UNIVERSAL REGISTRATION DOCUMENT

NEW VERSION OF THE REFERENCE DOCUMENT
INCLUDING THE ANNUAL FINANCIAL REPORT

2019

ARKEMA
INNOVATIVE CHEMISTRY

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

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(NEW VERSION OF THE REFERENCE DOCUMENT)

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2019

AUTORITÉ DES MARCHÉS FINANCIERS
AMF

This document is a free translation of the French language Universal Registration Document that was filed on 26 March 2020 with the French financial markets authority (Autorité des marchés financiers-AMF) as competent authority under Regulation (EU) 2017/1129 without prior approval pursuant to Article 9 of Regulation (EU) 2017/1129. This 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 supplemented by a securities note and, if applicable, a summary and all amendments to the Universal Registration Document approved in accordance with Regulation (EU) 2017/1129. The package is approved by the AMF in accordance with Regulation (EU) 2017/1129.

This translation has been prepared solely for the information and convenience of English-speaking readers. No assurances are given as to the accuracy or completeness of this translation, and the Group assumes no responsibility with respect to this translation or any misstatement or omission that may be contained therein. In the event of any ambiguity or discrepancy between this translation and the French reference document, the French reference document shall prevail.

MESSAGE FROM THIERRY LE HÉNAFF
CHAIRMAN AND CHIEF EXECUTIVE OFFICER

Ladies and Gentlemen,

ARKEMA ACHIEVED ANOTHER HIGH-LEVEL FINANCIAL PERFORMANCE IN 2019

In a less favorable macroeconomic context, Arkema reported sales of €8.7 billion – globally in line with last year – and an EBITDA of €1,457 million, which was also comparable to the record performance delivered in 2018.

Our cash generation remained very solid over the period and free cash flow reached an all-time high of €667 million, significantly up on last year, with an EBITDA to cash conversion rate of 52%.

These results bear out the solidity and resilience of our Group in an economic environment marked by ongoing geopolitical tensions and a slowdown in certain key end markets.

They also demonstrate the quality of the Group's business portfolio and vindicate our transformation strategy towards specialties. These businesses represented 72% of the Group sales in 2019 and their EBITDA jumped by 13%. Specialties helped offset the overall decline in intermediary businesses, due in particular to challenging market conditions for Fluorogases.

Our results also reflect the responsiveness and daily efforts made by Arkema's teams to adapt to the volatile macroeconomic environment.

On the strength of this performance, the Board of Directors, confident in the Group's growth prospects, has decided to propose an 8% increase in the dividend to €2.70 per share.

THE GROUP'S TRANSFORMATION TOWARDS SPECIALTY BUSINESSES FURTHER CONTINUES

In line with its strategy of focusing on specialty businesses, Arkema made several bolt-on acquisitions in 2019. These involved both medium-sized companies such as ArrMaz in specialty surfactants, and smaller-sized operations in adhesives with Prochimir and LIP, and in photoinitiators with the acquisition of Lambson. The Group also announced the proposed disposal of its intermediate chemicals Functional Polyolefins business to SK Global Chemical, a major chemical player in South Korea.

2019 was also a strong year for major organic growth projects, notably with the start-up of our first PEKK plant in the United States, a 50% increase in specialty polyamide powders production capacity in Mont, France, a 30% production capacity increase at Sartomer in China, and the inauguration of a new powder coating resins unit in India.

Finally, on the innovation front, we opened a joint R&D facility in France with our partner Hexcel to develop composite solutions for the aerospace sector, and inaugurated a global 3D printing center of excellence in Serquigny.

CORPORATE SOCIAL RESPONSIBILITY IS AN INTEGRAL PART OF OUR GROWTH STRATEGY

Arkema has continued to harness sustainable development innovations to develop customer solutions in the areas of lightweight materials, new energies and bio-based products that help achieve United Nations' Sustainable Development Goals and meet the world's major current and future challenges, such as population growth, climate change and the increasing scarcity of natural resources.

Moreover, Arkema has always been committed to a responsible production approach, focused primarily on employee safety, environmental performance, reliable production facilities, and open dialogue with stakeholders and the local community.

Building on the progress already achieved in the environmental field since 2012, the Group unveiled this year an ambitious climate plan covering the period through 2030 to keep global warming to well below 2°C, in line with the Paris Agreement. Arkema is targeting a reduction in its greenhouse gas emissions by 38% in 2030 in absolute term compared with 2015, and has also committed to new, more stringent environmental targets for its emissions to air, water and its net energy purchases.

These commitments together with the progress made in appointing more women to senior management positions, contribute to Arkema's ambition to consolidate its position among the best-in-class committed players in terms of CSR.

2020 IS MARKED BY THE EXCEPTIONAL CONTEXT LINKED TO THE COVID-19

The beginning of the year is marked by the major crisis linked to the rapid development of the Covid-19 throughout the world, which keeps growing since its emergence in China. Its impact on the global economy will be significant and is still very uncertain. In response to this outbreak, the Group's priority is the health and safety of its employees, and the appropriate measures are put in place in our facilities to ensure the best health protection for all. Home office is also largely favored when compatible with business continuity requirements. In addition, Arkema has rapidly implemented, in the countries where it operates, the necessary action plans to adapt to the situation and limit its economic consequences. The Group also benefits from a very solid financial structure.

I want to express all my support for those affected and more particularly for our employees and their beloved ones. In this complex environment, which requires constant adaptation, the commitment of our teams is remarkable and I thank them for this.

On the long term, alongside the Board of Directors and the Executive Committee, I am convinced of the soundness of our growth strategy, built around our three closely-interlinked platforms, namely adhesives, advanced materials and performance coatings. This strong, ambitious value-creation model, in line with the strategy deployed in 2006, is rooted in the continuous engagement and talent of our 20,500 employees throughout the world.

Thierry Le Hénaff

20,500
EMPLOYEES

A PRESENCE IN
55 countries

144
PRODUCTION SITES

€607M
CAPITAL EXPENDITURE (1)

€249M
R&D EXPENDITURE

3 regional
R&D HUBS

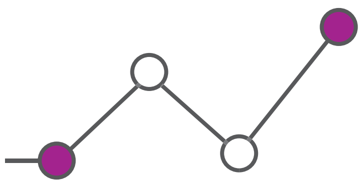
2019 data

(1) Recurring and exceptional capital expenditure.

ARKEMA
AT A GLANCE

ARKEMA IS A MAJOR PLAYER IN SPECIALTY CHEMICALS AND IN ADVANCED MATERIALS, WITH A LEADING INDUSTRIAL AND COMMERCIAL PRESENCE, AND A BALANCED GEOGRAPHICAL FOOTPRINT WITH STRONG POSITIONS IN EUROPE, NORTH AMERICA AND ASIA.

€8.7bn
2019 SALES

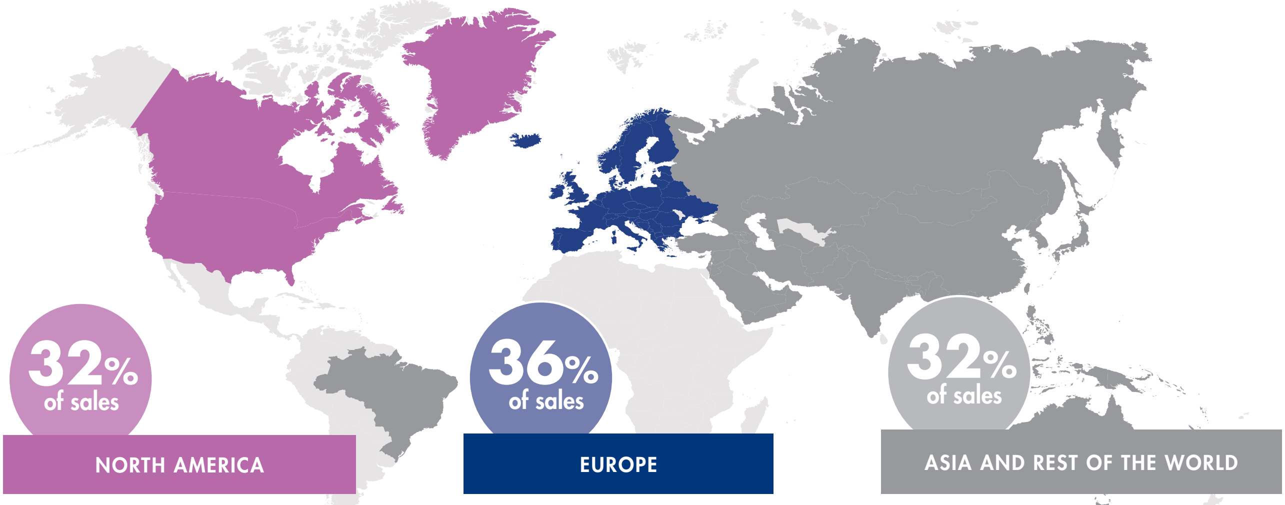


Thanks to the innovative solutions developed by its three divisions - High Performance Materials, Industrial Specialties and Coating Solutions – Arkema contributes to addressing the world's current and future challenges in areas such as lightweight materials, new energies, access to drinking water, home comfort and bio-based products. With leading positions in its main product lines, the Group supports its customers in their quest for sustainable performance and their long-term development.

As a responsible industrial company with a global footprint, Arkema is committed to achieving continuous improvement and operational excellence, driven by the collective energy of its 20,500 employees.

Drawing on its solid entrepreneurial culture, Arkema engaged in a strong transformation process toward specialties since its stock market listing in May 2006, thanks to a strategy based on three key growth drivers: innovation for sustainable development, targeted acquisitions in high value-added businesses and industrial investments in high-growth regions. Thanks to this transformation, the Group has multiplied its EBITDA by four and its EBITDA margin has nearly tripled.

A GLOBAL INDUSTRIAL COMPANY



NORTH AMERICA
- **4,075** employees
- **43** production sites
- **4** R&D centers

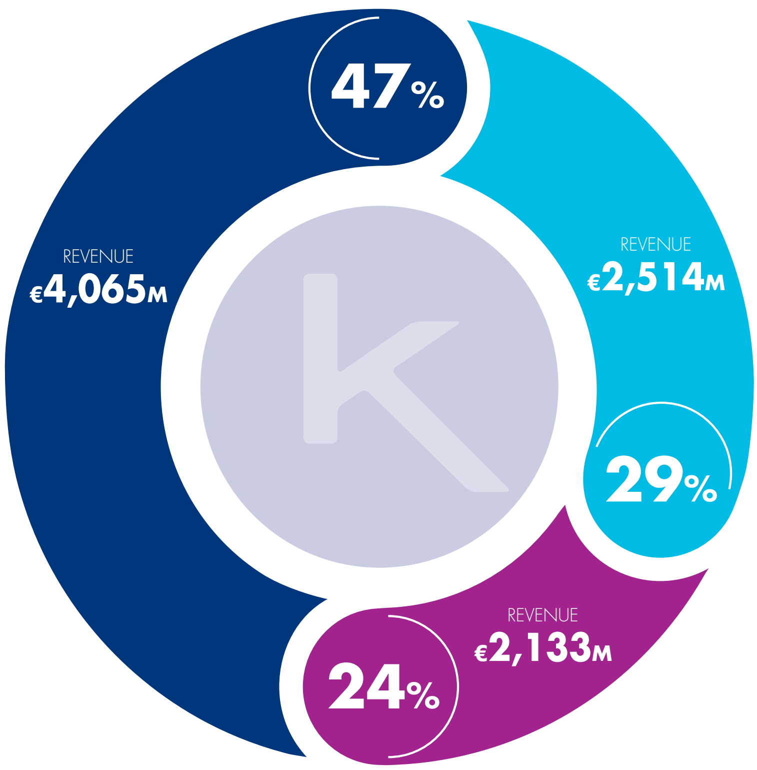
EUROPE
- **11,200** employees
- **61** production sites
- **7** R&D centers

ASIA AND REST OF THE WORLD
- **5,225** employees
- **40** production sites
- **4** R&D centers

THREE DIVISIONS

HIGH PERFORMANCE MATERIALS

Innovative, high value-added solutions to address sustainable development challenges and its clients' technical challenges



INDUSTRIAL SPECIALTIES

High-profitability, competitive integrated industrial niches with global leading positions

COATING SOLUTIONS

Performance resins, notably for decorative paints and industrial coatings, with extensive, global product ranges that are integrated upstream

2019 data

Arkema will provide a strategic update on 2 April 2020. Therefore, please also refer to the documents (presentation and press release) that will be presented on this occasion for the most recent information regarding the Group's organization.

STRONG **ASSETS**

IN THE TOP 3 GLOBALLY ON 90% OF TOTAL SALES

ARKEMA CAN LEVERAGE SOLID ASSETS TO ROLL OUT ITS STRATEGY AND CARRY OUT ITS NUMEROUS PROJECTS, ENABLING THE GROUP TO STRENGTHEN ITS POSITION AMONG THE WORLD LEADERS IN SPECIALTY CHEMICALS.

RECOGNIZED BRANDS

Contributing to customer loyalty.

Bostik smart adhesives
PEBAX POWERED
KYNAR BY ARKEMA
KEPSTAN BY ARKEMA
RILSAN BY ARKEMA
N3XTDIMENSION BY ARKEMA

STRONG CUSTOMER PARTNERSHIPS

With leading industrial customers in areas such as 3D printing, composites, water treatment and batteries.

EXPERIENCED, COMMITTED TEAMS

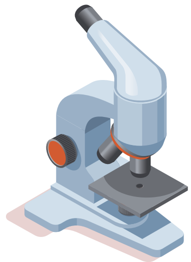
Who contributed to shaping Arkema into a leading industrial group, thanks to their ability:

- **to carry out complex industrial projects** such as the construction of a thiochemicals platform in Malaysia, in a new country for the Group, with a new partner and based on an innovative process;
- **to ensure smooth integration** of major acquisitions such as Bostik; and
- **to adapt** to the different macro-economic environments that Arkema has faced over the last 14 years, and to strongly improve its financial performance.

STRONG R&D CAPABILITIES

Enabling us to launch new products, provide our customers with the technical support they need, and further improve the efficiency of our manufacturing processes, thanks to:

- the **expertise of our 1,600 researchers** at our 15 research centers worldwide;
- a portfolio of **over 10,000 patents**; and
- 222 new patent applications filed in 2019.



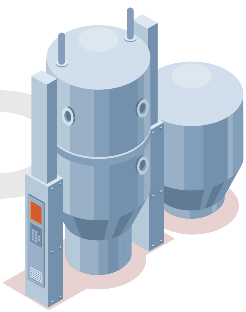
ARKEMA
INNOVATIVE CHEMISTRY

A SOLID FINANCIAL STRUCTURE

- **Excellent cash generation** and a high EBITDA to cash conversion rate.
- **Tightly-controlled net debt**, representing, at end-2019, 1.1 times annual EBITDA and a 31% gearing.

Giving us the financial flexibility needed to carry out our ambitious investment and targeted acquisitions policy while ensuring regular dividend growth.

A COMPETITIVE AND GLOBAL PRESENCE



To support our 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** that optimize costs, timing, and superior technical implementation.

