensation policy for directors and the Chairman and Chief Executive Officer (10th and 11th resolutions)

In the **10th resolution**, in accordance with article L. 22-10-8 II of the French Commercial Code, the Board of Directors recommends that you approve the compensation policy for directors, other than the Chairman and Chief Executive Officer, as defined by the Board of Directors on the recommendation of the Nominating, Compensation and Corporate Governance Committee and presented in the corporate governance report provided for in article L. 225-37 of said Code. This compensation policy is presented in section 3.4.1.1 of this document.

In the **11th resolution**, the Board of Directors recommends that you approve the compensation policy for the Chairman and Chief Executive Officer, as defined by the Board of Directors at its meeting of 23 February 2022 on the recommendation of the Nominating, Compensation and Corporate Governance Committee and presented in the corporate governance report provided for in article L. 225-37 of the French Commercial Code. This compensation policy is presented in section 3.4.2.1 of this document.

Setting of the maximum amount of total annual compensation for directors (12th resolution)

In accordance with article L. 225-45 of the French Commercial Code, in the **12th resolution**, the Board of Directors recommends that you increase the maximum annual amount that the Company may allocate to members of the Board of Directors as from the year beginning on 1 January 2022 from €800,000 to €900,000. This proposed increase takes into account the growing number of Board and committee meetings over the past two years, the creation of the Innovation and Sustainable Growth Committee in 2021 and the growing number of ESG topics that may require this committee to meet more often than planned, as well as the Group's M&A activity and all other exceptional events or circumstances that may give rise to more additional in-person or virtual Board meetings.

This decision and this amount of total annual compensation allocated to the Board of Directors would be maintained for subsequent years until a new decision is adopted by the annual general meeting.

Approval of the information provided for in the corporate governance report and relating to the compensation of executive officers (13th resolution)

Pursuant to article L. 22-10-34 I of the French Commercial Code, the purpose of the **13th resolution** is to submit to the approval of shareholders the information about the compensation of directors and the Chairman and Chief Executive Officer referred to in article L. 22-10-9 I of the French Commercial Code, presented in the corporate governance report provided for in article L. 225-37 of said Code. This information is provided in sections 3.4.1.2 and 3.4.2.2 of this document.

Approval of the components of compensation paid or awarded to each of the Company's executive directors for the year ended 31 December 2021 (14th resolution)

Pursuant to article L. 22-10-34 II of the French Commercial Code, the purpose of the **14th resolution** is to submit to the approval of shareholders the fixed, variable and exceptional components of the total compensation and benefits of any kind paid in or awarded for the year ended 31 December 2021 to Thierry Le Hénaff, Chairman and Chief Executive Officer and the only executive Director of the Company. Payment of the variable compensation due for the past financial year is subject to the approval of this resolution. These components are set out in detail in section 3.4.2.2 of this document.

Share buyback (15th resolution)

Until 31 January 2022, the Company acquired 2,779,553 shares in the Company under the authorization to trade in the Company's shares granted by the 12th resolution of the annual general meeting of 20 May 2021. Of these shares, 329,118 were purchased to cover employee free share plans and ensure that performance shares could be awarded without a dilutive effect on the share capital and 2,450,435 were purchased to be canceled as part of the Company capital reduction on 24 January 2022.

As the authorization granted to the Board of Directors by the annual general meeting of 20 May 2021 is due to expire shortly, in the **15th resolution**, it is proposed that you renew the authorization granted to the Board of Directors to purchase or arrange to have purchased shares in the Company at any time for a period of eighteen (18) months, **except during a takeover bid** for the Company's shares, at a maximum price of **€160** per share.

This authorization would enable the Board of Directors to acquire a number of shares **that would under no circumstances represent more than 10% of the Company's share capital**. By way of illustration, based on the share capital at 31 January 2022, the theoretical amount that might be dedicated to this share buyback program would not exceed €1,188,576,656.

These share purchases could be made for any purpose permitted by law and the resolution submitted to the annual general meeting, and in particular to cover performance share plans.

This new authorization would render ineffective, from the date of this annual general meeting, the unused portion of the 12th resolution of the combined annual general meeting of 20 May 2021. Details of share buyback programs in progress or planned can be found in section 6.2.4 of this document.

Resolutions submitted to the extraordinary general meeting

Delegations of authority and authorizations granted

As the delegations of authority and authorizations granted to the Board of Directors by the annual general meeting of 19 May 2020 are due to expire on 18 July 2022, we propose that you renew them. If you vote in favor of the delegations of authority and authorizations that are submitted to you to replace the aforementioned delegations, they will render ineffective the delegations of authority previously granted for the same purpose, from the date of this annual general meeting.

The delegations of authority and authorizations submitted to you would make it possible to carry out, pursuant to a decision of the Board of Directors, the issues of shares and/or securities giving access to shares in the Company, with or without preferential subscription rights, in France, in another country and/or on the international markets, depending on the opportunities offered by the financial markets and in the interests of the Company and its shareholders. This would offer the Board of Directors the possibility to issue convertible bonds or finance recapitalization operations related to potential external growth transactions in the most appropriate manner.

The delegations of authority granted in the 16th to 20th resolutions may not be used by the Board of Directors without prior authorization from the annual general meeting from the date a takeover bid for the Company's shares is filed by a third party until the end of the offer period.

Issues with preferential subscription rights (16th resolution)

The purpose of the **16th resolution** is to grant the Board of Directors a delegation of authority to carry out capital increases, in the proportions and at the times that it deems appropriate, *via* the issue, with preferential subscription rights, in France or any other country, in euros or any other currency, of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company, such as, for example, convertible bonds, bonds with equity warrants attached or stock warrants issued on a standalone basis. Your approval would entail the waiver by the shareholders of their preferential right to subscribe for any shares that may result from the securities referred to in paragraphs (ii) and (iii), initially issued pursuant to this resolution.

The maximum nominal amount of the capital increases that may be carried out pursuant to this delegation of authority would be 50% of the share capital on the date of this annual general meeting. This maximum nominal amount would be included in the overall limit of 50% of the share capital proposed in the 21st resolution, and which would include all the issues decided pursuant to the 16th to 21st resolutions described below.

The maximum nominal amount of debt securities giving immediate or future access to the Company's share capital that may be issued pursuant to this delegation of authority would be **one billion five hundred million euros (€1,500,000,000)** or the euro equivalent in a foreign currency in the event of an issue in other currencies or units of account based on a basket of currencies at the date of the decision to carry out the issue. This amount would apply to all the debt securities that may be issued pursuant to the 16th to 21st resolutions submitted to this annual general meeting, and described below, but would be independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code.

This delegation of authority would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Issues without preferential subscription rights (17th to 20th resolutions)

In order to be able to seize any financial opportunity offered, particularly by the diversity of the financial markets in France and any other country, the Board of Directors may be required to carry out issues that may be placed with investors interested in certain types of financial products. This means that the Board of Directors will have to be able to carry out these issues without preferential subscription rights.

Pursuant to the terms of the **17th resolution**, it is recommended that you grant the Board of Directors a delegation of authority to carry out capital increases, in the proportions and at the times that it deems appropriate, *via* the issue, **without preferential subscription rights, by means of a public offering other than that referred to in article L. 411-2 1° of the French Monetary and Financial Code** (*Code monétaire et financier*), in France or any other country, in euros or any other currency, of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company. Your approval would entail the waiver by the shareholders of their preferential rights to subscribe for any shares that may result from the securities referred to in paragraphs (ii) and (iii), issued pursuant to this resolution. However, the shareholders would benefit, in accordance with the provisions of articles L. 225-135 and L. 22-10-51 of the French Commercial Code and without giving rise to a negotiable right, from a priority period of at least three (3) days for subscriptions in proportion to their shareholding and for any additional subscriptions.