KEY FIGURES

KEY FINANCIAL DATA

(In millions of euros unless otherwise stated)	**2019**	2018	2017	2016	2015
Sales	**8,738**	8,816	8,326	7,535	7,683
EBITDA	**1,457**	1,474	1,391	1,189	1,057
EBITDA margin	***16.7%***	***16.7%***	***16.7%***	***15.8%***	***13.8%***
Recurring operating income (REBIT)	**926**	**1,026**	**942**	**734**	**604**
REBIT margin	***10.6%***	***11.6%***	***11.3%***	***9.7%***	***7.9%***
Net income – Group share	**543**	707	576	427	285
Adjusted net income	**625**	725	592	418	312
Net income per share *(euros)*	**6.45**	8.84	7.17	5.24	3.42
Adjusted net income per share *(euros)*	**8.20**	9.51	7.82	5.56	4.23
Dividend per share *(euros)*	**2.70** (1)	2.50	2.30	2.05	1.90
Shareholders' equity	**5,324**	5,028	4,474	4,249	3,949
Net debt	**1,631**	1,006	1,056	1,482	1,379
Gearing	**31%**	20%	24%	35%	35%
Net debt/EBITDA	**1.1**	0.7	0.8	1.2	1.3
Capital employed	**7,917**	6,996	6,554	6,829	6,466
Return on average capital employed	**12.4%**	15.1%	14.1%	11.0%	11.0%
Working capital on sales	**13.8%**	13.4%	13.1%	14.5%	14.6%
Free cash flow	**667**	499	565	426	442
EBITDA to cash conversion rate	**52%**	38%	41%	36%	42%
Recurring capital expenditure	**511**	500	420	423	431
Exceptional capital expenditure	**96**	61	10	0	0

Definitions of the main financial indicators are given in the glossary and in note C.1 "Alternative performance indicators" to the consolidated financial statements at 31 December 2019, presented in section 5.3.3 of this document.

(1) Dividend proposed at the annual general meeting on 19 May 2020.

KEY EXTRA-FINANCIAL DATA

INNOVATION

	2019	2018	2017	2016	2015
R&D expenditure *(in €M)*	**249**	237	235	222	209
Number of patent applications filed	**222**	244	239	196	193
Number of patent applications filed relating to sustainable development	**149**	154	150	116	121
Percentage of sales that significantly contribute to the United Nations' Sustainable Development Goals [1]	**46%**	43%			

(1) On the basis of an assessment of 44% of the Group's third-party sales in 2019

SAFETY

	2019	2018	2017	2016	2015
Total recordable injury rate (TRIR) [1]	**1.4**	1.3	1.6	1.5	1.5
Process safety event rate (PSER)	**3.7**	4.4	3.9	N/A	N/A

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

EMPLOYMENT

	2019	2018	2017	2016	2015
Headcount	**20,507**	20,010	19,779	19,637	18,912
Percentage of women in senior management and executive positions	**23%**	21%	19%	18%	17%
Percentage of non-French nationals in senior management and executive positions	**40%**	39%	37%	39%	N/A

CLIMATE AND ENVIRONMENT

	2019	2018	2017	2016	2015
Greenhouse gas emissions	**0.87**	0.90	0.96	0.99	1.00
Volatile organic compound (VOC) emissions	**0.60**	0.62	0.66	0.80	0.83
Chemical oxygen demand (COD)	**0.50**	0.59	0.70	0.78	0.93
Net energy purchases	**0.91**	0.88	0.89	0.92	0.98

In EFPI terms compared with 2012 except for greenhouse gas emissions and in absolute terms compared with 2015 for greenhouse gas emissions.

GLOBAL TRENDS
A CONSTANTLY CHANGING WORLD

AS A RESPONSIBLE INDUSTRIAL COMPANY, ARKEMA CONTRIBUTES TO ADDRESSING THE CURRENT AND FUTURE MAJOR CHALLENGES THROUGH ITS INNOVATIVE, SUSTAINABLE SOLUTIONS AND THE OPTIMIZATION OF ITS INDUSTRIAL OPERATIONS.

TRENDS	Global consequences
INCREASING URBANIZATION By 2050, the world population is expected to reach around 10 billion people, an increase of nearly 30%, driven mainly by emerging countries. Growth is concentrated in urban areas, with urban populations expected to rise by around 2.5 billion people between now and 2050. This trend is accompanied by a gradual increase in living standards.	• Strong demand for the construction and renovation of buildings and infrastructure • Increased demand for transportation, energy, water and services • Changing lifestyles and consumer behavior • Increasing concern about housing quality, comfort and energy efficiency
RESOURCE SCARCITY The growth in the world population, increasing living standards and the rapid pace of industrialization are all driving an increase in the use of the world's resources. Based on current conditions, the consumption of raw materials could therefore triple by 2050.	• Scarcity of non-renewable resources • Increasing difficulties in accessing safe drinking water
CLIMATE CHANGE Increasing urbanization, the increase in the number of cars and air travel, and industrialization all contribute to global warming and climate change. To address these issues, the Paris Agreement aims to keep the global temperature rise by the end of the century to well below 2°C.	• Increase in the global temperature and its human and environmental consequences • Increase and intensification of extreme weather events • Need to speed up the transition to more sustainable lifestyles and economic models (decoupling)
NEW TECHNOLOGIES New technologies, such as artificial intelligence, material sciences and robotics are growing fast, creating new commercial and industrial possibilities.	• Changing lifestyles and consumer behaviour (e.g., percentage of the population equipped with connected objects) • Significant increase in available data • Increased production rates

OUR SOLUTIONS
TO CURRENT AND FUTURE CHALLENGES

Key challenges where Arkema is making a difference	ARKEMA'S SOLUTIONS
INCREASING URBANIZATION • Facilitate the transportation of energy and water, as well as access to high-quality water. • Treat domestic and industrial wastewater and other waste. • Meet changing demand for consumer products. • Improve thermal and acoustic insulation, comfort and air quality in housing	• **Advanced materials** for water ultrafiltration (Kynar® PVDF) and transportation (Rilsan® polyamides) • **Hydrogen peroxide and acrylics** to disinfect water and treat wastewater • **Acrylics and adhesives** for hygiene, **thiochemicals** for animal feed and **advanced materials** for sport, cosmetics and packaging • **Adhesives and sealants** by Bostik for insulation and sealing and **low-VOC coating resins** for paints
RESOURCE SCARCITY • Contribute to the development of new energies, such as lithium-ion batteries for electric vehicles, photovoltaics and wind power. • Promote eco-design: - Develop products made from bio-based, renewable or recycled raw materials - Extend products' lifespan - Recycle end-of-life products. • Optimize the consumption of energy, raw materials and water.	• **Advanced materials** for new energies: Kynar® PVDF for batteries and solar power, Apolhya® for solar power, Elium® recyclable resin for wind power • **Bio-based** Rilsan® polyamides 11 and 10, made from castor oil plants • Kynar® PVDF and Kynar Aquatec® coatings for reflective roofs. Kercoat® and Opticoat® coatings for glass bottles • Elium® recyclable resin for composites and the Cecabase RT® additive for asphalt, and specialty surfactants for mining
CLIMATE CHANGE • Make vehicles and aircraft lighter, to limit their fuel consumption and reduce their CO_2 emissions. • Improve buildings' energy performance to reduce energy, heating and air-conditioning needs. • Reduce greenhouse gas (GHG) emissions across the whole value chain.	• **Lightweighting solutions:** - **Advanced materials used as substitutes for metal**: Rilsan® HT, Kepstan® PEKK and thermoplastic composites (Elium®) - Altuglas® ShieldUp as a substitute for glass - **Adhesives** for the assembly of metal parts, as a substitute for mechanical bonding • **Thermal insulation solutions:** - Adhesives and sealants by Bostik - Kynar Aquatec® coatings for reflective roofs • Development of HFO refrigerants with a very low global warming potential • 2030 target to reduce Group-wide GHG emissions to 2,950 kt CO_2 eq. consistent with the Paris Agreement
NEW TECHNOLOGIES • Contribute to the development of new markets (e.g., consumer electronics and sensors). • Speed up the expansion of new production technologies such as 3D printing. • Leverage digital technologies to support operational and commercial excellence.	• **Advanced materials** for digital mobility devices (technical polymers for smartphones and tablets and Kynar® PVDF for batteries) • **Full range of resins for 3D printing:** - Sartomer's N3xtDimension®, Kepstan® PEKK, Rilsan® polyamides - for major additive manufacturing technologies • **Digital plant** thanks to the deployment of predictive maintenance tools and 3D and 4D technologies

A GROUP UNDERGOING IN-DEPTH TRANSFORMATION

ARKEMA AIMS TO CONSOLIDATE ITS POSITION AMONG THE GLOBAL LEADERS IN SPECIALTY CHEMICALS BY ACCELERATING THE DEVELOPMENT OF THESE BUSINESSES, ESPECIALLY ADHESIVES, ADVANCED MATERIALS AND PERFORMANCE RESINS, WHILE CONTINUING TO REBALANCE ITS GEOGRAPHIC EXPOSURE. THIS REPOSITIONING IS SUPPORTED WITH AMBITIOUS FINANCIAL TARGETS.

ACCELERATING THE DEVELOPMENT OF SPECIALTY BUSINESSES

CONTINUING THE GEOGRAPHIC REBALANCING

AMBITIOUS FINANCIAL TARGETS

Following the stock market listing in May 2006, Arkema shifted toward a significantly higher proportion of high value-added specialty businesses, which are more resilient, close to end customers, and offer substantial growth potential. Arkema's target is for these businesses to account for **more than 80% of Group sales by 2023** compared with 72% currently and 44% in 2005.

Adhesives would therefore account for over one-third of the Group's total sales, which are expected to more than double. Arkema intends to participate fully in the consolidation of this attractive but still fragmented market and continue its expansion into new regions and high-growth niche markets.

Given the Group's many industrial projects, advanced materials that offer significant opportunities for innovation in such areas as lightweight materials, bio-based polymers, new energies and consumer goods design, are expected to account for over 25% of sales.

Together with its in-depth profile change, Arkema rebalanced its geographic exposure by developing its activities in North America and high-growth countries, primarily in Asia.

In 2019, Group sales by region broke down as follows: 36% in Europe (57% in 2005), 32% in North America (25% in 2005), 32% in Asia/Rest of the world (18% in 2005).

Arkema aims to finalize, by 2023, this geographic rebalancing with Europe, North America and Asia and the Rest of the world, each accounting for one-third of total sales.

For 2023, Arkema is aiming to achieve a REBIT margin of between 11.5% and 12.5% – with a target of 12.5% to 13% for adhesives and of 14% to 15% for advanced materials – and a high EBITDA to cash conversion rate of 35%.

This ambition will be achieved with strict financial discipline, notably a net debt to EBITDA ratio of less than 2 and a return on capital employed [1] of at least 10%, while preserving a solid investment grade rating.

Defined in normalized market conditions.

(1) (REBIT - current taxes)/(net debt + shareholders' equity).

A STRONG **CSR AMBITION**

THE GROUP HAS DEFINED A WELL-ESTABLISHED ROADMAP WITH A TARGET TO BE AMONGST THE TOP PERFORMERS IN THIS AREA. THIS INCLUDES NON-FINANCIAL TARGETS FOR 2025 WHICH DEMONSTRATE ARKEMA'S COMMITMENT TO CONTINUOUS PROGRESS IN SAFETY AND DIVERSITY. HAVING MET THREE OF ITS FOUR TARGETS ON ENVIRONMENTAL ISSUES IN 2018, THE GROUP HAS DEFINED NEW, MORE AMBITIOUS TARGETS FOR 2030.

CSR TARGETS

SAFETY — BY 2025

Total recordable injury rate

TRIR < 1,2

(including subcontractor employees)

Process safety event rate

PSER < 3

CLIMATE AND ENVIRONMENT — BY 2030

Climate (1)

Greenhouse gas emissions: **-38%**

Environment (2)

-20% Net energy purchases

-65% Volatile organic compound emissions

-60% Chemical oxygen demand

EMPLOYMENT — BY 2025

23% to 25%

Percentage of women in senior management and executive positions

42% to 45%

Percentage of non-French nationals in senior management and executive positions

(1) Absolute target compared with 2015 for Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol, consistent with the Paris Agreement.

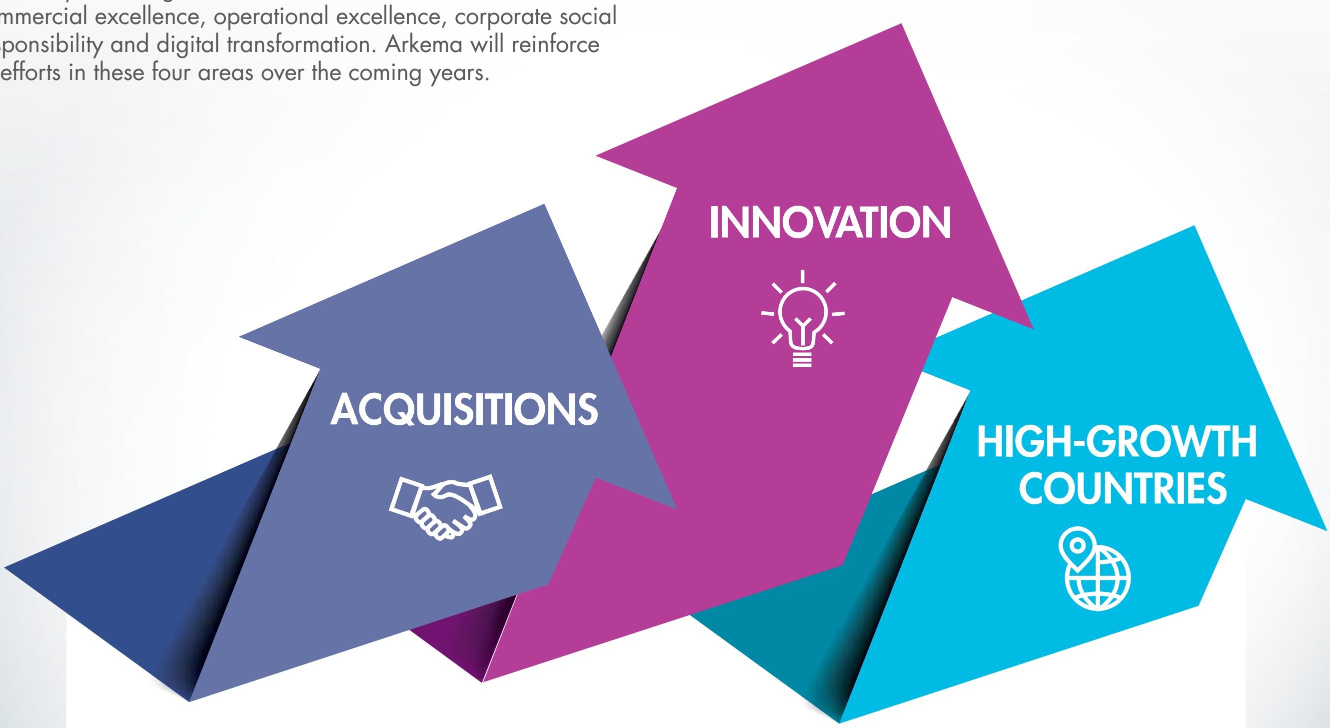
(2) In EFPI terms compared with 2012

ARKEMA IS ENGAGED IN A STRONG TRANSFORMATION PROCESS TOWARD SPECIALTIES

OUR STRATEGY

TO ACHIEVE ITS AMBITION, ARKEMA CONTINUES TO IMPLEMENT AN AMBITIOUS TRANSFORMATION STRATEGY BASED ON THREE STRONG GROWTH DRIVERS: INNOVATION FOR SUSTAINABLE DEVELOPMENT, TARGETED ACQUISITIONS IN HIGH VALUE-ADDED SPECIALTIES, AND CUTTING-EDGE INDUSTRIAL INVESTMENTS TO SUPPORT CUSTOMERS AND PARTNERS IN HIGH-GROWTH REGIONS.

To grow further, the Group benefits as well from very solid foundations and is implementing initiatives in four cross-functional areas: commercial excellence, operational excellence, corporate social responsibility and digital transformation. Arkema will reinforce its efforts in these four areas over the coming years.



COMMERCIAL EXCELLENCE

OPERATIONAL EXCELLENCE

DIGITAL TRANSFORMATION

CORPORATE SOCIAL RESPONSIBILITY

FIRST STRATEGIC PRIORITY

INNOVATION FOR SUSTAINABLE DEVELOPMENT

TECHNOLOGICAL INNOVATION IS AT THE HEART OF ARKEMA'S STRATEGY AND A KEY GROWTH DRIVER, FOSTERING THE DEVELOPMENT OF SUSTAINABLE SOLUTIONS IN PRODUCTS, PRODUCT APPLICATIONS AND PRODUCTION PROCESSES.

Supporting customers in addressing today's challenges

Arkema develops new products and applications to meet customers' increasingly demanding needs in leading-edge sectors such as aerospace, automotive, consumer electronics, new energies and oil and gas. Thanks to its 15 R&D centers across the world, the Group adapts its solutions to customers' specific expectations in each region.

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 developed Kepstan® PEKK – a material for extreme environments that can withstand temperatures of up to 260°C – following ten years' R&D work, for which a production unit started operating in early 2019 in the United States.

Contributing to operational excellence

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

Assessing the sustainability of our solutions

Since 2018, the Group has implemented a process to analyze and assess its portfolio of solutions in light of sustainability criteria and contribution to the United Nations' Sustainable Development Goals. At end-2019, 44% of sales had been assessed, of which 46% significantly contribute to the Sustainable Development Goals.

KEY FIGURES (2019)

Over **1,600**
RESEARCHERS

€249M
IN EXPENDITURE

3.8%
OF ADVANCED MATERIALS SALES

15 R&D centers
ACROSS THE THREE HUBS IN EUROPE, ASIA AND NORTH AMERICA

222
PATENT APPLICATIONS FILED

> 65%
RELATING TO SUSTAINABLE DEVELOPMENT

6 innovation platforms ideally positioned to meet tomorrow's challenges

In today's world of powerful global trends, such as increasing urbanization, resource scarcity, climate change and new technologies, Arkema focuses its research efforts to ensure its solutions adequately address market demand and specific customer expectations worldwide.

Based on this work, which is reviewed regularly, the Group has set up 6 innovation platforms which contribute to 6 United Nations' Sustainable Development Goals.

BIO-BASED PRODUCTS

- Around 9% of total Group sales
- Specialty Rilsan® polyamides 11 and 10 made from castor oil for the automotive, energy, optics and electronics industries

LIGHTWEIGHT MATERIALS AND DESIGN

- Specialty polyamides, Kepstan® PEKK and Elium® recyclable resin, in particular for thermoplastic composites used in the automotive, aerospace and oil and gas sectors
- N3xtDimension® UV curable resins, specialty polyamides and Kepstan® PEKK for 3D printing

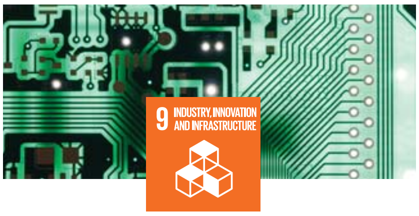
NEW ENERGIES

- Kynar® PVDF (separator coatings and binders) and Foranext® electrolytes for batteries
- Kynar® PVDF for photovoltaics
- Elium® recyclable resin for wind power

WATER MANAGEMENT

- Kynar® PVDF for water ultrafiltration
- Albone® hydrogen peroxide to treat drinking water

ELECTRONICS SOLUTIONS



- Kynar® PVDF and specialty polyamides for tablets and smartphones
- Piezotech® piezoelectric polymers for connected objects

HOME EFFICIENCY AND INSULATION

- Adhesives and sealants for windows, doors and insulation panels
- Acrylic emulsions with a low volatile organic compounds content

Numerous Partnerships WITH UNIVERSITIES AND PUBLIC AND PRIVATE RESEARCH LABORATORIES

46% OF SALES ASSESSED SIGNIFICANTLY CONTRIBUTING TO THE SDGs (1)

2019 HIGHLIGHTS

- Opening, with Hexcel, of a joint research and development laboratory in France as part of their strategic alliance to develop thermoplastic composite solutions for the aerospace sector
- In 3D printing
  - Partnership with Carbon®, the world leader in digital manufacturing, to develop next-generation high performance materials made with Sartomer's liquid resins, and Arkema's acquisition of a $20 million equity interest in Carbon®
  - Inauguration of a new Center of Excellence dedicated to 3D printing with high-performance polymer powders
- Launch of Virtucycle™, a new post-industrial and post-consumer recycling program for high-performance polyamides and PVDF fluoropolymers with partner Agiplast

(1) On the basis of an assessment of 44% of the Group's third-party sales in 2019.

SECOND STRATEGIC PRIORITY

INVESTMENT IN HIGH-GROWTH REGIONS

ARKEMA HAS AN AMBITIOUS INVESTMENT STRATEGY IN NORTH AMERICA AND HIGH-GROWTH COUNTRIES, PRIMARILY IN ASIA, WHICH COVER KEY GROWTH MARKETS FOR THE GROUP, INCLUDING CONSUMER PRODUCTS (ELECTRONICS, SPORTS AND HYGIENE), NEW ENERGIES AND TRANSPORTATION.

ARKEMA CONTINUES TO REBALANCE ITS GEOGRAPHIC EXPOSURE AND, IN 2019, MADE 32% OF ITS SALES IN ASIA AND THE REST OF THE WORLD, 32% IN NORTH AMERICA AND 36% IN EUROPE.

2020

THIOCHEMICALS

Doubling of production capacity in Kerteh

Markets: animal feed, oil and gas, refining

ADVANCED MATERIALS

25% increase in PA12 global production capacity

Markets: lightweight materials, sports, electronics

ADVANCED MATERIALS

50% increase in PVDF production capacity for batteries

Markets: lithium-ion batteries

ADHESIVES

New world-class adhesives plant in Nara

Markets: non-woven, industrial adhesives

LARGE-SCALE INDUSTRIAL PROJECTS

2022

ADVANCED MATERIALS

50% increase in PA11 global production capacity

Markets: lightweight materials, sports, electronics

An ambitious investment policy

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

In addition to this recurring capital expenditure, the Group will invest around **€500 million [(1)] in exceptional** capital expenditure in the period 2018-2021 on:

- a doubling in production capacity of the thiochemicals platform in Malaysia; and
- a major investment plan announced in specialty polyamides in Asia, notably with the construction of a new monomer and Rilsan® polyamide 11 production facility in Singapore to support the high customer demand for lightweight bio-based materials in the automotive, 3D printing and consumer products markets.

In 2020, Arkema's recurring and exceptional capital expenditure is expected to amount to around €700 million.

2019 HIGHLIGHTS

- €607 million in recurring and exceptional capital expenditure
- Recurring capital expenditure at 5.8% of Group sales
- Start-up of the Kepstan® PEKK facility in Mobile, United States, for aerospace, oil and gas and 3D printing markets
- Start-up of a 30% capacity extension for photocure advanced liquid resins in Nansha, China, in order to meet strong demand in Asia in the electronics, 3D printing, adhesives and inkjet printing markets
- Start-up of a new production line for ultra-high performance polyamide 12 powders at the Mont plant in France, thus boosting global capacity by over 50% to support the increase in demand in the coatings, personal care, composites and 3D printing markets
- Start-up of a new 90,000-ton per year acrylic acid reactor at our Clear Lake site in Texas, to support the growth of our North American customers in the superabsorbents, paints, adhesives and water treatment markets
- Start-up during the first semester 2020 of the doubling of the methyl mercaptan production capacity at its Kerteh site in Malaysia to support the strong growth of the animal feed market

(1) For the specialty polyamides project, gate 3 estimation with a EUR/USD rate of 1.15.

THIRD STRATEGIC PRIORITY

TARGETED ACQUISITIONS TO STRENGTHEN HIGH VALUE-ADDED SPECIALTIES

ARKEMA PURSUES A POLICY OF TARGETED, SMALL TO MID-SIZED ACQUISITIONS, FOCUSED ON ADHESIVES, ADVANCED MATERIALS AND PERFORMANCE RESINS IN DOWNSTREAM ACRYLICS. THESE TRANSACTIONS WILL ENABLE THE GROUP TO INCREASE ITS MARKET SHARE IN THESE AREAS, STRENGTHEN ITS PORTFOLIO IN HIGH VALUE-ADDED SPECIALTY BUSINESSES AND INCREASE ITS RESILIENCE.

Acquisitions that create long-term value

In line with its ambition to carry out sustainable transactions that create value, the Group aims to make acquisitions offering significant synergies, thereby reducing the transactions' enterprise value to EBITDA multiple of about 7-8 times, four or five years after the acquisition and following the full implementation of synergies.

These synergies could correspond to:

- cost synergies on purchases of raw materials, goods and services or logistics, or achieved by centralizing certain support functions or strengthening operational excellence programs; and
- new geographic, technological or commercial developments driven by the strategic fit between Arkema and the acquired businesses.

The potential acquisitions should also have an accretive impact on earnings per share and on cash generation between the first and second year of integration.

This ambition goes hand-in-hand with strict financial discipline. Arkema thus intends to maintain a very solid balance sheet and to keep a solid investment grade rating with the rating agencies and a net debt to EBITDA ratio below 2 by 2023.

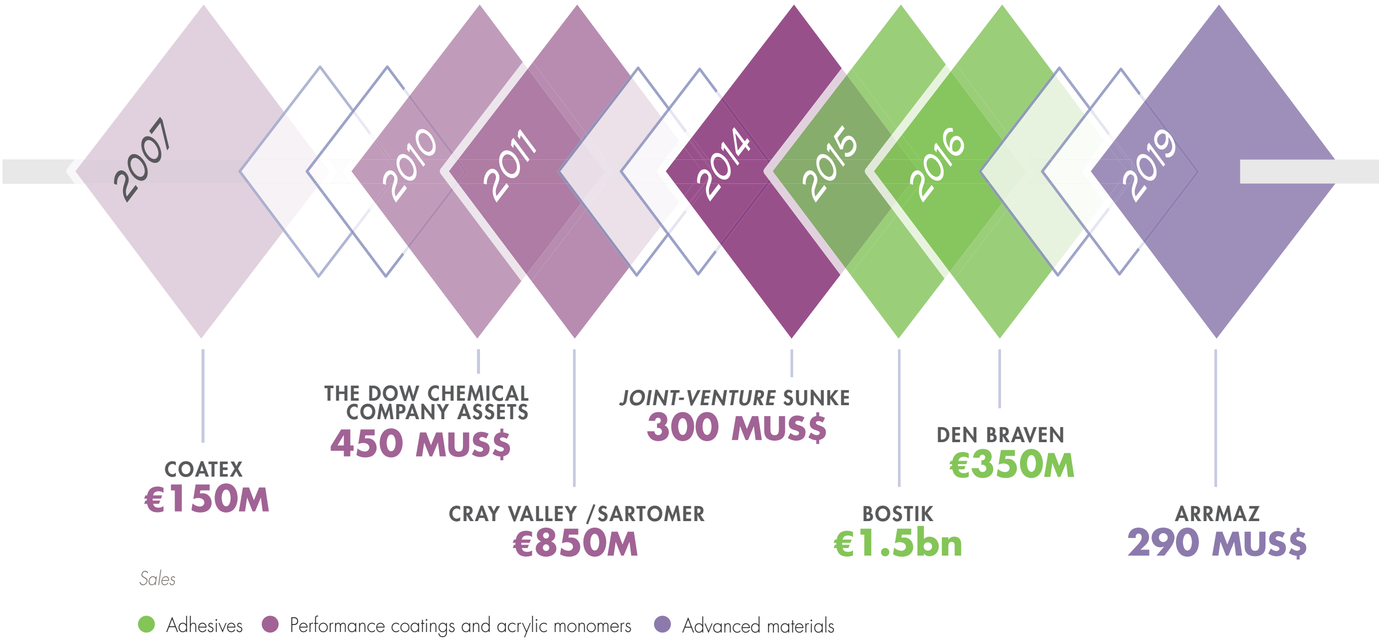
2019 HIGHLIGHTS

Targeted acquisitions in:

- Performance Additives
  - ArrMaz, a global leader in specialty surfactants for crop nutrition, mining and road infrastructure markets, with sales of US$290 million and an EBITDA margin of 18%, for an enterprise value of US$570 million.
  - Lambson, specialized in photoinitiators for curing in the electronics, 3D printing, digital ink, composites and high performance coatings markets.
- Adhesives
  - Prochimir, specialized in high performance thermobonding adhesives for the automotive, construction, textile and medical markets.
  - LIP Bygningsartikler AS (LIP), the Danish leader in tile adhesives, waterproofing systems and floor preparation solutions, finalized in early 2020.

TRANSFORMATIONAL ACQUISITIONS

Since 2006, thanks to active portfolio management, Arkema has significantly increased its presence in the performance coatings value chain, entered the attractive adhesives market, and strengthened its business portfolio in advanced materials, especially Performance Additives.



A targeted divestment program

Arkema is also continuing its program to divest small non-core businesses representing a total of around €700 million in sales.

In October 2019, Arkema announced the project* of divestment of its Functional Polyolefins business to SK Global Chemical, a major chemicals player in South Korea. Part of the PMMA *Business Line*, the Functional Polyolefins business represents sales of some €250 million. The offer received is based on an enterprise value of €335 million. The project is expected to be finalized in the second quarter of 2020.

As part of this divestment program, Arkema has finalized the following divestments:

- in late 2016, the activated carbon and filter aid business, which generated around €93 million in sales, for an enterprise value of €145 million;
- in late 2015, Sunclear, a plastic and aluminum sheet distribution business that generated sales of around €180 million, for an enterprise value of €105 million.

* *The proposed disposal is subject to the approval of the relevant antitrust authorities.*

FIRST PILLAR

COMMERCIAL EXCELLENCE

CUSTOMERS ARE CENTRAL TO ARKEMA'S STRATEGY AND ITS INNOVATION POLICY. MEETING THEIR NEEDS AS EFFECTIVELY AS POSSIBLE AND PROMOTING THE DIVERSITY OF THE GROUP'S SOLUTIONS ARE THE TWO MAIN OBJECTIVES OF ARKEMA'S COMMERCIAL EXCELLENCE PROGRAM.

A cross-functional approach

Arkema develops a commercial excellence program through targeted initiatives designed to improve customer relationships, which is supported by:

- a collaborative Customer Relationship Management (CRM) tool used to share customer data, manage development opportunities and implement synergies for multi-business customers. This CRM system is being rolled out in 2020 across the entire sales organizational structure;
- implementation of reporting tools that can be used by our sales teams to fine-tune business analysis and management;
- rollout of the Sales Academy, a program of dedicated, ongoing training courses aimed at sales teams, to develop their expertise in sales processes and customer relations;
- a network of key account managers who supervise and consolidate relationships with certain key customers in order to more effectively meet their needs while taking advantage of cross-business synergies that can emerge from the Group's various businesses;
- internal working groups with members from several *Business Lines* that aim to optimize the Group's commercial offering on its major markets;
- targeted sales actions in high-growth regions where Arkema plans to strengthen its positions, such as Southeast Asia, India and the Middle East.

The impact of this program will be assessed in 2020 through a customer satisfaction survey, which we will initially set up and gradually standardize for all Arkema customers. All these initiatives involve an approach of listening and developing a close relationship with the customer.

Strategic partnerships

CJ 프레시웨이 NOVUS DAIKIN ARKEMA Carbon® HEXCEL®

To strengthen its customer relationships over the long term, Arkema forges strategic partnerships with key customers that are leaders in their markets or areas of expertise. Some relate to industrial developments, such as the partnership with Daikin in refrigerants or with CJ CheilJedang and Novus in Thiochemicals. Others are innovation-oriented, like the partnerships signed in 2018 and 2019 with Hexcel in thermoplastic composites and Carbon® in 3D printing.

Recognized solutions

ELU PRODUIT DE L'ANNÉE 2019

Bostik gained recognition by consumers, who voted Fix & Flash "Product of the Year 2019" in the "repair glue" category. With Fix & Flash, Bostik makes a cutting-edge professional technology available to the general public for the first time. A break with the traditional world of bonding, Fix & Flash uses LED light to ensure fast curing, on any surface and any material.

Expanded services portfolio

To support the sale of its products, Arkema regularly enhances its portfolio of services. The Carelflex® technical assistance service, developed in the Thiochemicals business and dedicated to the use of DMDS at refineries and petrochemical plants, is a good example of this. The Group's experts work directly at client sites, worldwide, to advise and train the technicians who use its products, thereby ensuring the highest quality of service.