The maximum nominal amount of the Company's capital increase resulting immediately or in the future from all the issues carried out pursuant to this delegation of authority would be **10% of the Company's share capital** at the date of this annual general meeting, which would be included in the overall limit of 50% of the share capital at the date of this annual general meeting and the 10% limit for issues without preferential subscription rights, both provided for in the 22nd resolution.

The maximum nominal amount of debt securities giving immediate or future access to the Company's share capital that may be issued pursuant to this resolution would be **one billion five hundred million euros (€1,500,000,000)** or the euro equivalent in a foreign currency in the event of an issue in other currencies or units of account based on a basket of currencies at the date of the decision to carry out the issue. This amount would be included in the overall limit of one billion five hundred million euros (€1,500,000,000) for the issue of debt securities pursuant to the 16th to 21st resolutions submitted to this annual general meeting, but would be independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code.

The issue price of shares issued or resulting from securities issued pursuant to this delegation of authority would be set on the basis of the conversion or exchange rate to ensure that the issue price of the shares that may be created by conversion, exchange or in any other manner, shall be at least equal to the minimum amount provided for by the laws and regulations in force at the time of use of this delegation of authority (at this date, the weighted average Arkema share price for the three trading days prior to the opening date of the offering within the meaning of regulation (EU) no. 2017/1129 of 14 June 2017, less a potential discount of up to 10%), after correction, if any, of this amount to take into account the difference in the dividend entitlement date. The Board of Directors may also use this delegation of authority, in whole or in part, for the purpose of paying for securities tendered to a public exchange offering initiated by the Company, within the limits and under the conditions provided for in article L. 22-10-54 of the French Commercial Code.

This delegation of authority would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Pursuant to the terms of the **18th resolution**, it is recommended that you grant the Board of Directors a delegation of authority to carry out capital increases, in the proportions and at the times that it deems appropriate, *via* the issue, **without preferential subscription rights, by means of a public offering referred to in article L. 411-2 1° of the French Monetary and Financial Code**, in France or any other country, in euros or any other currency, of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company.

These issues may only be carried out in order to directly or indirectly finance an external growth transaction, issue convertible bonds, or repay an external financing arrangement put in place by the Company.

The maximum nominal amount of the capital increase resulting immediately or in the future from all the issues carried out pursuant to this delegation of authority would be **10% of the Company's share capital** at the date of this annual general meeting, which would be included in the overall limit of 50% of the share capital at the date of this annual general meeting and the 10% limit for issues without preferential subscription rights provided for in the 22nd resolution.

The maximum nominal amount of debt securities giving immediate or future access to the Company's share capital that may be issued pursuant to this resolution would be **one billion five hundred million euros (€1,500,000,000)** or the euro equivalent in a foreign currency in the event of an issue in other currencies or units of account based on a basket of currencies at the date of the decision to carry out the issue. This amount would be included in the overall limit of one billion five hundred million euros (€1,500,000,000) for the issue of debt securities pursuant to the 16th to 21st resolutions submitted to this annual general meeting, but would be independent of, and separate from, the amount of the debt securities that the Board of Directors may authorize or decide to issue in accordance with article L. 228-40 of the French Commercial Code.

The issue price of shares issued or resulting from securities issued pursuant to this delegation of authority would be set on the basis of the conversion or exchange rate to ensure that the issue price of the shares that may be created by conversion, exchange or in any other manner, shall be at least equal to the minimum amount provided for by the laws and regulations in force at the time of use of this delegation of authority (at this date, the weighted average Arkema share price for the three trading days prior to the opening date of the offering, within the meaning of regulation (EU) no. 2017/1129 of 14 June 2017, less a potential **maximum discount of 10%**), after correction, if any, of this amount to take into account the difference in the dividend entitlement date.

This delegation of authority would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Pursuant to the terms of the **19th resolution**, it is recommended that, in the event of an issue of shares or securities giving immediate or future access to existing shares or shares to be issued in the Company under the aforementioned 17th and 18th resolutions, you authorize the Board of Directors to deviate from the terms for setting the issue price for the shares provided for in the aforementioned resolutions and to set the price based on the following terms:

- the issue price of shares to be issued or resulting from securities to be issued under the aforementioned resolutions would, at the Board of Directors' discretion, be equal to (i) the volume weighted average price on the Euronext Paris regulated market on the last trading day preceding the day the issue price was set, or (ii) the volume weighted average price on the Euronext Paris regulated market determined during the trading session when the issue price was set, less, in either case as appropriate, a maximum discount of 10%;
- the issue price of securities giving immediate or future access to shares in the Company should be set to ensure that the amount received immediately by the Company, increased where applicable by the amount that it is likely to receive at a later date for each share issued as a result of the securities issued, shall be at least equal to the amount mentioned in the bullet point above.

The maximum nominal amount of capital increases resulting from the implementation of this resolution would be **10% of the share capital over a 12-month period**, and would be included in the limit provided for in the 17th or 18th resolution, as applicable, and in the overall limits provided for in the 22nd resolution below.

Finally, pursuant to the terms of the **20th resolution**, it is recommended that you grant the Board of Directors a delegation of authority to carry out one or more capital increases, as **compensation for contributions in kind** granted to the Company in the form of shares or securities giving access to shares in other companies, *via* the issue of (i) ordinary shares in the Company, and/or (ii) equity securities in the Company giving immediate and/or future access by any means to other Company equity securities and/or granting entitlement to the award of debt securities, and/or (iii) debt securities giving or potentially giving immediate and/or future access by any means to existing equity securities or equity securities to be issued in the Company, when the provisions of article L. 22-10-54 do not apply.

This delegation of authority would automatically entail a waiver by the shareholders of their preferential right to subscribe for the Company shares that result from the securities giving access to shares in the Company that could be issued pursuant to this resolution.

The maximum nominal amount of the capital increases that may be carried out, immediately or in the future, pursuant to this delegation of authority would be **10% of the Company's share capital** at the date of this annual general meeting, which would be included in the overall limit on the nominal amount provided for in the 18th resolution of this annual general meeting. This delegation of authority would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Authorization granted to the Board of Directors to increase the number of shares to be issued in the event of excess demand (21st resolution)

In the **21st resolution**, it is recommended that you delegate to the Board of Directors the authority to decide, for each of the issues carried out pursuant to the 16th to 20th resolutions described above, to increase the number of shares to be issued, at the same price as that used for the initial issue, within the limit of 15% of the issue and within thirty days of the close of the subscription period for the initial issue, subject to compliance with the limits provided for in the 22nd resolution.

This delegation of authority would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Overall limit on authorization amounts (22nd resolution)

The purpose of the **22nd resolution** is to set an overall limit on the nominal amount of the capital increases that may be carried out with or without preferential subscription rights, immediately or in the future, by the Board of Directors pursuant to the resolutions described above.

The maximum nominal amount of capital increases mentioned in the 16th to 21st resolutions would be **50% of the Company's share capital at the date of this annual general meeting.**

The maximum nominal amount of capital increases on the date mentioned in the 17th, 18th and 20th resolutions would be **10% of the Company's share capital at the date of this annual general meeting**.