3D PRINTING SOLUTIONS BY ARKEMA

In late 2018, Arkema launched "3D Printing Solutions by Arkema", a commercial platform dedicated to its range of materials for 3D printing. The platform will maximize synergies between the various product lines involved and strengthen the Group's expertise and the close ties developed with its customers, partners and equipment manufacturers.

This collaborative development draws on a team of expert engineers and our three centers of excellence, each dedicated to a specific technology: UV-curable additive manufacturing at Exton in the United States, powder bed fusion at the Cerdato Research and Development Center in Serquigny, France, and filament extrusion at King of Prussia in the United States.

SECOND PILLAR

CORPORATE SOCIAL RESPONSIBILITY

IN A WORLD FACED WITH A MULTITUDE OF ECONOMIC, ENVIRONMENTAL AND SOCIAL CHALLENGES, ARKEMA AIMS TO GENERATE SUSTAINABLE AND RESPONSIBLE GROWTH AND CONTRIBUTE TO ADDRESSING THOSE SOCIAL AND ENVIRONMENTAL ISSUES BY PROVIDING ITS CUSTOMERS WITH SUSTAINABLE AND INNOVATIVE SOLUTIONS THAT CONTRIBUTE TO THE SUSTAINABLE DEVELOPMENT GOALS DEFINED BY THE UNITED NATIONS.

THREE KEY OVERARCHING COMMITMENTS

DELIVER **SUSTAINABLE SOLUTIONS** DRIVEN BY **INNOVATION**

- Solutions that address societal challenges
- Innovation at the heart of the activities
- Product stewardship

MANAGE OUR **ACTIVITIES AS A RESPONSIBLE MANUFACTURER**

- Safety of people and processes
- Health
- Environmental footprint reduction

CULTIVATE AN **OPEN DIALOGUE** AND **CLOSE RELATIONS WITH OUR STAKEHOLDERS**

- Ethics
- Human rights
- Diversity and employee development
- Responsible value chain
- Corporate citizenship

A clear roadmap

To measure long-term progress under its commitment to corporate social responsibility, Arkema has set a number of specific targets:

- **4 environmental targets**, which contribute to reducing the Group’s environmental footprint and cover its greenhouse gas emissions in accordance with the Paris Agreement, its emissions to air, effluent releases and net energy purchases;
- **4 safety targets**, the most important ones being a reduction in the total recordable injury rate and in process safety events; and
- **2 diversity targets**, aimed at raising the percentage of women and of non-French nationals in senior management and executive positions.

Regular interaction with stakeholders

To validate its CSR approach and the relevance of the challenges identified with regard to its various stakeholders (employees, customers, research partners, suppliers, financial community, etc.), Arkema carried out in 2019 a new materiality assessment. This assessment confirmed the aims of its corporate social responsibility policy and pointed to two emerging priorities: workplace quality of life and the circular economy.

A proactive improvement process

Arkema is engaged in a process to improve its CSR performance, with the aim of being included in the *Dow Jones Sustainability Index* (DJSI).

The Group’s approach and performance in the various areas of CSR are regularly assessed by external stakeholders including customers and SRI rating agencies.

SAM Now a Part of S&P Global

GOLD 2019 ecovadis CSR Rating

FTSE4Good

EURONEXT vigeo eiris INDICES

CDP DRIVING SUSTAINABLE ECONOMIES

THIRD PILLAR

OPERATIONAL EXCELLENCE

DEVELOPING A CULTURE OF OPERATIONAL EXCELLENCE TO ENSURE THAT THE COMPETITIVENESS AND SUSTAINABILITY OF ITS INDUSTRIAL SITES IS A PRIORITY FOR ARKEMA AND A KEY PILLAR OF ITS STRATEGY.

Our 5 commitments

1. Being a top-quartile performer in the chemical industry in terms of safety and environmental footprint

Arkema continues to improve its safety and environmental performance in line with its 2025 targets for safety and 2030 targets for the climate and the environment.

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

Through investments and the rollout of high-performance digital systems, Arkema is constantly improving its industrial facilities and strengthening the competitiveness and reliability of its main production sites.

Thanks to a global goods and services procurement strategy, Arkema also optimizes its operational costs and industrial investments.

To reduce variable costs, Arkema optimizes raw materials consumption and energy efficiency thanks to continuous process improvement developed under its R&D program and targeted investments under its Arkenergy program.

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

With its Ambition program whose roll-out was completed in 2017, Arkema reorganized its IT systems to optimize its supply chain and thereby improve its customer service quality. Arkema extended this program in 2018 by setting up a dedicated Supply Chain department, with ambitious targets on improving customer service quality. Reducing working capital is a supply chain target but does not improve customer service quality.

4. Developing the technological innovation policy across different activities

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. Promote and reinforce employee engagement

In order to sustain its safety and environmental performance, Arkema develops an operational excellence culture amongst employees and promotes their day-to-day actions that contribute to the Company's continuous progress.

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

Our approach

To implement its operational excellence program, Arkema launched a continuous progress initiative across all Group businesses and subsidiaries. It covers the following points:

- constant assessment of areas of improvement and progress potential in each of the Group's businesses;
- definition of precise targets for each production site on safety, environment, reliability, productivity and raw materials consumption;
- monitoring of key performance indicators at each site;
- identification and sharing of best practices across the Group; and
- involving all employees in the process of improving the performance of production units, with the gradual roll-out of the Smart project.

SMART
BUILDING ON OUR PROGRESS TOGETHER

The Smart project enables all employees at all levels to foster continuous improvement in the workplace by giving them the means to make active contributions, in terms of improving operational performance or solving problems that they encounter. It is being phased in at a pace of 15 to 20 sites per year, with rollout set to be completed across all Group sites by 2025.

FOURTH PILLAR

DIGITAL TRANSFORMATION

New digital technologies are deeply changing customer interactions and the understanding of our markets' evolution, thereby opening up new growth opportunities for the Group. Against this backdrop of increasing digitalization, Arkema created a digital transformation program, which focuses on four key areas: customer experience, new business models, digital plant and employee experience.

Customer experience

By analyzing the large volumes of available data for market and customer experience to gain **a better understanding** of the needs and expectations of customers and end users, and by targeting its portfolio of solutions and adapting its marketing tools and content to the target market, Arkema can respond **more quickly and more efficiently** to the needs of its customers and prospects. Bostik is also stepping up its consumer-oriented digital strategy with the deployment of e-business campaigns, online tutorials and digital collaboration with major retailers.

Digital plant

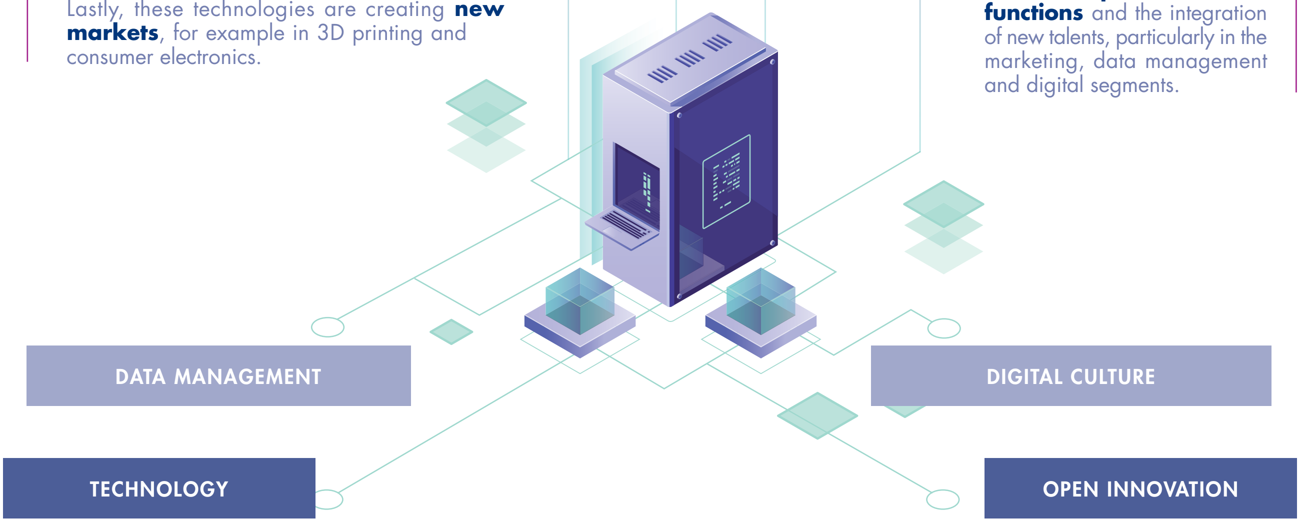
3D and 4D technologies, augmented reality, remote monitoring and management, and predictive maintenance all contribute to enhancing the **competitiveness of industrial sites** and to optimizing production line ergonomics. These digital tools change the way industrial projects are managed, significantly reducing the time required to start up new industrial units and ensuring **digital continuity** between construction and the start of operations.

New business models

Increasingly efficient digital tools are significantly changing the way Arkema operates and interacts with its customers, allowing the Group **to develop new services**. Thanks to product connectivity, increased traceability and the (sometimes remote) use of technical data, Arkema **is progressively expanding its offer**, going beyond its products, to optimize its customers' operations. In R&D, powerful molecular modeling tools make it possible to simulate and predict the performance of materials, driving faster development of **new products** and more advanced customer support. Lastly, these technologies are creating **new markets**, for example in 3D printing and consumer electronics.

Employee experience

Simplifying and automating certain processes and developing a digital culture and more collaborative spaces help foster **innovation, interaction and agility** within the Group. Beyond its impact on day-to-day work, digitalization also requires an increase in employee training, the **development of new functions** and the integration of new talents, particularly in the marketing, data management and digital segments.



OUR BUSINESS MODEL

Develop, as a responsible industrial company, innovative solutions adapted to our customers' main challenges and support them in their quest for sustainable performance

OUR STRENGTHS (1)

COMMERCIAL STRENGTHS

- **Top 3** 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 **144 production sites**
- **€6.4 billion** in tangible and intangible assets

R&D STRENGTHS

- **6 innovation platforms** focused on the megatrends shaping the future
- **More than 1,600 researchers** in **3 regional R&D centers** worldwide
- A robust intellectual property portfolio with over **10,000 patents**

HUMAN CAPITAL

- **20,500 employees** embracing the Company's values and engaged in its long-term project

FINANCIAL STRENGTHS

- Limited debt with a **net debt** of **1.1x EBITDA**

OUR VALUE CREATION MODEL

OUR VALUES

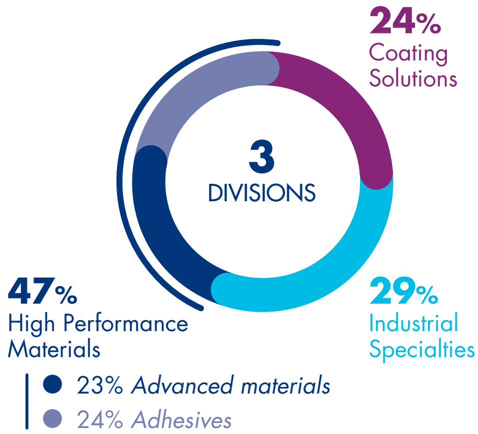
PERFORMANCE

ACCOUNTABILITY

SOLIDARITY

SIMPLICITY

OUR ORGANIZATION



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

(1) See pages 6 and 7.
(2) (REBIT - current taxes)/(net debt + shareholders' equity).
(3) Total recordable injury rate per million hours worked.
(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 PRIORITIES

OFFER

sustainable solutions driven by innovation and product stewardship

- Develop lighter materials
- Increase the use of renewable raw materials
- Facilitate access to safe drinking water
- Contribute to the development of new energies
- Improve the energy performance of buildings
- Contribute to the development of disruptive technologies
- Extend products' lifespan and promote the circular economy

SUPPORT

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

ACT

as a responsible manufacturer deeply rooted in host communities

- Ensure personal and equipment safety
- Reduce our environmental footprint
- Contribute to the development of host communities in countries where we operate

OUR AMBITION

Ensure steady growth and high profitability, led by specialty businesses that should account for **more than 80% of sales** in 2023

FINANCIAL TARGETS (2023)

REBIT margin	EBITDA to cash conversion rate
11.5% to **12.5%**	**35%**

Under strict financial discipline

ROCE [2] **at least 10%**

Net debt **< 2x EBITDA**

Solid **investment grade** rating

LONG-TERM EXTRA-FINANCIAL TARGETS

Safety (2025)

- Injury rates: TRIR [3] **< 1.2**
- Process safety event rate: PSE [4] **< 3**

Climate and Environment [5] (2030)

- Climate (greenhouse gas emissions): **-38%**
- Water (chemical oxygen demand): **-60%**
- Air (volatile organic compound emissions): **-65%**
- Energy (net energy purchases): **-20%**

Employment (2025)

- Percentage of women in senior management and executive positions: **23%** to **25%**
- Percentage of non-French nationals in senior management and executive positions: **42%** to **45%**

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 VALUE FOR ITS STAKEHOLDERS.

SUPPLIERS AND CUSTOMERS

Deliver innovative, sustainable solutions tailored to customers' specific needs

1 600 SUPPLIERS REGARDING CSR REPRESENTING over **50%** OF THE GROUP'S PURCHASE [1]

222 PATENT APPLICATIONS FILED over **65%** RELATING TO SUSTAINABLE DEVELOPMENT

Numerous Partnerships ANNOUNCED WITH HEXCEL IN THERMOPLASTIC COMPOSITES AND CARBON® IN 3D PRINTING

46% OF SALES ASSESSED SIGNIFICANTLY CONTRIBUTING TO THE SDGs [2]

REGIONS

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

2019 Data

€607M IN RECURRING AND EXCEPTIONAL CAPITAL EXPENDITURE

€156M CURRENT CASH TAX

Numerous Partnerships IN RESEARCH WITH PUBLIC LABORATORIES AND UNIVERSITIES (ÉCOLE POLYTECHNIQUE IN FRANCE, MONASH UNIVERSITY IN MALAYSIA)

Nearly 1,000 COMMON GROUND® INITIATIVES TAKEN AT **about 80%** OF THE GROUP'S PRODUCTION SITES

Financing OF PROJECTS TO SUPPORT EDUCATION, THROUGH A DEDICATED FUND, LED BY 33 NON-PROFITS IN **9 countries**

(1) Together for Sustainability.

(2) On the basis of an assessment of 44% of the Group's third-party sales in 2019.

Over the next few years, the Group will endeavor to move forward with this plan to continue creating long-term value for all its stakeholders, both internal and external, and especially its employees, customers, shareholders and regions where Arkema operates.

€1.5bn PAYROLL EXPENSES

20,500 EMPLOYEES

25.3% WOMEN

1.4 INJURY RATE

6.3% OF CAPITAL OWNED BY EMPLOYEES

25 hours OF TRAINING ON AVERAGE PER EMPLOYEE PER YEAR

Promote the individual and collective development of all Group employees

EMPLOYEES

12% RETURN ON AVERAGE CAPITAL EMPLOYED

€667M FREE CASH FLOW

€2.70* 2019 DIVIDEND PER SHARE

+26.3% SHARE PERFORMANCE IN 2019

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

SHAREHOLDERS

** Dividend proposed at the annual general meeting on 19 May 2020.*

STRONG AND EFFICIENT **GOVERNANCE**

ARKEMA'S CORPORATE GOVERNANCE COMPRISES A BOARD OF DIRECTORS, WITH A CHAIRMAN AND CHIEF EXECUTIVE OFFICER, A SENIOR INDEPENDENT DIRECTOR, AS WELL AS TWO SPECIALIZED COMMITTEES. THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER IS ALSO SUPPORTED BY AN EXECUTIVE COMMITTEE COMPRISING SEVEN OPERATIONAL AND FUNCTIONAL EXECUTIVE VICE-PRESIDENTS.

COMPOSITION OF THE BOARD OF DIRECTORS

Arkema's Board of Directors comprises 13 directors, including 7 independent directors, 1 director representing employees and 1 director representing shareholder employees. Independence rate is at 64% (1), in line with the recommendations of the AFEP-MEDEF Code. Except for the director representing employees, directors are appointed for a four-year term by the ordinary shareholders' meeting.

13 DIRECTORS

45% WOMEN (2)

1 SENIOR INDEPENDENT

95% ATTENDANCE RATE IN 2019

64% INDEPENDENCE RATE (1)

Composition of the Board of Directors at 31 March 2020

		Age	Year of first appointment	Year current term expires	Other directorships in listed companies	Committees: Audit and Accounts	Committees: Nominating, Compensation and Corporate Governance
Thierry Le Hénaff	Chairman and Chief Executive Officer	56	2006	2020	1		
Yannick Assouad		61	2017	2021	2		
Jean-Marc Bertrand	Director representing shareholder employees	62	2018	2022	None		
Marie-Ange Debon		54	2018	2022	2	Chairman	
Ian Hudson		63	2019	2023	1	•	
Alexandre de Juniac		57	2018	2022	None		•
Victoire de Margerie		56	2012	2023	2		•
Laurent Mignon		56	2006	2023	2		
Hélène Moreau-Leroy	Senior independent director	55	2015	2023	None	•	
Thierry Morin		68	2006	2021	1		Chairman
Nathalie Muracciole	Director representing employees	55	2016	2020	None		
Marc Pandraud		61	2009	2021	None		
Fonds Stratégique de Participations	Shareholder with more than 10% of voting rights		2014	2022	4		
represented by Isabelle Boccon-Gibod		52			3	•	

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

AN EXPERIENCED AND DIVERSE BOARD OF DIRECTORS

In addition to gender balance in its composition, 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 chemicals industry in particular), finance, acquisitions and their integration, corporate social responsibility and digital; and
- a majority of independent directors.

Director skills matrix
(excluding the Chairman and CEO)

	CHEMISTRY	INDUSTRY	INTERNATIONAL CAREER	CEO	FINANCE	CSR	M&A	DIGITAL
	33%	58%	50%	33%	66%	33%	33%	33%
YANNICK ASSOUAD*		●		●	●			●
JEAN-MARC BERTRAND	●							●
MARIE-ANGE DEBON*		●			●		●	
IAN HUDSON*	●		●		●	●		
ALEXANDRE DE JUNIAC*		●	●	●				●
VICTOIRE DE MARGERIE*	●	●	●				●	
LAURENT MIGNON				●	●		●	●
HÉLÈNE MOREAU-LEROY*		●	●		●		●	
THIERRY MORIN		●	●	●	●			
NATHALIE MURACCIOLE	●					●		
MARC PANDRAUD*			●		●		●	
ISABELLE BOCCON-GIBOD		●	●		●	●		

**Independent directors.*

THE BOARD'S WORK

The Board of Directors
decides the Group's overall business strategy and oversees its implementation.

Its approval is required for:

- industrial **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, the Board of Directors promotes long-term value creation by the Group for all of its stakeholders, taking into consideration the social and environmental implications of its businesses.

8 MEETINGS
Including one meeting on Group strategy, with 100% attendance rate

95% ATTENDANCE RATE

TO ACCOMPLISH ITS MISSIONS, THE BOARD IS SUPPORTED BY

2 specialized committees

Audit and Accounts Committee

The Audit and Accounts Committee oversees matters including the quality of internal control and the reliability of information provided to shareholders and financial markets.

6 MEETINGS

100% ATTENDANCE RATE

Nominating, Compensation and Corporate Governance Committee

The Nominating, Compensation and Corporate Governance Committee issues recommendations on matters including the composition of the Board, the compensation policy for the Chairman and Chief Executive Officer, and good governance practices.

4 MEETINGS

92% ATTENDANCE RATE

Annual assessment of the Board of Directors' operating procedures

An assessment of the Board of Directors' operating procedures was carried out by an external consulting firm in cooperation with the Chairman of the Nominating, Compensation and Corporate Governance Committee and the Secretary of the Board of Directors.

More than 75% of directors consider that the operating procedures of Arkema's Board of Directors continued to improve compared with the last external assessment carried out in 2016.

A large majority of directors who also sit on the Boards of comparable companies consider the operating procedures of Arkema's Board of Directors to be the best, thanks to:

- the quality of discussions led by the Chairman and Chief Executive Officer, the ability to speak freely, as well as the active contributions from all directors; and
- the regular review of the strategy through frequent discussions with management and attendance at a strategy seminar.

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 climate conditions or to the economic, financial, competitive and regulatory environment in which the Group operates. 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 2019, 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 2019 consolidated financial statements and the 2018 consolidated financial statements.

The alternative performance indicators used by the Group are defined in note C.1 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

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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 a component of Arkema's targeted growth strategy and of its contribution to sustainable development. Innovation enables Arkema to:

- design and develop products and solutions while continually improving their performance;
- anticipate market trends, by capitalizing on the Group's commercial excellence, and develop today the products its customers will need in the years ahead; 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.

Whether aimed at manufacturing technologies, products or their applications, innovation makes it possible to create sustainable solutions.

This strategy of growth through innovation is supported by:

- a dedicated organization;
- a portfolio of research and development (R&D) projects;
- patent and trademark management;
- a research incubator;
- a collaborative innovation ecosystem; and
- the development of digitalization.

1.1.1 A dedicated organization

The Group's innovation structure is organized in a way that allows all stakeholders to contribute. It is based on:

- a Research and Development department that reports directly to the Chairman and Chief Executive Officer. The R&D department coordinates all of Arkema's research programs worldwide, the development of long-term research platforms and the implementation of partnerships. It also ensures that all 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. Lastly, it creates and steers corporate R&D programs and identifies disruptive development opportunities and new research areas;
- a Scientific Committee comprising representatives from the Sustainable Development department, the Process department, the Industrial Property department, the Business Lines' global R&D departments, the scientific departments and the Group'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 or suppliers, and collaborate with academic partners, notably by contributing to the supervision of doctoral theses.

In 2019, R&D expenditure totaled €249 million, representing 2.8% of Group sales. R&D expenditure as a percentage of sales varies between businesses. It is notably higher in specialty areas and particularly in the High Performance Materials division, where R&D helps find solutions for customers and respond to the major sustainable development trends. In 2019, Arkema's R&D teams comprised more than 1,600 researchers, spread across three regional research and innovation hubs.

R&D efforts break down among Arkema's three divisions and its corporate research program as follows:

- 10.5% for the corporate research program.
  Defined by the R&D department and subject to the approval of Arkema's Executive Committee, the program aims to prepare the breakthrough innovations that are driven by megatrends and that will be developed commercially by the Group's divisions at a later stage;
- 53% for the High Performance Materials division.
  Its R&D efforts focus in particular on the materials of tomorrow and the techniques for producing and assembling them. Innovations combining performance with sustainable

development include materials made from renewable feedstocks, materials and adhesives with a low environmental impact, lightweight materials for transportation as well as structural adhesives used to join these materials, and functional adhesives for construction and industry. The High Performance Materials division fuels its growth by expanding its product range and by adapting the performance and functions of its products to new market demands. The division's technical excellence is reflected in the strength of brands such as Rilsan®, Pebax®, Luperox®, Kynar®, Sartomer® and Bostik®, and in the widespread consumer awareness of retail brands like Sader® and Quelyd®;

- 20% for the Industrial Specialties division.
  Its R&D objectives focus on ensuring that the division's processes are competitive and finding new applications and end markets for its products. One of its primary objectives is to continuously improve its main processes, such as those used for fluorochemicals, thiochemicals and hydrogen peroxide, 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; and
- 16.5% for the Coating Solutions division.
  Its R&D teams develop innovative solutions for the coatings market while combining technical performance with sustainable development. In addition to working closely with customers to provide responsive technical support, the division's R&D teams also carry out process research, which enables them to optimize production costs and produce new formulas on an industrial scale.

1.1.2 A portfolio of research and development projects

Global population growth is already having an impact on demand for drinking water and energy, and in the areas of health, on well-being and transportation. It is also affecting climate change, biodiversity and the availability of resources. 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 4.1.1 of this document.

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

- bio-based products;
- lightweight materials and design;
- new energies;
- water management;
- electronics solutions; and
- home efficiency and insulation.

In addition to these six market-oriented innovation platforms, the Group also has a number of technology platforms focused on generating innovative production methods that promote the principles of eco-design. These platforms are described in section 1.1.2.7 of this chapter.

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's corporate social responsibility dimensions are integrated into all its R&D projects. When identifying the risks and opportunities of each project, Arkema takes into account the entire value chain, from raw material extraction to product end-life, as well as the UN Sustainable Development Goals. For further details, see section 4.2.3 of this document.

1.1.2.1 BIO-BASED PRODUCTS PLATFORM

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

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."

Arkema has developed a wide range of bio-based polyamides derived from the castor oil plant, which is mainly cultivated 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, Rilsan® Clear can now also be produced from bio-based raw materials, creating interesting new design possibilities for injection-molded parts. These transparent polymers offer greater flexibility and easier processing capabilities than existing solutions. Combining ultra lightweight, high transparency and chemical and mechanical resistance, Rilsan® Clear products offer new opportunities in various markets.

FOCUS

The Pebax® elastomer performs on all fronts

This constantly evolving, ultra-high performance elastomer continues to attract attraction. After the 2018 World Cup in Russia, where two-thirds of the players wore shoes containing Pebax® elastomer in the soles, this material also received significant exposure during the Women's World Cup 2019, of which Arkema was an official sponsor. The advantages of Pebax® material will continue to be highlighted during matches of D1 Arkema, the French women's football championship that the Group is sponsoring for three seasons. Our R&D teams have also developed a Pebax® foam that retains the exceptional properties of the Pebax® elastomer in its rigid form. The new foam has rapidly been integrated into high-end running shoes, boosting runner's performance thanks to an energy return of around 85%, twice the rate offered by standard materials. Pebax® technology was used in the shoes that enabled Kenyan runner Eliud Kipchoge to break the two-hour marathon barrier in Vienna on 12 October 2019, and in those worn by his compatriot Brigid Kosgei when she beat the women's world record at the Chicago Marathon the following day. A growing proportion of the Pebax® range comes from bio-based Pebax® Rnew® products.

Through its expertise and innovation in renewable polyamides, the Group offers:

- innovations in the iconic Rilsan® polymer range, a reference in the automotive and oil extraction industries;
- 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 applications in the eyewear industry;
- light, resilient elastomers capable of returning the elastic energy absorbed during deformation, like those used in Pebax Powered ® sports shoes (see focus above);
- rigid materials designed to serve as reinforcements in composites, such as the Platamid® or the Rilsan® XDM50 and XZM60 ranges designed for the numerous structural parts found in telephones, tablets and other mobile devices;
- Rilsan® Invent Natural fine powders, used in additive manufacturing *via* laser sintering; and
- Orgasol® Green Touch high-performance polyamide powders, used in cosmetics primarily for their sensorial properties.

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 study enzyme catalysis as a synthesis process for other products in its portfolio (see section 1.1.5 of this chapter).

The Group's ongoing commitment to bio-based products is demonstrated by the fact that products at least 20% made from renewable raw materials account for around 9% of Group sales.

1.1.2.2 LIGHTWEIGHT MATERIALS AND DESIGN PLATFORM

Global population growth, rising living standards, increased transportation 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 the 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 cannot be recycled 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 turbine and civil engineering 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 Elium® substitutes is expected to deliver weight savings of between 30% and 50%.

In addition, Arkema's R&D teams are assessing the processes for recycling the polymers used in thermoplastic composites, which will enable users to recycle their waste *via* dedicated channels.

FOCUS

Elium® resin, winner of the 2019 JEC Innovation Awards in the "Construction" category

Arkema received first prize in the "Construction" category at the 2019 JEC Innovation Awards. The award recognizes the development and manufacture of reinforcement bars (rebars) and cables for prestressed concrete applications, in partnership with SIREG (Arcore, Italy), the University of Miami, and the National Cooperative Highway Research Program (NCHRP).

Made from glass fiber and Elium® thermoplastic resin, these products have been processed through pultrusion using this technology's standard equipment. They do not rust or corrode, and they can be reheated and easily shaped or bent, reducing the cost of manufacturing rebars with custom shapes. As demonstrated by the University of Miami, the use of composite materials also allows concrete mixtures or salt-contaminated aggregates to be made using seawater instead of fresh water, with significant implications for island nations and arid coasts where fresh water is in short supply.

The use of composite materials for concrete prestressing is a major innovation, revolutionizing the durability of concrete construction to an unprecedented level since its invention in the 1930s.

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 Rilsan® polyamide 11 powders, Kepstan® PEKK powders and UV curable N3xtDimension® resins. 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 new global center of excellence for 3D printing based on powder bed fusion technologies in Serquigny, France in 2019. The new center complements the Group's existing 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. In addition, Arkema launched a commercial platform dedicated to 3D printing. Named "3D Printing Solutions by Arkema", the new 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.

FOCUS

Carbon® and Arkema partner to step up the adoption of digital manufacturing

Carbon®, the world's leading digital manufacturing company, and Arkema, a pioneer in advanced liquid resins for 3D printing, forged a strategic partnership in 2019 that included a US$20 million investment by Arkema in the start-up's capital. Since they started working together in 2013, Carbon® and Arkema have been driving innovation to scale process technology and resin manufacturing to enable parts made by Digital Light Synthesis™ technology to be increasingly reliable and cost-competitive. Their collaboration has generated solutions that have already proven their worth for the mass production of products for the sports, dental and consumer goods markets. This stronger alliance will deliver a new era of producing high-performance materials and supply chain model development for Carbon®'s customers and partners. It also represents an opportunity for both companies to expand their pipeline of production applications considerably, thanks to advanced materials technology expertise.

1.1.2.3 NEW ENERGIES PLATFORM

The development of new energies is a megatrend driven by the world transition to a less fossil-fuel-dependent economy. Through its 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, heat-transfer fluids which transport the heat generated by solar energy, wind turbines and solar thermal power plants.

Thanks to its technological expertise, Arkema offers a number of innovative 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 electrolytes, Arkema has a range of solutions designed for use in the development of batteries.

The Kynar® 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. They are therefore the focus of continuous innovation.

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, like the Foranext® electrolyte, that can withstand the increasingly demanding conditions of use, including high temperatures and rising electrochemical potential.

Materials for photovoltaic cells

Photovoltaic cells are made up of a number of highly technical organic materials that protect the silicium 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;
- Kynar® fluoropolymers, for backsheet protection; and
- Bostik Vitel® polyester adhesives, which are used for binding photovoltaic backsheets.

Heat-transfer fluids for solar energy applications

The Jarysol® fluids developed by the Group are particularly well adapted to the transfer of heat from concentrated solar power plants.

Materials and products for the wind turbine industry

The Elium® resin developed by Arkema is a lightweight thermoplastic composite that notably enables the fabrication of 25-meter-long wind turbine rotor blades. The resin's recyclability represents a major advantage for wind turbine manufacturers. The technology won an award at JEC Asia 2017 in Seoul.

1.1.2.4 WATER MANAGEMENT PLATFORM

Population growth and increased urbanization are having a major impact on the availability of water resources and are limiting access to drinking water, the focus of the United Nations' SDG 6: "Ensure availability and sustainable management of water and sanitation for all." Through its research, Arkema contributes to this goal by developing (i) a product range specifically aimed at water treatment, transportation and purification and (ii) technologies for more effective management of the water use and discharges associated with its industrial processes. To achieve the latter, a global project to improve water management, known as Optim'O, was launched at Arkema several years ago (for further details, see section 4.3.3 of this document).

In terms of product range, acrylic acid serves to manufacture polyacrylates that are used in water treatment plants to ensure the flocculation of suspended solids. Arkema is also pursuing its developments to use more Albone® hydrogen peroxide to disinfect cooling systems or as a water treatment product for drinking water and swimming pools. Unlike the chlorinated products traditionally used in water treatment, this solution avoids chlorinated water discharges.