Note that these amounts may be increased by the additional nominal amount of shares to be issued to preserve the rights of holders of securities giving access to shares in the Company in accordance with the legal provisions.

Delegation of authority to carry out capital increases reserved for members of a company savings plan (23rd resolution)

In the **23rd resolution**, it is recommended that you delegate to the Board of Directors the authority to carry out issues without preferential subscription rights of shares and/or securities giving access to shares in the Company, reserved for employees and former employees of the Company and of any French or foreign related companies or groups within the meaning of article L. 225-180 of the French Commercial Code and article L. 3344-1 of the French Labor Code (*Code du travail*), who are members of a company savings plan in place in the Company or Group.

The maximum nominal amount of the capital increase resulting immediately or in future from all the issues carried out pursuant to this delegation of authority would be **thirteen million five hundred thousand euros (€13,500,000)**, *i.e.*, less than 2% of the Company's share capital at the date of this annual general meeting.

The issue price would be equal to the average Arkema share price on Euronext Paris for the twenty (20) trading days prior to the date of the decision setting the subscription period opening date, less the maximum discount provided for by law on the date of the Board of Directors' decision. The Board of Directors may however, if it considers it appropriate, reduce or eliminate the abovementioned discount, in order to take into account, in particular, the local legal requirements applicable in the event of a share offering to members of a company savings plan on the international market or in a foreign country.

This delegation of authority would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Authorization granted to the Board of Directors to award free shares in the Company (24th resolution)

The Board of Directors recommends, in the **24th resolution**, that you authorize it, in accordance with the provisions of articles L. 225-197-1 *et seq.*, L. 22-10-59 and L. 22-10-60 of the French Commercial Code, to grant existing shares or shares to be issued in the Company free of consideration, on one or more occasions. The grantees would be employees and eligible executive officers of the Company or of related companies or groups within the meaning of articles L. 225-197-2 and L. 22-10-60 of the French Commercial Code.

The Board of Directors proposes that you decide that:

(i) the free shares granted to the eligible executive officers of the Company and Executive Committee members would be subject to at least two performance criteria (one internal criterion and one external criterion) decided by the Board of Directors, on the basis of which the number of vested shares would be determined. These criteria would be assessed over a minimum period of three financial years;

(ii) the total number of the Company's existing shares or shares to be issued granted free of consideration pursuant to this authorization **may not exceed 1,500,000 shares (*i.e.*, 2.02% of the Company's share capital)**. This limit would be fixed without taking into account the adjustments that may be made to preserve the rights of holders of securities giving access to shares in the Company, in accordance with the applicable legal and regulatory provisions or any contractual provisions;

(iii) the Board of Directors would determine, under the conditions required by law, at the time of each grant (i) the vesting period of the granted shares, which shall last at least one year and (ii) the holding period, which for all or some of the shares shall be a minimum of one year, with the exception of shares with a vesting period of at least two years, for which the holding period can be eliminated or shortened;

(iv) the shares awarded to grantees would vest before the end of the aforementioned vesting period in the event of second or third category disability within the meaning of article L. 341-4 of the French Social Security Code (*Code de la sécurité sociale*), and in the event of the grantee's death, his or her heirs may request the vesting of the shares within six months of the date of death; these shares will be freely transferable; and

(v) the existing shares that can be granted pursuant to this resolution would be acquired by the Company through the share buyback program authorized by the annual general meeting pursuant to article L. 22-10-62 of said Code.

The Board of Directors invites you to acknowledge that in the event of an issue of free shares, this authorization shall entail a capital increase at the end of the vesting period through the incorporation of reserves, profits or premiums in favor of the grantees and a waiver by the shareholders of (i) their preferential subscription rights to the shares that will be issued as the shares vest, (ii) any right to the free shares granted on the basis of this delegation of authority, and (iii) any right to the amount of the reserves and premiums against which, if applicable, the issuance of the new shares shall be charged.

The Board of Directors proposes that you grant it, or any person duly authorized under the conditions set by law to act on its behalf, full powers within the abovementioned limits, to implement this authorization and in particular to:

- determine whether the free shares being granted exist or must be issued;
- determine the identity of the grantees or the category or categories of grantees, the grant criteria, the number of shares granted to each of them, the terms and conditions for the share grant and, in particular, the vesting and holding periods;
- define the performance criteria, in particular for the shares granted to eligible executive officers of the Company and Executive Committee members;
- for the free shares granted to eligible executive officers of the Company, decide either that they cannot be sold by the interested parties before they cease to hold office, or stipulate the quantity of free shares that they are required to hold in registered form until they cease to hold office;
- determine, under the conditions defined by law and within legal limits, the dates on which the free shares shall be granted;
- decide on the newly issued shares' dividend entitlement date, even if retroactive;
- decide on the conditions under which the number of free shares granted shall be adjusted; and
- more generally, with the possibility to sub-delegate such powers under the conditions set by law, enter into all agreements, draw up all documents, record capital increases following the vesting of shares, make any necessary amendments to the Articles of Association, perform all formalities, make all required declarations and do whatever is otherwise necessary.

Each year, the Board of Directors shall inform the ordinary general meeting of each grant made pursuant to this resolution, in accordance with article L. 225-197-4 of the French Commercial Code.

The Board of Directors recommends that this authorization be granted for a period of **thirty-eight (38) months** from the date of this annual general meeting. This new authorization would render ineffective, from the date of this annual general meeting, the prior authorization granted for the same purpose.

Details of the performance share plans put in place by the Board of Directors pursuant to the authorization granted to it at the annual general meeting of 21 May 2019 are provided in section 3.5 of this document.

Powers to carry out formalities (25th resolution)

In the **25th resolution**, the Board of Directors recommends that you grant full powers to the bearer of a copy or an excerpt of the minutes of this annual general meeting for the purpose of performing all formalities that may be required.

This report contains the main provisions of the proposed resolutions. We ask that you consider issuing a favorable vote on these proposed resolutions.

The Board of Directors

7.4 Statutory auditors' report on the issuance of ordinary shares and/or marketable securities reserved for employees subscribing to a company savings plan

This is a translation into English of a report issued in French and it is provided solely for the convenience of English-speaking users. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Department of KPMG S.A.

2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre

Statutory auditors
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344 366 315 R.C.S. Nanterre

Statutory auditors
Member of the "Compagnie régionale de Versailles et du Centre"

Arkema

General meeting of May 19, 2022

Twenty-third resolution

Statutory auditors' report on the issuance of ordinary shares and/or marketable securities reserved for employees subscribing to a company savings plan

To the Shareholders,

In our capacity as statutory auditors of your Company and in accordance with the terms of the engagement defined by Articles L. 228-92 et L. 225-135 *et seq.* of the French Commercial Code (*Code de commerce*), we hereby report on the proposal to authorize your Board of Directors to decide whether to proceed with an or several issues of ordinary shares and/or marketable securities,, with cancellation of your preferential subscription rights, reserved for employees and former employees of your Company and companies or French and foreign groups connected thereto within the meaning of the Articles L. 225-180 of the French Commercial Code (*Code de commerce*) and L. 3344-1 of the French Labor Code (*Code du travail*), subscribing to a company savings plan, for a maximum amount of €.13,500,000, an operation upon which you are called to vote.

This operation is submitted to your approval in accordance with Articles L. 225-129-6 of the French Commercial Code (*Code de commerce*) and L. 3332-18 *et seq.* of the French Labor Code (*Code du travail*).