Kynar® resins are used in filtration applications to treat wastewater or to make water suitable for drinking. They offer much finer filtration of suspended solids, bacteria and viruses, and a higher (+20%) volume of water filtered for constant energy consumption. They also double the lifespan of certain filtration systems, from five to ten years.

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 technical polymers range (specialty polyamides and fluoropolymers), Arkema offers innovative solutions for the mobile device market, which includes smartphones and tablets. These solutions relate to the internal structural parts of these devices, which are required to be increasingly thin and made using the same simple injection molding process, as well as offering ultra-high rigidity, and to the external parts, which need to be stain and shock resistant. Arkema proposes materials that meet these increasingly demanding requirements.

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-k 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 and solid-state cooling systems. Already being used in smartphones and acoustic sensors, these materials also offer interesting possibilities in such areas as the Internet of Things, wearables, virtual reality and home automation, as well as in the area of connected sensors for the factory of the future.

1.1.2.6 HOME EFFICIENCY AND INSULATION PLATFORM

Energy efficiency, health, comfort and environmental footprint 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 home efficiency and insulation a key focus of its R&D strategy.

Arkema 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.

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) emissions to obtain health certifications like EC1 Plus and to meet the environmental standards required for LEED® and BREEAM® certification.

The coating resins business 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. In addition, 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.

The 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.

1.1.2.7 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 uses patents to protect the innovations generated by its research and development efforts, whether in relation to its manufacturing technologies or its 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 high technical performance materials, 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 2019, Arkema filed 222 priority patent applications. At 31 December 2019, it held 10,268 patents and had 5,585 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, China, Japan, South Korea, India, 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 and granting patent licenses to meet operating requirements. 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 Pebax®, Rilsan®, Forane®, Carelflex®, Evolution®, Altuglas®, Plexiglas® (which is used exclusively on the American continent), 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 process – 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 Lines (one project may involve several Group Business Lines); 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 nanostructured PMMA for automotive glazing under the Altuglas® ShieldUp brand and 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
- continuous glass-fiber-reinforced thermoplastic solutions, such as the Rilsamid® Matrix range, for automatic fiber placement and thermo-stamping.

The incubator also developed PEKK, a new polymer withstanding ultra-high temperatures, under the Kepstan® brand, for which production began 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 forged numerous upstream partnerships with academic and scientific institutions, in the form of research chairs, shared laboratories, collaborative projects 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." Theoretical and experimental modeling of materials and processes is a key topic for the chemicals industry. This multidisciplinary technique goes beyond materials chemistry to look at the physical and mechanical factors at play during product manufacturing and use. 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 mechanical properties and processes.

In Asia, Arkema forged a partnership with Monash University in Kuala Lumpur, Malaysia. The aim is to enhance understanding of biocatalysis, a discipline that could lead to more efficient reaction processes than those achieved with traditional chemistry or the identification of alternatives to certain raw materials used in the production of sulfur products. The creation of this center for research into biocatalysis is in line with the Group's commitment to develop increasingly sustainable solutions.

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.

FOCUS

After forming a strategic alliance in 2018 to develop thermoplastic composite solutions for the aerospace industry, Arkema and Hexcel opened a joint research and development laboratory in 2019, combining the expertise of Hexcel in carbon fiber and that of Arkema in PEKK. The companies' objective at this new lab is to develop carbon fiber-reinforced thermoplastic pre-preg tapes to enable lightweight parts to be produced for future generations of aircraft. The goal is to offer cost-effective solutions to meet the need for lightweight parts and faster production speeds in the aerospace and defense sectors.

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.

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.

In relation to the initiatives launched as part of the digital transformation, the R&D department contributes its expertise in data management and digitization, modeling, software, and the associated computing power, algorithms and their interpretation. These tools enhance the effectiveness of innovation in the Group's operating and industrial processes and in the development of new processes, products and materials. The R&D department has launched a "digital laboratory" project to gradually integrate artificial intelligence into R&D processes. This will notably include the analysis of images to clarify and characterize the structure of materials, the analysis of formulation data to speed up optimization and semantic data analysis to facilitate access to scientific information and accumulated expertise.

1.2 BUSINESS OVERVIEW

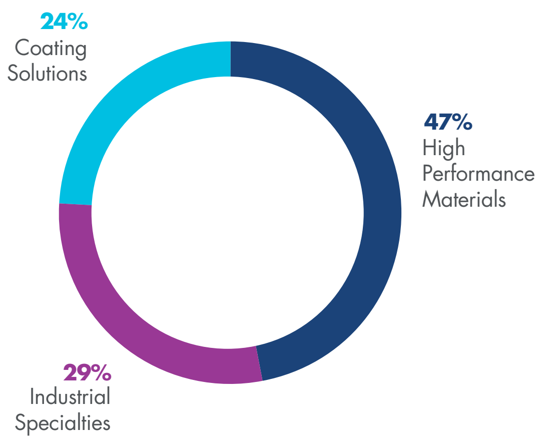
At the date of this document, Arkema is organized into three divisions according to the similarity of their activities:

- the High Performance Materials division for predominantly application-oriented high value-added specialty activities;
- the Industrial Specialties division comprising various intermediate chemical activities and some of the corresponding downstream activities; and
- the Coating Solutions division, which combines activities relating to coatings (decorative paints, industrial coatings, etc.), with upstream integration in acrylic monomers.

The divisions are made up of Business Lines, which may group together several businesses. The managing directors of the Business Lines or businesses are responsible for their own sales, marketing and customer relations, results, cash flows (working capital, capital expenditure, etc.), manufacturing and research. They each report to an operational Executive Vice-President who is also a member of the Executive Committee, with the exception of the Bostik Executive Vice-President, who is a member of the Executive Committee and, as such, reports directly to the Chairman and Chief Executive Officer.

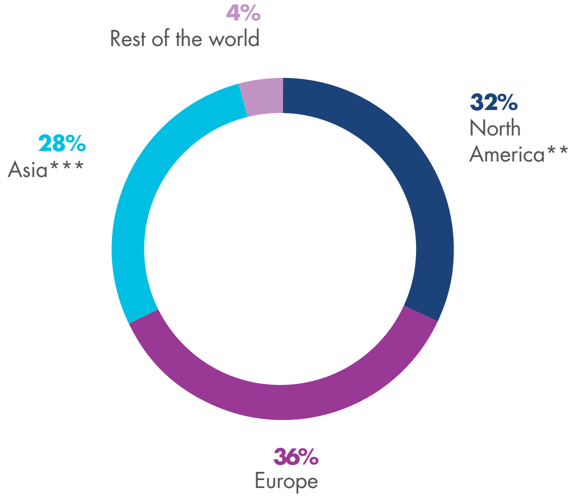
The breakdown of 2019 sales by division and region was as follows:

Sales by division



In 2018, the breakdown of the Group's sales by division was as follows: 45% for High Performance Materials, 31% for Industrial Specialties and 24% for Coating Solutions.

Sales by region*



* *Based on the geographic location of customers.*

** *United States, Canada and Mexico.*

*** *Asia and the Middle East.*

In Europe, France accounted for 8% of Arkema's total sales and the United Kingdom for 4%. In Asia, sales in China represented 12% of Arkema's total sales.

In 2018, Group sales by region broke down as follows: 38% in Europe (38% in 2017), 31% in North America (32% in 2017), 26% in Asia (26% in 2017) and 5% in the rest of the world (4% in 2017).

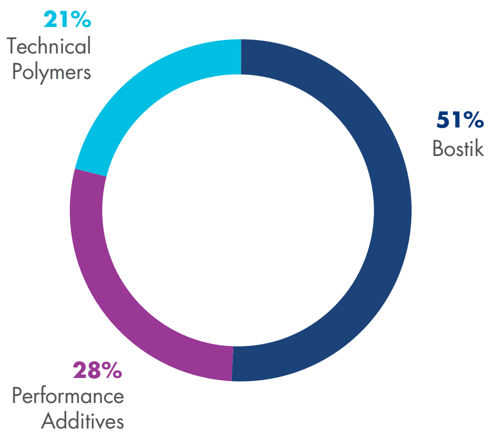
Arkema will provide a strategic update on 2 April 2020. Therefore, please also refer to the documents (presentation and press release) that will be presented on this occasion for the most recent information regarding the Group's organization.

1.2.1 High Performance Materials

1.2.1.1 KEY FIGURES

(In millions of euros)	2019	2018	2017
Sales	4,065	3,970	3,830
EBITDA	654	640	632
Recurring operating income (REBIT)	468	481	474
Recurring capital expenditure	205	168	168

1.2.1.2 BREAKDOWN OF DIVISION SALES BY BUSINESS LINE (2019) [1]



1.2.1.3 OVERVIEW OF THE DIVISION'S BUSINESS

The High Performance Materials division comprises adhesives, which come under the umbrella of Bostik, and advanced materials, which brings together the Technical Polymers and Performance Additives Business Lines.

Arkema holds leadership positions in most of the division's product lines, notably in adhesives, polyamides 11 and 12, PVDF, molecular sieves and organic peroxides. Following the acquisition of ArrMaz in 2019, the Group has also become a market leader in specialty surfactants. Arkema sells many of its products under widely recognized brands, such as Bostik®, Kynar®, Rilsan®, Sartomer® and Pebax®.

Arkema serves these markets worldwide thanks to an industrial footprint on three continents.

The businesses in the High Performance Materials division share the same objective of serving their various niche markets with innovative, high value-added technical solutions that meet their customers' needs. Technological innovations are being driven by the various megatrends shaping society today, such as lightweighting, new energies, recyclability, bio-based products and access to water.

The key success factors for this division lie in its ability to offer innovative solutions from R&D, to develop new, high value-added products and to leverage the potential offered by growing local markets, particularly in Asia, where Arkema has expanded significantly in the past few years. Brand recognition and strong relationships with customers who are the leaders in their areas of expertise are also key competitive strengths.

Over the coming years, Arkema will continue to actively develop the division around its major growth drivers: Bostik adhesives, Technical Polymers and Performance Additives. In adhesives, Arkema intends to participate in the consolidation of this attractive but still fragmented market and accelerate its organic growth in line with the market's expectations. In advanced materials, Arkema will continue to invest heavily, in particular in Technical Polymers, which offer significant opportunities both for innovation in the areas of lightweight materials, bio-based polymers and consumer goods design and for expansion in fast-growing economies. The Group may also strengthen its portfolio in advanced materials by making bolt-on acquisitions in formulation businesses like additives or in high-performance polymers.

Bostik (24% of Arkema sales in 2019)

Products and markets

With little cyclicality and capital intensity, the adhesives market offers steady growth and numerous opportunities for consolidation in a still very fragmented market.

Since the acquisition of Bostik in February 2015, Arkema manufactures and sells adhesives and sealants for construction and industrial applications worldwide, with 57 production units

(1) *In 2018, division sales by Business Line broke down as follows: 23% for Technical Polymers, 26% for Performance Additives and 51% for Bostik.*

in Europe, North America and Asia, operations in 50 countries, and three regional R&D centers.

In addition to its widely recognized global brands Bostik® and Bostik® Smart Adhesives, Bostik has a number of well-known local brands that help secure customer loyalty, with examples in the construction and consumer goods industries including Sader®, Quelyd®, Evo-Stik®, Mem®, Fortaleza®, XL Brands® and Den Braven®.

Demand for adhesives and sealants worldwide is estimated at some €55 billion [(1)], spread across:

- hygiene and industry (55%), which encompasses a wide range of end markets such as assembly, tapes and labels, packaging, transportation, non-woven for the hygiene and personal care industries and electronics;
- construction (34%), which includes wall and floor surface preparation products, adhesives for tiles, walls, floors and ceilings, and waterproofing solutions; and
- consumer goods (11%), which brings together adhesive solutions for a wide variety of applications such as repair work, assembly, decoration and renovation.

Geographically, demand breaks down as follows [(1)]:

- North America accounts for around 28% of global demand, with expected average annual growth of 2.5% to 3%;
- Europe accounts for around 31% of global demand, with expected average annual growth of 1.5% to 2%; and
- Asia and the rest of the world make up around 41% of global demand, with expected average annual growth of 4% to 5%.

Overall, the global adhesives market is expected to grow by between 3% and 4% on average over the next few years. This trend is likely to be driven by the replacement of traditional mechanical assembly systems and by new adhesive-based bonding and assembly solutions that reduce the weight of materials, improve energy efficiency in buildings and contribute to the development of new energies. Other factors driving the market include significant growth in adhesives for the non-woven fabric used to make baby diapers, feminine hygiene products and adult incontinence products, and the strong momentum in emerging economies, where consumption of adhesives *per capita* is currently much lower than in Europe or the United States. Lastly, technology and experience are key in this market, which is also characterized by high barriers to entry such as customer relations built on proximity and trust, and a portfolio of well-known brands.

In addition to Bostik, the main international players in the adhesives and sealants market are Henkel, Sika, Mapei and HB Fuller. However, the industry is still very fragmented with a large number of local players, offering opportunities for consolidation through small- or medium-sized bolt-on acquisitions.

Bostik holds a leadership position in several end markets, including:

- non-woven for hygiene and personal care products: in this global market characterized by a limited number of players, Bostik is estimated to be among the world's top three and the leader for specialty products thanks to its technological expertise. Its main competitors are Henkel and HB Fuller;
- industry: in this more regional market, where it is estimated to rank among the world's top four, Bostik has reorganized its activities between:
  - industrial adhesives for durable goods (cars and other means of transportation, assembly, engineering, etc.), where Bostik's capacity for innovation, as well as its upstream integration and its synergies with Arkema in end-market expertise, represent unique competitive advantages; and
  - industrial adhesives for consumer goods (packaging, tape adhesive, labels, etc.), which are marketed to large, multinational customers;

  Its main competitors in industrial adhesives are Henkel, Sika and HB Fuller but it also has a number of local competitors, particularly in emerging economies; and
- construction and consumer goods: in these local markets, Bostik ranks among the top three players in the main countries in which it operates and among the leaders in the attractive flooring, adhesives and waterproofing solutions markets. Bostik can leverage its brand portfolio and strong positioning in growth regions such as South-East Asia and China to expand its business in these still fragmented markets. Its main competitors are Henkel, Sika and Mapei.

Strategy

In adhesives, Arkema has set some ambitious targets for the coming years.

For 2020, the Group is targeting an adhesives EBITDA of around €300 million, almost doubling the EBITDA generated by Bostik at the time of its acquisition (€158 million in 2014). The Group also intends to significantly improve Bostik's EBITDA margin to 15% in the medium term. This would represent an increase of nearly five percentage points compared with the EBITDA margin at the time of Bostik's acquisition (10.3% in 2014). Capital expenditure is expected to total between 2.5% and 3% of sales.

In the medium term, Arkema intends to more than double the sales generated by this Business Line (from a 2016 baseline of €1.6 billion) by 2023, when Bostik is expected to account for more than one-third of Arkema's total sales (24% in 2019).

(1) Source: Arkema internal estimates and IHS Specialty Chemicals Update Program – Adhesives and Sealants, July 2016.

Arkema also plans to continue to improve the Business Line's profitability, with the aim of achieving a REBIT margin of between 12.5% and 13% in 2023.

This ambition will notably be achieved by stepping up implementation of Bostik's development strategy, which includes:

- the adoption of a specific strategy for each type of segment:
  - hygiene: maintain technological leadership and pursue globalization;
  - industry: build global leadership positions, in line with those in advanced materials, in core segments such as material bonding. The recent acquisition of Afinitica and new capacities in hot-melt and film technologies will speed up Bostik's development in high value-added niche markets;
  - construction: develop leadership positions in floor adhesives, sealants and waterproofing solutions and take advantage of the leverage created by recent and upcoming acquisitions; and
  - consumer goods: continue to strengthen the Bostik® brand worldwide, be recognized as the preferred innovative player, and support marketing initiatives through digital technology;
- ongoing development in fast-growing regions, in line with Bostik's 2023 target of doubling sales in emerging economies (China, India, South-East Asia, Latin America, Eastern Europe and the Middle East) *versus* the 2016 baseline and generating 30% of its total sales in these geographies;
- bolt-on acquisitions offering significant synergies; and
- ongoing day-to-day efforts to improve operational excellence, which are expected to drive annual gains of around €10 million.

Highlights

As part of its bolt-on acquisition strategy, Bostik has carried out several attractive small and mid-sized acquisitions in:

- industrial adhesives with:
  - the acquisition, completed in August 2018, of Nitta Gelatin Inc.'s industrial adhesives business in Japan, by the Bostik-Nitta joint venture. Together with the construction of a new adhesives plant in Japan, which should start in 2020, this acquisition will enable Bostik to speed up its expansion in the buoyant non-woven markets for hygiene applications and in the packaging, labeling, transportation and electronics industrial markets;
  - the announcement in October 2018 that the Group was strengthening its position in high performance engineering adhesives with the acquisition of Afinitica, a company that specializes in instant adhesives, also known as cyanoacrylates. This small bolt-on acquisition will enable Bostik to develop a solid position in structural adhesives used in markets with strong growth potential, including electronics and medical equipment, as well as durable goods applications; and
  - the completion in October 2019 of the acquisition of Prochimir, a company specializing in high performance thermobonding adhesive films. This acquisition will enable Bostik to broaden its offering of solvent-free thermobonding solutions earmarked for many fast-growing industrial applications in the automotive, construction, textile and medical markets; and
- adhesives for the construction industry where Bostik:
  - has strengthened its position in the Scandinavian market with the acquisition in early 2020 of LIP Bygningsartikler AS (LIP), the Danish leader in tile adhesives, waterproofing systems and floor preparation solutions, which generates annual sales of around €30 million. The acquisition offers strong geographic and commercial synergies and will enable Bostik to boost its presence in the Nordic countries;
  - has strengthened its position in flooring adhesives in the United States with the acquisition in January 2018 of XL Brands, one of the market's leaders, for an enterprise value of US$205 million. This acquisition complements the May 2017 acquisition of CMP Specialty Products, a company that specializes in floor preparation products. These transactions enable Bostik to offer its customers a complete range of innovative solutions for the flooring market and to significantly strengthen its presence in this fast-growing, high value-added market; and
  - continues to actively capture, as planned, the cost and development synergies generated by the acquisition finalized on 1 December 2016 of Den Braven, a European leader in sealants for construction and insulation applications. These very significant synergies, estimated at €30 million at least, are expected to be fully achieved by end-2021.

In addition, as part of its organic investment strategy, in 2017 Bostik started up a new hot melt pressure sensitive adhesives (HMPSA) unit in Gujarat, India, which enables it to meet growing demand for adhesives from various industrial sectors in the country, such as flexible packaging, transportation and footwear production.

Advanced materials: Technical Polymers and Performance Additives

Advanced materials comprises the Technical Polymers and Performance Additives Business Lines.

Advanced materials brings together businesses that combine differentiation and innovation with specialty activities. The solutions they offer lie at the crossroads of numerous growth avenues, such as lightweight materials, water sanitation, various forms of new energies and 3D printing. They notably provide a unique portfolio of high-performance bio-based solutions and benefit from strong brands, such as Kynar®, Pebax® and Rilsan®. Thanks to these innovative solutions – which help its customers meet the sometimes extreme challenges they face, in such demanding industries as aeronautics, electronics, oil and gas, automotive and sport – and thanks to its leading technological, industrial and commercial positions in diverse geographies worldwide, the Group has developed long-term partnerships with major industrial players that are leaders in their areas of expertise.

In the coming years, Arkema plans to maintain a strong innovation and investment dynamic in advanced materials, which represent one of the major drivers of its future growth.

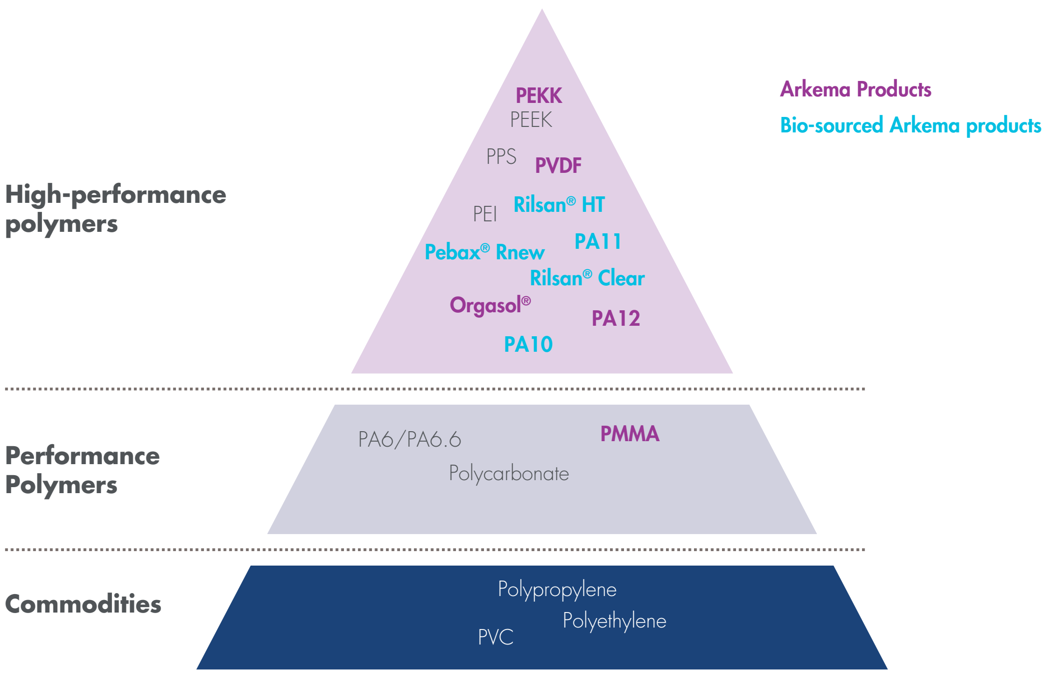
Products and markets

Technical Polymers (10% of Arkema sales in 2019)

Technical Polymers comprises two product lines: specialty polyamides and polyvinylidene fluoride (PVDF). These high-performance polymers are sold under well-known brand names such as Rilsan®, Rilsamid®, Orgasol® and Pebax® for specialty polyamides and Kynar® for PVDF.

Since 2019, this Business Line also handles the marketing of PEKK, an extremely high-performance polymer with properties similar to metal, which was developed by the corporate research incubator.

RANKING OF POLYMERS BY PERFORMANCE



- **Specialty polyamides**

Specialty polyamides encompass long-chain polyamides 10, 11 and 12. Arkema is a leading manufacturer and marketer of these products and the only manufacturer of bio-based polyamide 11, made from castor oil. Its main competitors are Evonik and EMS for polyamide 10, also bio-based, and Evonik, EMS and Ube for polyamide 12.

Specialty polyamides are primarily used in the transportation, oil and gas (deep offshore extraction), sport, new energies, electronics and 3D printing industries.

In the coming years, global growth of specialty polyamides end markets could reach an average of 5% per year, of which 7% in Asia [1], driven by growing demand for (i) lighter materials, particularly in the automotive (as a replacement for metal to reduce vehicle weight and reduce emissions) and consumer goods (sports equipment and electronics) markets and (ii) bio-based polymers such as polyamide 10 and 11.

- **Polyvinylidene fluoride (PVDF)**

PVDF is widely used in architectural and anticorrosion coatings, the chemical and oil and gas industries (deep offshore extraction), electric cables, photovoltaic panels, lithium-ion batteries and water treatment membranes.

Demand is primarily being driven by growth in Asia, the rapid development of new energies and the rising need for drinking water.

Arkema is the world leader in the PVDF polymer range [1], with Solvay and Kureha as its main competitors and additional competition from Chinese companies for certain grades. In the coming years, end markets could grow by an average annual rate of 6% to 7% [2].

(1) Source: IHS Chemical Economic Handbuik Fluoropolymers, April 2016

(2) Source: Arkema internal estimates.

Performance Additives (13% of Arkema sales in 2019)

Performance Additives comprises Sartomer's photocure resins, as well as the interface agents and organic peroxides businesses.

- **Sartomer's photocure resins**

Thanks to unique technologies, Sartomer's photocure resins provide customers with high-tech, high value-added products and applications. They are also an important downstream component in the acrylics value chain. Sartomer's photocure resins deliver excellent technical performance properties, particularly in terms of stain, impact and scratch resistance, and offer almost instant curing. With 100% dry-content, these innovative resins are environmentally friendly and comply with European volatile organic compound (VOC) standards. As such, they play a key part in Arkema's sustainable new materials strategy.

The photocure resins business operates globally, with two sites in the United States, one in Europe and another in Asia.

Photocure resins are used in a wide range of markets, including graphic art (inks and varnishes), industrial coatings, optics, electronics (printed circuits), wood coatings, 3D printing and inkjet printing. Global growth in photocure resin end markets over the coming years could be as high as 5% a year [1]. The Group's main competitors are Allnex, Eternal and Miwon.

Sartomer is also a pioneer in the design of 3D printing systems using UV curable layers. Its specialized offering for UV curable 3D printing, marketed under the new N3xtDimension® brand, is aimed at the booming global 3D printing market, which is expected to grow by nearly 20% per year until 2024 [1].

- **Interface agents**

The interface agents business is organized around two activities: molecular sieves and specialty surfactants.

Arkema is the world number two in molecular sieves [1]. Featuring excellent adsorption and dehydration properties, these products are mainly used for industrial gas separation in certain petrochemical units and for medical oxygen in healthcare as well as in the construction and pharmaceutical packaging industries.

The specialty surfactants activity is primarily based on specialty chemicals produced downstream from fatty acids. The many products derived are used as additives in such highly diverse areas as oil and gas production, bitumen, fertilizers, mineral extraction, corrosion inhibitors, antistatics and emulsifiers.

- **Organic peroxides**

Organic peroxides are initiators used in a variety of fields including commodity polymers (reaction initiators for low-density polyethylene, PVC and polystyrene), acrylic polymers, unsaturated polyesters and rubber cross-linking. Arkema estimates that it ranks number two worldwide in this sector. Its main competitors are Nouryon and United Initiators.

This business also includes glass coating additives (primarily used in glass bottles), for which Arkema ranks among the leading companies worldwide.

Strategy

On the back of its portfolio of innovative products with properties that are highly sought after, particularly in the areas of lightweight materials, water treatment, new energies and 3D printing, Arkema will continue to invest significantly in the coming years in advanced materials, which offer significant opportunities for innovation and geographic expansion. Advanced materials are expected to account for more than 25% of Arkema's total sales in 2023 (23% in 2019), with a REBIT margin of 14% to 15%.

In particular, Arkema aims to:

- strengthen its positions in certain fast-growing, high value-added markets such as the aerospace, automotive, 3D printing, water treatment, consumer electronics and sports markets, through new developments from its innovation efforts;
- step up its growth in Asia in order to support the very strong growth of its global and local customers in this region;
- develop partnerships with world renowned players in their areas of expertise; and
- strengthen its portfolio of solutions with breakthrough innovations like Kepstan® PEKK for aerospace and 3D printing applications, and thermoplastic composites, some of which can be recycled.

To implement this strategy successfully, Arkema will dedicate around 4% of the sales generated by these activities to research and development and up to 8% of sales for certain very-high-potential applications.

Arkema is also undertaking several significant capital expenditure projects, primarily in Asia in specialty polyamides, where the Group has a major investment project in the bio-based polyamide 11 chain, and in the United States, where the Group recently started up new units for the production of Kynar® PVDF and Kepstan® PEKK. Following these various investments, advanced materials should achieve around 5% per year organic growth by 2023.

Arkema will also continue to implement its bolt-on acquisition strategy to strengthen its high performance polymer portfolio and its formulation businesses, as illustrated by the ArrMaz acquisition, completed in 2019.

(1) Source: Arkema internal estimates.

Highlights

To support its customers' growth, Arkema started up:

- early 2017, the doubling of its **specialty molecular sieve** capacity to support the market's growth, in particular in Asia and the Middle East, which is driven mainly by the development of the synthetic textile and PET bottle end markets. This capacity extension at the Honfleur site in France – which produces adsorbents for use in the petrochemicals industry when separating aromatics – now operates at full capacity;
- new **Kynar® PVDF** capacities, including:
  - in April 2017, a 25% increase in production capacities at the Changshu complex in China to meet strong demand for new energies (batteries and photovoltaics) and water treatment applications; and
  - in April 2018, an increase in production capacity of around 20% at the Calvert City plant in the United States, to support customers' development in the water management, chemical engineering and high performance cables markets;
- early 2019, a world-scale **Kepstan® PEKK** production unit at its Mobile, Alabama site in the United States to meet growing demand in the carbon fiber reinforced composites and additive manufacturing (3D printing) markets. Through this investment, Arkema has strengthened its offering of advanced materials that contribute to lightweighting materials in such markets as aerospace, oil and gas, and electronics;
- in October 2019, a new production line for **Orgasol® specialty polyamide powders** at the Mont facility in France. With this investment of around €20 million, the Group has increased its global capacity by over 50%, enabling it to support the increase in demand for fast-growing niche industrial applications in the coatings, composites and 3D printing markets; and
- in April 2019, an increase of over 30% in **Sartomer**'s production capacity in China (Nansha). The new high-performance photocure resins production line will help meet strong demand from customers in Asia in the electronics markets, where these resins are used for the design and manufacture of printed circuits and screens for smartphones, tablets and television sets, and in the 3D printing market for which Sartomer has launched its new generation of solutions under the N3xtDimension® range.

In addition, Arkema has announced various industrial projects, including:

- a major investment project for the bio-based **polyamide 11** chain in Singapore to meet very strong demand from its customers in Asia for high performance, bio-based solutions that help to lightweight materials. These solutions will meet the needs of customers in the automotive and 3D printing markets, as well as in consumer goods such as sports and electronics. The new world-scale plant, which will produce both amino 11 monomer and its polymer, Rilsan® PA11, is expected to start operating in 2022. The project will enable the Group to increase its global polyamide 11 production capacity by 50%. This investment is included in the exceptional investments described in more detail in the "Ambition and strategy" section of this document;
- a project to increase the Group's global **polyamide 12** production capacity by 25%. The new capacity will be added on the Changshu platform in China, with start-up scheduled for mid-2020. This investment – which represents several tens of millions of euros – will support the strong demand in growth applications such as cable protection, lightweighting for the automotive industry, high performance sports shoes and consumer electronics;
- the opening in 2019 of a joint R&D laboratory in France with Hexcel, 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 that of Arkema in **PEKK**;
- the creation in 2018 of the Barrflex® TU joint venture with Barrday Inc., a major player in the composites market, to manufacture and commercialize carbon fiber and specialty polymer tapes for the oil and gas market; and
- a 50% increase in **Kynar® PVDF** production capacity at the Changshu complex in China to support the market for lithium-ion batteries for electric vehicles. The capacity extension is scheduled to start up in late 2020.

Arkema has also announced several acquisitions designed to further strengthen its portfolio of specialty activities. In particular:

- in July 2019, Arkema completed the acquisition of ArrMaz, a global leader in specialty surfactants for crop nutrition, mining and infrastructure markets, with sales of US$290 million and an EBITDA margin of 18%. The acquisition of this resilient and low capital intensive business will lead to 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. Accretive from the first year, the acquisition was based on a US$570 million enterprise value, which corresponds to an EV/EBITDA multiple of 10.8 times that should be reduced to around 7 times 2023 EBITDA after taking into account synergies and organic growth. ArrMaz has been integrated into Arkema's Performance Additives Business Line; and

- in October 2019, Arkema completed the acquisition of Lambson, a company 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 will enable it to speed up its development in this growth market. Lambson generates sales of around €45 million.