Your Board of Directors proposes that, on the basis of its report, it be authorized, for a period of twenty-six months to decide on whether to proceed with an issue and proposes to cancel your preferential subscription rights to marketable securities to be issued. If applicable, the Board of Directors shall determine the final conditions of this operation.

It is your Board of Directors' responsibility to prepare a report in accordance with Articles R. 225-113 *et seq.* of the French Commercial Code (*Code de commerce*). It is our responsibility to report on the fairness of the financial information taken from the accounts, on the proposed cancellation of preferential subscription rights and on other information relating to the issue provided in this report.

We have performed the procedures that we considered necessary to comply with the professional guidance issued by the French Institute of Statutory Auditors (*Compagnie nationale des commissaires aux comptes*) for this type of engagement. These procedures consisted in verifying the information provided in the Board of Directors' report relating to this operation and the methods used to determine the issue price of the capital securities to be issued.

Subject to our further examination of the conditions for the issue that may be decided, we have no matters to report on the methods used to determine the issue price of the capital securities to be issued provided in the Board of Directors' report.

As the final conditions for the issue have not yet been determined, we cannot report on these conditions and, consequently, on the proposed cancellation of preferential subscription rights.

In accordance with Article R. 225-116 of the French commercial code (*Code de commerce*), we will issue a supplementary report, if necessary, when your Board of Directors has exercised this authorization in case of the issuance of shares or marketable securities giving access to existing shares or shares to be issued.

Paris-La Défense, March 17, 2022

The Statutory Auditors

French original signed by

KPMG Audit		ERNST & YOUNG Audit
Department of KPMG S.A.		
Bertrand Desbarrières	Eric Dupré	Christine Vitrac

7.5 Statutory auditors' report on the issue of shares and/or various securities with or without cancellation of preferential subscription rights

This is a translation into English of a report issued in French and it is provided solely for the convenience of English-speaking users. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
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Statutory auditors
Member of the "Compagnie régionale de Versailles et du Centre"

Arkema

Combined General Meeting of May 19, 2022

Sixteenth to twenty first resolutions

Statutory auditors' report on the issue of shares and/or various securities with or without cancellation of preferential subscription rights

To the Shareholders,

In our capacity as statutory auditors of your Company and in compliance with Articles L. 228-92 and L. 225-135 *et seq*. of the French Commercial Code (*Code de commerce*) and with article L.22-10-52 of the French Commercial Code (*Code de commerce*), we hereby report on the proposed delegations of authority allowing your Board of Directors to decide whether to proceed with various issues of shares and/or various securities, and the delegation of powers to implement their practical conditions, an operation upon which you are called to vote.

Your Board of Directors proposes that, on the basis of its report:

- it be delegated, with the option to sub-delegate, for a period of twenty-six months, the authority to decide on whether to proceed with the following operations and determine the final conditions of these issues, in France and abroad, and proposes, where applicable, to cancel your preferential subscription rights:
  - the issue, with maintaining preferential subscription rights, of shares and/or securities that give access, immediately or in the future, to existing shares or shares to be issued of your Company, (sixteenth resolution);
  - the issue, with cancellation of your preferential subscription rights and mandatory priority period for the benefit of shareholders, through public offering other than those referred to in Article L. 411-2 1° of the French Financial and Monetary Code (Code monétaire et financier), of shares and/or securities that give access by all means, immediately or in the future, to existing shares or shares to be issued of your Company, (seventeenth resolution);
  - the issue, with cancellation of your preferential subscription rights, of shares and/or securities through offerings in accordance with Article L. 411-2 1° of the French Financial and Monetary Code (Code monétaire et financier) of your Company's shares and/or securities giving access, immediately or in the future, to shares of your Company (eighteenth resolution).
- it be authorized, under the nineteenth resolution, within the scope of the implementation of the delegation of authorization referred to in the seventeenth and eighteenth resolutions, to determine the issue price within the legal annual limit of 10% of share capital per twelve months period;
- it be delegated, with the option to sub-delegate, for a period of twenty-six months, the powers necessary to issue, in one or more instalments, ordinary shares and/or securities that give access, immediately or in the future, to existing shares or shares to be issued of your Company within the limit of 10% of share capital in consideration for the contributions in kind granted to the Company and consisting of capital securities or securities that give access to the capital of other companies (twentieth resolution).

The total nominal amount of the increases in capital that may be implemented immediately or in the future may not exceed 50% of the Company's share capital under the sixteenth to twenty first resolutions. In particular, capital increases that may be implemented immediately or in the future may not exceed 10% of the amount of your Company's share capital as at the date of this Shareholders' Meeting under the seventeenth, eighteenth and twentieth resolutions.

The total nominal amount of the securities representing debt securities likely to be issued, giving access immediately or in the future to your Company's capital, may not exceed 1 billion and 500 hundred million euros or the equivalent value of this amount in the event of an issue in a different currency or in a unit of account on the date of the issue decision, under the sixteenth to twenty first resolutions.

These limits reflect the additional number of shares to be created, within the limit of 15% of the initial issue, within the scope of the implementation of the delegations referred in the sixteenth to twentieth resolutions, in accordance with Article L.225-135-1 of the French Commercial Code (*Code de commerce*), if you adopt the twenty first resolution.

It is the responsibility of the Board of Directors to prepare a report in accordance with Articles R. 225-113 *et seq*. of the French Commercial Code (*Code de commerce*). Our role is to report on the fairness of the financial information taken from the accounts, on the proposed cancellation of preferential subscription rights and on other information relating to these operations provided in the report.

We have performed those procedures which we considered necessary to comply with the professional guidance issued by the French Institute of Statutory Auditors (*Compagnie nationale des commissaires aux comptes*) for this type of engagement. These procedures consisted in verifying the information provided in the Board of Directors' report relating to these operations and the methods used to determine the issue price of the capital securities to be issued.

Subject to a subsequent examination of the conditions for the issue that may be decided, we have no matters to report as to the methods used to determine the issue price of the capital securities to be issued provided in the Board of Directors' report with regard to the seventeenth, eighteenth and nineteenth resolutions.

Moreover, as the methods used to determine the issue price of the capital securities to be issued, in accordance with the sixteenth resolution, are not specified in that report, we cannot report on the choice of constituent elements used to determine this issue price.

As the final conditions in which the issues would be performed have not yet been determined, we cannot report on these conditions and, accordingly, on the proposed cancellation of preferential subscription rights for the seventeenth, and eighteenth resolutions.

In accordance with article R. 225-116 of the French Commercial Code (*Code de commerce*), we will issue an additional report, if necessary, when your Board of Directors has exercised these authorizations in the event of the issue of ordinary shares and/or securities, giving access immediately or in the future to shares of your Company, with or without cancellation of preferential subscription rights.

Paris La Défense, March 17, 2022

The Statutory Auditors

French original signed by

KPMG Audit		**ERNST & YOUNG Audit**
Department of KPMG S.A.		
Bertrand Desbarrières	Eric Dupré	Christine Vitrac

7.6 Statutory auditors' report on the authorization to allot free existing shares or shares to be issued

This is a translation into English of a report issued in French and it is provided solely for the convenience of English-speaking users. This report should be read in conjunction with, and is construed in accordance with, French law and professional auditing standards applicable in France.

KPMG Audit
Department of KPMG S.A.

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Arkema

Ordinary and extraordinary General meeting of May 19, 2022

Twenty-fourth resolution

Statutory auditors' report on the authorization to allot free existing shares or shares to be issued

To the Shareholders,

In our capacity as statutory auditors of your Company and in accordance with the terms of our engagement defined by Article L.225-197-1 of the French Commercial Code (*Code de Commerce*), we present below our report on the project of authorization to allot free existing shares or shares to be issued to eligible salaried employees and executive directors of your Company or companies related to it, upon which you are requested to vote. The total number of shares likely to be allotted in the context of the present authorization, may not exceed 1,500,000 existing shares or shares to be issued, representing 2,02% of the share capital of the Company.

Your Board of Directors proposes that, on the basis of its report it be authorized, to allot free existing shares or shares to be issued. It is your Board of Directors' responsibility of to prepare a report on the proposed operation. Our role is to report, where applicable, our observations on the information provided to you on the proposed operation.

We have performed those procedures that we considered necessary to comply with the professional guidance issued by the French Institute of Statutory Auditors (*Compagnie Nationale des Commissaires aux Comptes*) relating to this type of engagement These procedures consisted mainly in verifying that the proposed methods set out in the Board of Directors' report of comply with the legal provisions governing such operations.

We have no matters to report on the information given in the Board of Directors' report of relating to the proposed to authorize the allotment of free shares.

Paris La Défense, March 17, 2022

The Statutory Auditors

French original signed by

KPMG Audit
Department of KPMG S.A.
Bertrand Desbarrières Eric Dupré

ERNST & YOUNG Audit
Christine Vitrac

INFORMATION ABOUT THE UNIVERSAL REGISTRATION DOCUMENT

8

The different parts constituting the annual financial report are identified in the table of contents by the pictogram AFR

8.1 Person responsible for the Universal Registration Document and persons responsible for auditing the financial statements

8.1.1 Person responsible for the Universal Registration Document

Thierry Le Hénaff, Chairman and Chief Executive Officer of Arkema.

8.1.2 Declaration by the person responsible for the Universal Registration Document

"I hereby declare that, to the best of my knowledge, the information contained in this Universal Registration Document is in accordance with the facts and that this Universal Registration Document makes no omission likely to affect its import.

I further declare that, to the best of my knowledge, the financial statements have been prepared in accordance with the applicable accounting standards and give a true and fair view of the assets, liabilities, financial position and results of the Company and all of the companies included in the scope of consolidation, and the management report, consisting of the sections of this Universal Registration Document listed in the cross-reference table on pages 390 and 391 of this Universal Registration Document, includes a fair review of the development of the business, the results and the financial position of the Company and all of the companies included in the consolidation and describes the main risks and uncertainties to which they are exposed."

Colombes, 29 March 2022

Thierry Le Hénaff

Chairman and Chief Executive Officer

8.1.3 Persons responsible for auditing the financial statements

Statutory auditor	Statutory auditor
KPMG Audit Department of KPMG S.A.	**Ernst & Young Audit**
Represented by Bertrand Desbarrières and Eric Dupré	Represented by Christine Vitrac
Tour EQHO, 2, avenue Gambetta, CS 60055 92066 Paris-La Défense Cedex – France	Tour First, TSA 14444 92037 Paris-La Défense Cedex – France
Appointed at the annual general meeting of 19 May 2020. Current term expires following the annual general meeting to be held to approve the financial statements for the year ended 31 December 2025.	Appointed at the annual general meeting of 18 May 2018. Current term expires following the annual general meeting to be held to approve the financial statements for the year ending 31 December 2023.
Substitute statutory auditor	**Substitute statutory auditor**
None	None

8.2 Person responsible for the information

Questions concerning Arkema and its activities should be addressed to:

Béatrice Zilm, Vice-President, Investor Relations

Arkema

420, rue d'Estienne d'Orves – 92700 Colombes – France

Telephone: +33 (0)1 49 00 74 63

8.3 Concordance and cross-reference tables

8.3.1 Incorporation by reference

Pursuant to article 19 of regulation (EU) 2017/1129 of the European Parliament and of the Council, this Universal Registration Document incorporates by reference the following information:

- the consolidated financial statements and the statutory auditors' report related thereto, the annual financial statements and the statutory auditors' report related thereto, as well as the financial information included in the management report appearing respectively on page 258 *et seq.*, 322 *et seq.*, and 394 of the Universal Registration Document for the year ended 31 December 2020 granted visa number D. 21-0206 by the *Autorité des marchés financiers* on 26 March 2021; and
- the consolidated financial statements and the statutory auditors' report related thereto, the annual financial statements and the statutory auditors' report related thereto, as well as the financial information included in the management report appearing respectively on page 252 *et seq.*, 320 *et seq.*, and 396 of the reference document for the year ended 31 December 2019 granted visa number D. 20-0182 by the *Autorité des marchés financiers* on 26 March 2020.

8.3.2 Concordance table

Commission Delegated regulation (EU) 2019/980 of 14 March 2019 supplementing regulation (EU) 2017/1129 – Annex 1		Universal Registration Document	
NO.	**HEADING**	**Reference**	**Page(s)**
1	**Persons responsible, third party information, experts' reports and competent authority approval**	**Chapter 8**	**383-392**
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1.2	Declaration by those responsible for the Universal Registration Document	8.1.2	384
1.3	Person acting as an expert	None	
1.4	Confirmation regarding information sourced from a third party	None	
1.5	Statement concerning approval of the Universal Registration Document by the competent authority	None	
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7	**Operating and financial review**	**5.1**	**246-255**
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10.2	Trends, uncertainties, demands, commitments or events that the Company is aware of and are reasonably likely to have a material effect on the Company's prospects for at least the current financial year	5.2	256
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14.3	Information about the Company's Audit committee and Compensation committee	3.3.4.1 and 3.3.4.2	114 and 116
14.4	Statement as to whether or not the Company complies with the corporate governance regime(s) applicable to the Company	3.1	90
14.5	Potential material impacts on corporate governance, including future changes in the Board and committees composition	3.2 and 3.3	90 and 108
15	**Employees**	**4.6.1**	**197-211**
15.1	Number of employees at the end of the period covered by the historical financial information and breakdown of persons employed by main category of activity and geographic location	4.6.1	197
15.2	Shareholdings and stock-options	4.6.1.5 and 6.2.6	207 and 348
15.3	Arrangements for involving employees in the capital of the Company	4.6.1.5 and 6.2.7	207 and 348
16	**Major shareholders**	**6.3**	**349-351**
16.1	The name of any person other than a member of the administrative, management or supervisory bodies who, directly or indirectly, has an interest in the Company's capital or voting rights which is notifiable under the Company's national law, together with the amount of each such person's interest, or, if there are no such persons, an appropriate statement to that effect that no such person exists	6.3.1	349
16.2	Different voting rights or an appropriate statement to the effect that no such voting rights exist	6.3.3	350
16.3	Direct or indirect ownership or control over the Company	6.3.2	350
16.4	Any arrangements, known to the Company, the operation of which may at a subsequent date result in a change in control of the Company	6.3.2	350
17	**Related party transactions**	**6.1.3**	**344**
18	**Financial information concerning the Company's assets and liabilities, financial position and profits and losses**	**5.3 and 5.4**	**258-335**
18.1	Historical financial information	Profile, ambition and strategy and 8.3.1	10 and 385
18.1.1	Audited historical financial information covering the latest three financial years and the audit report in respect of each year	5.3, 5.4 and 8.3.1	258, 316 and 385
18.1.2	Change of accounting reference date	None	
18.1.3	Accounting standards	5.3.3 and 5.4.3	266, 323
18.1.4	Change of accounting framework	None	
18.1.5	Audited financial information including the balance sheet, the income statement, a statement showing changes in equity, the cash flow statement, the accounting policies and explanatory notes	5.3, 5.4 and 8.3.1	258, 316 and 385
18.1.6	Consolidated financial statements	5.3.2	262
18.1.7	Date of latest financial information	5.3.2 and 5.4.2	262 and 320
18.2	Interim and other financial information	None	
18.3	Audit of historical annual financial information	5.3.1 and 5.4.1	258 and 316
18.3.1	Independent audit of historical annual financial information	5.3.1 and 5.4.1	258 and 316
18.3.2	Other information in the Universal Registration Document audited by the statutory auditors	None	
18.3.3	State the source and state that financial information in the Universal Registration Document not extracted from the Company's audited financial statements is not audited	None	
18.4	*Pro forma* financial information	None	
18.5	Dividend policy	6.4.7	354

Commission Delegated regulation (EU) 2019/980 of 14 March 2019 supplementing regulation (EU) 2017/1129 – Annex 1		Universal Registration Document	
18.5.1	Policy on dividend distributions or an appropriate negative statement	6.4.7	354
18.5.2	Dividend per share	6.4.7	354
18.6	Legal and arbitration proceedings	2.1.2 and note 10.2.2 to the consolidated financial statements	72 and 300
18.7	Significant change in the Company's financial position	None	
19	**Additional information**	**Chapter 6**	**342-356**
19.1	Share capital	6.2	342
19.1.1	The amount of issued capital, the total of the Company's authorized share capital, the number of shares issued and fully paid and issued but not fully paid, the par value per share and a reconciliation of the number of shares outstanding at the beginning and end of the year	6.2.1	342
19.1.2	The number and main characteristics of any shares not representing capital	None	
19.1.3	The number, book value and par value of shares held by the Company, on behalf of the Company or by subsidiaries of the Company	6.2.4	245
19.1.4	Convertible securities, exchangeable securities or securities with warrants	6.2.6	348
19.1.5	Information about and terms of any acquisition rights or obligations over authorized but unissued capital or an undertaking to increase the capital	None	
19.1.6	Information about the capital of any member of the Group which is under option or agreed conditionally or unconditionally to be put under option	None	
19.1.7	History of share capital for the period covered by the historical financial information	6.2.2	344
19.2	Memorandum and Articles of Association	6.1.1 and 6.5	342 and 355
19.2.1	Register and entry number therein; Company's objects and purposes	6.1.1	342
19.2.2	Rights, preferential rights and restrictions attaching to each class of existing shares	6.5.3	356
19.2.3	Any provision of the Company's Articles of Association, statutes, charter or bylaws that would have an effect of delaying, deferring or preventing a change in control of the Company	6.5.2	355
20	**Material contracts**	**1.4**	**67**
21	**Documents available**	**6.1.1**	**342**

Commission Delegated regulation (EU) 2019/980 of 14 March 2019 supplementing regulation (EU) 2017/1129 – Annex 2		Universal Registration Document	
NO.	**HEADING**	**Reference**	**Page(s)**
1	**Information to be disclosed about the Company**		
1.1	Information in accordance with the disclosure requirements for the registration document for equity securities laid down in Annex 1	8.3.2	385-389
1.2	Statement that the Universal Registration Document may be used for the purposes of an offer to the public of securities or admission of securities to trading on a regulated market if completed by amendments, if applicable, and an approved securities note and summary and stating, if applicable, that the Universal Registration Document has been filed with the competent authority without prior approval	-	1

8.3.3 Cross-reference table

This Universal Registration Document includes all the items of the Company and Group management report as required by articles L. 225-100, L. 225-100-1 and L. 22-10-35 of the French Commercial Code (*Code de commerce*), as created by Order no. 2020-1142 of 16 September 2020, establishing a specific division within the French Commercial Code for companies whose securities are admitted to trading on a regulated market (the "Order"), articles L. 232-1 II, L. 233-16, L. 233-26 and R. 225-102, as well as articles L. 225-102-1 and L. 22-10-36 as created by the Order, and articles L. 225-102-2, R. 225-105, R. 225-105-1 and L. 225-102-4 providing for the creation and deployment of a duty of care plan (I). It also contains all the information in the annual financial report referred to in article L. 451-1-2 of the French Monetary and Financial Code (*Code monétaire et financier*) and article 222-3 of the AMF general regulations (II).

In order to facilitate the reading of the management report and the annual financial report mentioned above, the following cross-reference table has been prepared to identify the sections constituting these reports.

The cross-reference table also helps to identify the information that must be included in the Board of Directors' report on corporate governance pursuant to articles L. 225-37, L. 22-10-8 and L. 22-10-9, L. 225-37-4, L. 22-10-10, L. 22-10-11, L. 225-197-1 and L. 22-10-59 of the French Commercial Code (III).

Finally, the cross-reference table lists the other reports prepared by the Board of Directors and the statutory auditors (IV).

No.	Information	Reference
I	**MANAGEMENT REPORT**	
1	Position and activity of the Company and, where applicable, its subsidiaries and companies under its control, over the past financial year	1.2
2	Results of operations of the Company, its subsidiaries and companies under its control	5.1.5
3	Key financial and non-financial performance indicators relating to the Company's and the Group's specific businesses	Profile, ambition and strategy
4	Review of the business, results of operations and financial position (notably debt)	5.1 and 5.2
5	Description of main risks and uncertainties (including the Company's exposure to financial and market risks)	2.1
6	Notes on the use of financial instruments and the Company's financial and market risk management policies and objectives	2.1.6
7	Significant events that have occurred since the end of the reporting period	Note 14 to the consolidated financial statements
8	Foreseeable developments	5.2
9	Research and development activities	1.1
10	Existing branches	Not applicable
11	Review of employee shareholding, share issues reserved for employees and of stock options and free shares granted to employees	6.3.4
12	Transactions by executives in the Company's securities	6.2.8
13	Non-financial performance reporting pursuant to the provisions of article L. 225-102-1 of the French Commercial Code	4.1.4
14	Shareholdings in companies with registered offices in France and representing over 1/20, 1/10, 1/5, 1/3, 1/2 or 2/3 of these companies' capital or voting rights	6.1.2 and note 15 to the consolidated financial statements
15	Transfer or disposal of shares undertaken to regularize cross shareholdings	Not applicable
16	Individual persons or corporate bodies holding directly or indirectly over 1/20, 1/10, 3/20, 1/5, 1/4, 1/3, 1/2, 2/3, 18/20 or 19/20 of the Company's share capital or voting rights at general shareholders' meetings	6.3.1, 6.3.2, 6.3.5 and 6.3.6
17	Injunctions or fines for antitrust practices	2.1 and note 10.2.2 to the consolidated financial statements
18	Calculation and results of adjustment of conversion bases or of exercising of securities giving access to capital and stock subscription or purchase options	3.5.2 and 6.2.6
19	Information on share buyback programs	6.2.4
20	Five-year financial summary	5.4.5
21	Dividends paid during the last three financial years and dividends eligible for the 40% tax rebate	6.4.7

No.	Information	Reference
22	Loans of less than three years granted by the Company, outside the scope of its main business activities, to micro-enterprises, SMEs or intermediate-sized enterprises and justified by the economic relations it has with the entities	Not applicable
23	Information on non-tax-deductible sumptuary expenses (article 223 *quater* of the French General Tax Code [*Code général des impôts*])	7.2.2
24	Details of trade payables and receivables (article D. 441-4 of the French Commercial Code)	5.4.4
25	Information on financial risks linked to climate change and measures taken by the Company to reduce them	2.1.3
26	Internal control and risk management procedures put in place by the Company, in particular those relating to the preparation and processing of accounting and financial information	2.2
27	Information on the Company's technological accident risk prevention policy, its ability to insure its civil liability in terms of property and people due to its operations in classified facilities, and resources provided to oversee the processing of victim compensation in the event of a technological accident for which the Company can be held liable	2.1.1 and 2.2.6
28	"*Plan de vigilance*" (duty of care plan) pursuant to article L. 225-102-4 of the French Commercial Code	4.1.5
II	**ANNUAL FINANCIAL REPORT**	
1	Company financial statements	5.4.2 and 5.4.3
2	Consolidated financial statements	5.3.2 and 5.3.3
3	Statutory auditors' report on the parent Company financial statements	5.4.1
4	Statutory auditors' report on the consolidated financial statements	5.3.1
5	Management report	See I of this cross-reference table, and in particular sections 4, 5, 6, 7, 13, 16, 17 and III, 13 of this table
6	Board of Directors' report on corporate governance prepared in accordance with article L. 225-37, last paragraph of the French Commercial Code	See III of this cross-reference table
7	Declarations by the persons responsible for the annual financial report	8.1.2
8	Statutory auditors' fees	Note 13 to the consolidated financial statements
9	Statutory auditors' report on corporate governance prepared in accordance with article L. 225-235 of the French Commercial Code	5.4.1
III	**BOARD OF DIRECTORS' REPORT ON CORPORATE GOVERNANCE**	
1	Composition of the Board of Directors and diversity policy implemented including the principle of gender balance	3.2.1.1 and 3.2.1.2
2	Conditions for the preparation and organization of the work of the Board of Directors	3.3.2 to 3.3.4
3	List of positions held and duties performed by each executive Director in all companies during the reporting period	3.2.1.3
4	Potential limitations imposed by the Board on the powers of the CEO	3.3.1
5	Agreements entered into between an executive Director or a significant shareholder and a Company subsidiary	Not applicable
6	Description and implementation of the procedure provided for in the second paragraph of article L. 22-10-12 of the French Commercial Code on assessing, on a regular basis, whether the agreements relating to ordinary operations entered into under arm's length conditions meet such conditions	3.2.3.5
7	Summary table showing the authorizations to increase the share capital currently in force	6.2.5
8	Company's management structure (only in the event of changes)	Not applicable
9	Where a Company voluntarily refers to a corporate governance code drawn up by business organizations: provisions that were disregarded and the reasons, as well as how the code may be consulted	3.1
10	Where applicable, the reasons for the Company disregarding all the provisions of a corporate governance code and rules respected in addition to legal requirements	Not applicable

No.	Information	Reference
11	Specific conditions for shareholder participation in general shareholders' meetings or referral to the provisions of the Articles of Association that provide for these conditions	6.5.1 and 6.5.2
12	Compensation policy for executive Directors as provided for in article R. 22-10-14 of the French Commercial Code	3.4.1.1 and 3.4.2.1
13	Information, as provided for in article L. 22-10-9 of the French Commercial Code, about each executive Director, including those whose term of office has expired and those who have been appointed during the last financial year	3.4.1.2 and 3.4.2.2
14	Factors likely to have an impact in the event of a public offering	
	Structure of the Company's capital	6.2.1 and 6.3.1
	Restrictions under the Articles of Association on the exercise of voting rights and share transfers, clauses of agreements brought to the Company's attention pursuant to article L. 233-11 of the French Commercial Code	6.5.2
	Direct or indirect interests in the Company's share capital, of which it is aware pursuant to articles L. 233-7 and L. 233-12 of the French Commercial Code	6.3.1, 6.3.2 and 6.3.4
	List and description of bearers of securities with special controlling rights	Not applicable
	Control mechanisms in place for an employee shareholding scheme where controlling rights are not exercised by the employees	Not applicable
	Agreements between shareholders of which the Company is aware and which can entail restrictions on the exercise of voting rights and share transfers	Not applicable
	Rules applicable to the appointment and replacement of members of the Board of Directors, and to amendments to the Company's Articles of Association	3.2.1.1, 3.2.3 and 3.3.2.2
	Powers of the Board of Directors, in particular regarding share issues and buybacks	3.3.1, 3.3.2.1, 6.2.4 and 6.2.5
	Company agreements which are amended or lapse in the event of a change of control [(1)]	1.4 and note 5.3 to the consolidated financial statements
	Compensation agreements for members of the Board of Directors or employees who resign or are made redundant without just cause or who are terminated as a result of a public offering	3.4.2.1 and 3.4.2.2
15	Free share allocation and holding requirements for executive directors	3.4.2
IV	**OTHER DOCUMENTS**	
1	Statutory auditors' special report on related-party agreements	7.1
2	Proposed agenda for the annual general meeting of 19 May 2022	7.2.1
3	Proposed resolutions submitted to the annual general meeting of 19 May 2022	7.2.2
4	Board of Directors' report to the combined annual general meeting of 19 May 2022	7.3
5	Statutory auditors' report on the issuance of ordinary shares and/or marketable securities reserved for employees subscribing to a company savings plan	7.4
6	Statutory auditors' report on the issue of shares and/or securities with or without cancellation of preferential subscription rights	7.5
7	Statutory auditors' report on the authorization to grant free shares	7.6
8	Declaration that the social and environmental information required in the management report has been properly disclosed in accordance with legal and regulatory commitments	4.7.8

(1) Except if this disclosure, other than where required by law, would have a significant negative impact on the Company's interests.

GLOSSARY

Term	Definition
Acrylic Acid	An acid derived from propylene and mainly used as an intermediate in the preparation of superabsorbents and derivatives used in the manufacture of paints, inks or adhesives.
AIMS	Arkema Integrated Management System, an audit system that includes the Group's own requirements as well as those featured in standards endorsed by the Group, such as ISO 9001, ISO 14001 and OHSAS 18001. In order to obtain external certifications, AIMS audits are conducted by mixed teams made up of Group auditors and auditors from a third-party accreditation body.
CEFIC	The European Chemical Industry Council.
CO_2	Carbon dioxide.
COD	Chemical oxygen demand, a parameter for measuring water pollution by organic materials, the decomposition of which consumes oxygen.
CoRAP	The European Union's Community Rolling Action Plan, part of REACH.
Crosslinking	The process by which transverse bonds are created to change a linear polymer into a tridimensional polymer.
Debottlenecking	A modification made to an industrial facility in order to increase production capacity.
EBITDA	Recurring operating income (REBIT) plus recurring depreciation and amortization of property, plant and equipment and intangible assets, the computation of which is detailed in note 4 to the consolidated financial statements in this document.
EBITDA to cash conversion rate	Recurring cash flow divided by EBITDA, the computation of which is detailed in note 4 to the consolidated financial statements in this document.
ECHA	The European Chemicals Agency, which is responsible for overseeing the REACH system.
EFPI (Environmental Footprint Performance Indicator)	The intensive indicator used by the Group to offset the impact of changes in production scope or volume and to monitor changes in its environmental performance with respect to the Group's 2030 targets compared with 2012.
Emulsions	Binders for paints, adhesives and varnishes produced by polymerization of monomers (acrylic, vinyl and other) and forming a stable dispersion in water of polymer particles which, coated and dried, form a continuous film.
Exceptional capital expenditure	A very limited number of investments that the Group presents separately in its financial reporting due to their unusual size or nature, the amounts of which are detailed in note 4 to the consolidated financial statements in this document.
Free cash flow	Cash flow from operations and net investing activities excluding the impact of portfolio management, the computation of which is detailed in note 4 to the consolidated financial statements in this document.
GHG	Greenhouse gas.
GHS	The Globally Harmonized System of Classification and Labeling of Chemicals, a major United Nations initiative designed to harmonize the various chemical classification and labeling standards used in different countries.
HCFCs	Hydrochlorofluorocarbons.
HF	Hydrofluoric acid.
HFCs	Hydrofluorocarbons; hydrogen-, carbon- and fluorine-based products that are mainly used in refrigeration as substitutes to chlorofluorocarbons (CFCs), following the introduction of the Montreal Protocol.
HFOs	Hydrofluorolefins, refrigerants with lower global warming potential. They are distinguished from HFCs by the presence of at least one carbon-carbon double bond and constitute the new generation of fluorogases.
Hydrazine hydrate	A nitrogen-, hydrogen- and water-based product used as an intermediate in agrochemicals, pharmaceuticals, chemical synthesis, water treatment and blowing agents for plastics and elastomers.
ICCA	The International Council of Chemical Associations.

Term	Definition
Impact modifiers	Additives introduced into certain products, in particular PVC, to make them more impact-resistant.
Incentive scheme in France	A scheme set up to complement the profit-sharing plans required under French law in all of the Group's companies in France. It gives all employees a share of Group profits and provides incentives to meet certain performance objectives that promote the Group's growth. Schemes vary from subsidiary to subsidiary but most are based on the same principles. Incentives consist of (i) a bonus based on economic results, and (ii) a performance bonus defined by each facility in line with its specific objectives.
Initiators	Products used to initiate chemical reactions.
Intensive indicator	An indicator of intensity relative to production volumes.
IRT	*Institut de recherche technologique*, a French technological research institute.
ISO 14001	An international standard that defines the criteria for introducing an environmental management system in companies.
Kyoto Protocol	An international agreement, entered into by 84 countries on 11 December 1997 in Kyoto (Japan), which was intended to supplement the May 1992 United Nations Framework Convention on Climate Change (UNFCCC). The Kyoto Protocol entered into effect on 16 February 2005.
Mercaptans	Thio-alcohols and phenols.
Methyl methacrylate	An essential raw material in the manufacture of polymethyl methacrylate (PMMA) sheets and pellets. Methyl methacrylate is also used in the fields of acrylic emulsions and plastic additives.
Molecular sieves	Synthesized mineral products used to purify liquids and gases due to their ability to selectively retain molecules of a gas or of a substance in solution or suspension.
Non-recurring cash flow	Cash flow from other income and expenses as described in note 5.1.5 to the consolidated financial statements in this document.
Non-woven	Textiles whose fibers are aligned in a random fashion.
NOx	Nitrogen oxides.
ODP (Ozone Depletion Potential)	An index measuring the impact of a given mass of gas in terms of contribution to the depletion of the ozone layer, expressed in relation to the impact of a chlorofluorocarbon.
OECD	Organization for Economic Co-operation and Development.
Organic peroxides	Oxidizing organic products used as initiators for polymerization and as crosslinking agents.
Oxo alcohols	Alcohols derived from propylene and used as synthesis intermediates.
Payout ratio	Dividend per share over adjusted net income per share.
Photocure resins	Synthetic resins that harden under the effect of ultraviolet light.
PMMA	The ISO code for polymethyl methacrylate.
Polyamide	A polymer obtained by the reaction of a diacid on a diamine, or from the polymerization of a monomer with both an acid and an amine function.
Polyamide 11 (PA 11), and polyamide 12 (PA 12)	Thermoplastic polyamides, whose monomers have 11 and 12 carbon atoms, respectively.
Polyethylene	A plastic obtained by the polymerization of ethylene.
Polymerization	The union of several molecules of one or more compounds (monomers) to form a large molecule.
Polymers	Products made by polymerization.
Polyphthalamide (PPA)	A thermoplastic material from the polyamide family, obtained by polymerization of aromatic diacids and aliphatic diamines, and characterized by a high melting point and high mechanical rigidity.
PPRT	Technological Risk Prevention Plan (*plan de prévention des risques technologiques*), a government designed and implemented plan introduced by French Law no. 2003-699 of 30 July 2003 and the relevant implementing decrees, which strengthened the obligations imposed on companies operating Seveso sites in France. PPRTs aim to control urban development around potentially dangerous sites and to limit the impact of potential accidents.
PSE	Process safety events.
PVC	The ISO code for vinyl polychloride or polyvinyl chloride.
PVDF	The ISO code for polyvinylidene fluoride.
RCMS	The Responsible Care® Management System.

Term	Definition
REACH (Registration, Evaluation and Authorization of Chemicals)	Regulation (EC) no. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the registration, evaluation, authorization and restriction of chemicals.
REBIT	Recurring operating income, the computation of which is detailed in note 4 to the consolidated financial statements in this document.
REBIT margin	Recurring operating income as a percentage of sales.
Recurring cash flow	Free cash flow excluding exceptional items (non-recurring cash flow and exceptional capital expenditure).
Responsible Care®	A voluntary initiative by the world chemical industry to achieve continuous progress in safety, health and environment, managed in France by the UIC under the name of Engagement de progrès® (Commitment to progress).
Return on average capital employed (ROACE)	Recurring operating income (REBIT) of year Y over average capital employed at the end of years Y and Y-1, the computation of which is detailed in note 4 to the consolidated financial statements in this document.
ROCE	Recurring operating income of year Y over capital employed at the end of year Y, the computation of which is detailed in note 4 to the consolidated financial statements in this document.
SDGs	The Sustainable Development Goals, also known as the Global Goals, a United Nations worldwide initiative to end poverty, protect the planet and ensure peace and prosperity for all (UN definition).
SDS	Safety Data Sheet.
Sebacic acid	A diacid derived from castor oil, used as an intermediate in the manufacture of bio-based polymers, plastics, lubricants, and anti-corrosion agents.
Seveso III directive	European directive no. 2012/18/EU of 4 July 2012 on the control of major-accident hazards involving dangerous substances.
SO_2	Sulfur dioxide.
Sodium chlorate	Sodium salt used in the treatment of paper pulp, as an herbicide, or as a synthesis intermediate.
SOx	Sulfur oxides.
Spin-Off of Arkema's Businesses	The transaction that is the subject of the prospectus received from the French financial markets authority (*Autorité des marchés financiers* – AMF), visa no. 06–106 on 5 April 2006.
SPOM	Suspended particulate organic matter present in water that can be recovered by physical or mechanical means, such as filtration and sedimentation.
Surfactants	Compounds that increase the spreading and wetting properties of a liquid by lowering its surface tension.
SVHC	Substance of Very High Concern, a chemical substance that has been placed on the candidate list for authorization under REACH.
UIC	*Union des industries chimiques* (Union of Chemical Industries). The professional body of the chemical industry in France.
VOC	Volatile organic compound.

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