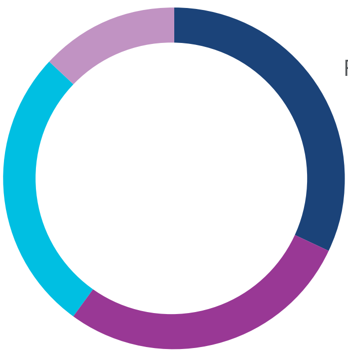
Lastly, Arkema and Carbon®, a world leader in digital manufacturing, announced in June 2019 that they were forming a strategic partnership to develop new high performance materials for the 3D printing market. As part of the partnership, Arkema has acquired an equity interest in Carbon® representing US$20 million.

1.2.2 Industrial Specialties

1.2.2.1 KEY FIGURES

(In millions of euros)	2019	2018	2017
Sales	2,514	2,699	2,545
EBITDA	621	675	585
Recurring operating income (REBIT)	406	497	411
Recurring capital expenditure	169	178	144

1.2.2.2 BREAKDOWN OF DIVISION SALES BY BUSINESS LINE (2019) [(1)]



1.2.2.3 OVERVIEW OF THE DIVISION'S BUSINESS

The Industrial Specialties division brings together the Group's PMMA, Thiochemicals, Fluorogases and Hydrogen Peroxide operations.

The Business Lines in this division share various characteristics, including the use of complex, cutting-edge manufacturing processes and the existence of global markets with strong growth prospects, particularly in Asia.

Arkema is a leading player worldwide in its four main product lines and has production units in Europe, North America and Asia.

The Industrial Specialties division continues to selectively develop its activities, strengthen its positions worldwide and implement cooperation projects with its main partners. Arkema also intends to increase the share of specialty products in its portfolio in order to take advantage of the higher growth rates in these higher value-added niche markets. The Industrial Specialties division is actively pursuing its operational excellence actions to maintain

(1) In 2018, division sales by Business Line broke down as follows: 31% PMMA, 26% Thiochemicals, 31% Fluorogases and 12% Hydrogen Peroxide.

competitiveness and technological leadership in its markets. Lastly, it is also pursuing its objective of securing a competitive, long-term supply of strategic raw materials.

PMMA (9% of Arkema sales in 2019)

Products and markets

The PMMA Business Line is organized into two areas.

The first area is an integrated production chain from methyl methacrylate (MMA) to polymethyl methacrylate (PMMA). Operating on three continents, this global activity has facilities in the United States, Mexico, Europe and South Korea. Its main brands – Plexiglas® on the American continent and Altuglas® elsewhere – enjoy high customer awareness. Its main products include granules for molding, and cast and extruded sheets for forming.

In the United States, Arkema signed methyl methacrylate (MMA) capacity reservation agreements with The Dow Chemical Company in October 2000. These agreements represent Arkema's only source of MMA supply in the United States.

The overall size of the PMMA market is estimated at 2 million tonnes [(1)] and it primarily serves the construction, automotive, sanitary ware, commercial display, electronics and household goods markets. In PMMA end markets as a whole, annual global growth over the coming years could be close to 2.5% [(1)]. Arkema is one of the leading producers of PMMA in the world [(2)]. Its main competitors are Mitsubishi Chemical, Röhm and Sumitomo Chemical.

After very tight market conditions in the MMA/PMMA chain in 2017 and first-half 2018, the start-up of new production capacities by competitors in Saudi Arabia in first-half 2018 led to the normalization of market conditions. This normalization process began in the third quarter of 2018 and continued in 2019. Although significantly lower than the previous year, the EBITDA margin for this activity remained at a good level in 2019.

The second area is functional polyolefins, which are primarily used in packaging, photovoltaics, and the electrical, electronics and automotive industries. In October 2019, Arkema announced its plans to divest this business.

Highlights

In October 2019, Arkema announced the proposed divestment of its functional polyolefins business to SK Global Chemical, another step in its shift towards specialty chemicals and its program to divest non-strategic activities. Representing sales of some €250 million, the functional polyolefins activity comprises ethylene copolymers and terpolymers for the food packaging, cable, electronics and coatings markets and leverages well-known brands such as Evatane®, Lotryl®, Lotader®, Orevac®. The offer received is based on an enterprise value of €335 million. The proposed disposal is subject to the approval of the relevant antitrust authorities. The transaction is expected to be finalized in second-quarter 2020.

Thiochemicals (8% of Arkema sales in 2019)

Products and markets

The Thiochemicals Business Line mainly focuses on sulfur derivatives. This specialty activity is one of Arkema's growth drivers for the coming years.

The main markets for thiochemicals are animal feed, refining and petrochemicals, natural gas odorization, solvents, pharmaceuticals and cosmetics. In the animal feed market, Arkema produces a sulfur-based intermediate used in the synthesis of methionine, an amino acid used as a nutritional supplement notably in poultry feed. Demand in this sector is being supported by increasing poultry consumption, particularly in emerging economies. In the oil and gas industry, demand is driven by the growing use of natural gas and by stricter sulfur content standards for automotive fuel (petrol and diesel). New applications have also been developed, for example in soil fumigation.

The size of the global thiochemical market is estimated at 0.9 million tonnes [(1)]. Global thiochemical end markets are expected to grow by around 5% a year on average in the coming years.

Arkema is currently the world number one in this sector [(1)]. Its main competitor is Chevron Phillips Chemical, with additional competition from local players for some products. The Thiochemicals Business Line operates worldwide.

It has production sites in the United States, Europe and, more recently, Asia thanks to the start-up in early 2015 of a new complex in Kerteh, Malaysia, where Arkema has signed joint venture agreements with South Korean group CJ CheilJedang (CJ). 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 unit 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

(1) Source: Arkema internal estimates.

(2) Source: IHS Chemical Economics Handbook – Acrylic Resins and Plastics, May 2016.

of 3 methylthiopropionaldehyde (MMP), an intermediate in the manufacture of methionine, at its site in Beaumont. Under the terms of this contract, Arkema Inc. has built an MMP production unit on behalf of Novus International, Inc., which is operated by and receives its raw materials from Arkema Inc. This contract represents material sales for Arkema.

Highlights

To support strong growth in the animal feed market and thereby strengthen its world-leading position in high value-added sulfur derivatives, Arkema is finalizing a project to double methyl mercaptan production capacity at its Kerteh site in Malaysia, scheduled to come on stream during the first semester 2020. In the United States, the review carried out by the Group and its partner Novus with a view to doubling the production capacity at the Beaumont site in Texas has not resulted in any further action.

In addition, in September 2018 Arkema announced an incremental investment to increase linear mercaptan production capacity at its Houston, Texas plant in the United States by up to 30%, in response to growing demand for polymers from the transportation and electronics markets.

Fluorogases (8% of Arkema sales in 2019)

Products and markets

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

These products are primarily used in two sectors:

- refrigeration, air-conditioning and foams. These emissive applications are subject to regulatory changes and are expected to grow by an annual average of 1% to 2% over the coming years [(1)]; and
- fluoropolymers such as polyvinylidene fluoride (PVDF), which is produced by Arkema. Going forward, average annual growth in these markets is expected to reach between 4% and 5% [(2)], and may reach even higher rates for some fluoropolymers like PVDF.

Arkema is the world number three in fluorogases [(2)], its main competitors being Chemours, Mexichem, Honeywell and several Chinese players.

The fast-evolving fluorochemicals segment is driving very promising medium and long-term developments in batteries and 5G technology.

With regard to emissive applications, the implementation of the Montreal and Kyoto Protocols 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 new generations (HFO) of products is taking place progressively at a different pace depending on the region, application and product.

For HCFCs, regulatory changes in developed countries have led to their use being phased down in emissive applications, with regulations varying from region to region. In the United States, for example, HCFC-22 allowance quotas were revised downward for the 2015–2019 period. During this period, the Fluorogases Business Line generated a significant share of its results in the region from the sale of HCFC-22. From 2020, the production and import of HCFC-22 is no longer allowed in the United States. Only sales of existing stockpiles and recycled products are authorized. For new equipment and foam expansion in Europe and North America, HCFCs have been replaced by HFCs. However, as per Article 5 of the Montreal Protocol, developing countries are still authorized to use HCFCs, albeit with quotas in some cases.

HFCs have also been the object of regulatory changes such as the European F-Gas regulation, applicable since 1 January 2015, which introduces a quota system that gradually phases down the use of these gases in certain applications or even bans their use in a few cases (*e.g.* 404A and 507A, which are banned in most refrigeration applications from 1 January 2020) and the European directive on mobile air-conditioning systems (MAC), which bans the use of refrigerant gases with a global warming potential higher than 150 in all new vehicles sold in Europe since 1 January 2017. The implementation of the F-Gas regulation significantly tightened the balance between HFC supply and demand in Europe, particularly in second-half 2017 and 2018. In 2019, illegal imports of HFC into Europe had a negative impact on the sales price and volumes of these products throughout the year. More generally, the October 2016 Kigali Amendment to the Montreal Protocol aims to gradually phase down the use of HFC fluorogases. In Asia, the sales and production allowances to be implemented in line with the Kigali Amendment will be based on average sales and production during the 2020–2022 period. This system led to the start-up of numerous new HFC plants in China in the second half of 2019.

(1) Source: Arkema internal estimates.

(2) Source: IHS Chemical Economics Handbook – Fluoropolymers, April 2016.

To comply with the various regulations, the Fluorogases Business Line has developed HFC blends (32, 125, 134a, 143a, etc.) and new substitutes for foams. The Business Line is also working on the development of HFOs, the next generation of fluorogases.

Highlights

The Business Line's historical levels of strong profitability have been restored since 2017, thanks both to internal measures to optimize fixed and variable costs and to significantly improved market conditions in the Group's three key regions. After a record year in 2018, when it performed even better than in 2017, notably by capitalizing on the benefits of the European F-Gas regulation and on favorable market conditions in Asia, the Business Line's results declined sharply in 2019, under the significant impact of illegal imports of HFC gases into Europe. In 2020, the Group will pursue its antidumping initiatives in the United States and its efforts, alongside other key industry players and the EU authorities, to combat these illegal imports into Europe.

Arkema aims to participate in the development of HFOs, the low-GWP next generation of fluorogases. For car air-conditioning, Arkema has thus developed its own technology for producing 1234yf, which is the standard developed for replacing 134a. However, the right to sell this fluorogas in this market is currently patent-protected by US-based company Honeywell. Arkema considers that these patents are based on weak claims and has therefore taken legal action against Honeywell to have the patents declared null and void. Some of the legal proceedings initiated by Arkema have resulted in patents filed by Honeywell being declared null and void, while others are still being investigated by the competent authorities. The Group also filed a complaint with the European Commission against Honeywell in 2017 for abuse of dominant position, with the aim of obtaining a worldwide fair, reasonable and non-discriminatory (FRAND) license to Honeywell's 1234yf patents. Arkema now awaits the European Commission's thorough investigation. Arkema has built a production unit at its Changshu site in China to ensure it can supply its customers once it is in a position to do so.

Arkema has expanded its range of new-generation fluorogases. It now offers its customers in Europe and other parts of the world the new non-flammable, low-GWP blowing agent, Forane® 1233zd, which is used in polyurethane foams for insulation purposes. The Group also sells Forane® 449A (XP40) as a replacement for 404A and 507A fluorogases, for the industrial and commercial refrigeration markets in Europe.

Hydrogen Peroxide (4% of Arkema sales in 2019)

Products and markets

The Hydrogen Peroxide Business Line includes hydrogen peroxide, sodium chlorate and sodium perchlorate.

Hydrogen peroxide is a global specialty business for Arkema, with production units in Europe (France and Germany), North America (Canada and the United States), and Asia (China). Sodium chlorate, which is mostly used in the paper pulp market, is produced only at the Jarrie site in France. Arkema is a regional player for this product.

Hydrogen peroxide is primarily used in paper pulp, chemical products (including organic peroxides in the case of Arkema), water treatment, disinfection of food packaging, cleaning of electronic components, and textiles. Its intrinsic properties, particularly its neutral impact on the environment, offer good prospects, with an estimated global long-term growth of 2% to 3% annually [(1)]. Energy is a major component of the business's production costs.

Arkema is ranked third worldwide in terms of hydrogen peroxide production [(2)]. Its main competitors are Solvay, Evonik and EKA (Nouryon). The size of the global market is estimated at 5.5 million tonnes [(2)].

(1) Source: Arkema internal estimates.

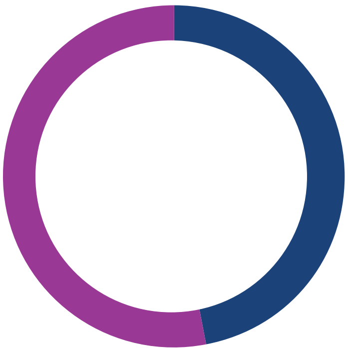
(2) Source: IHS Chemical Economics Handbook, Hydrogen Peroxide, October 2018 and Arkema internal estimates.

1.2.3 Coating Solutions

1.2.3.1 KEY FIGURES

(In millions of euros)	2019	2018	2017
Sales	2,133	2,120	1,924
EBITDA	264	243	244
Recurring operating income (REBIT)	142	140	135
Recurring capital expenditure	118	117	88

1.2.3.2 BREAKDOWN OF DIVISION SALES BY BUSINESS LINE (2019) (1)



1.2.3.3 OVERVIEW OF THE DIVISION'S BUSINESS

The Coating Solutions division comprises the Acrylics and the Coating Resins and Additives Business Lines.

Since its stock market listing, Arkema has strengthened its Acrylics activities by securing competitive upstream acrylic monomers in Europe, North America and Asia, by developing downstream integration of its acrylic monomers and by building an integrated production chain in the coatings sector. This strategy has been supported by various acquisitions. In 2007, Arkema acquired rheology additives specialist Coatex. In 2010, it purchased certain acrylics assets from The Dow Chemical Company in North America, including its Clear Lake, United States monomers site and downstream emulsions activities. In July 2011, it bought the coating and photocure resins business from Total. In 2014, it acquired a stake in an acrylic monomer production unit in China, which is now fully owned by the Group since September 2019.

The Coating Solutions division is built around a coherent set of activities, with a downstream segment focused on the coatings market (decorative paints and industrial coatings), and a competitive and global upstream segment in acrylic monomers supplying the coatings market and higher-growth markets like superabsorbents and water treatment. Building on an industrial footprint in three continents and the market's most comprehensive product range, the Coating Solutions division is implementing a strategy based on:

- pursuing the downstream integration of acrylic monomer activities, with the mid/long-term target of achieving close to 50% integration including long-term partnerships, compared with around 25% in 2019. Integration is relatively strong in the United States and Europe, but still limited in Asia. Downstream acrylics will be strengthened in the coming years through long-term partnerships with industry leaders, geographic expansion into higher growth regions, innovation focused on the development of more environmentally friendly solutions and bolt-on acquisitions; and
- strengthening the competitiveness of the upstream market by maintaining technological leadership and enhancing operational efficiency.

The main purpose of this strategy is to enhance the division's performance and reduce its cyclicality.

Acrylics (11% of Arkema sales in 2019)

Products and markets

The main products of the Acrylics Business Line are acrylic acid and derivatives (esters).

The primary raw material used by the Acrylics Business Line is propylene, making supply security a critical factor for Arkema. In France, the Group's main supplier is Total Petrochemicals France (TPF). Following the shutdown of TPF's steam cracker in Carling in 2015, a new propylene supply contract was signed on 3 September 2015 covering the period to 30 April 2021.

(1) In 2018, division sales by Business Line broke down as follows: 46% Acrylics and 54% Coating Resins and Additives.

Under the terms of the new agreement, TPF has agreed to sell and deliver propylene to Arkema France, for use at its Carling site (for further details, see section 2.1.3 of this document). In the United States, Arkema notably has a long-term contract with Enterprise Products Partners L.P., for the supply of propylene produced by propane dehydrogenation (PDH).

The acrylics production sites are located in Carling, France, Clear Lake and Bayport, United States and Taixing, China.

The size of the global acrylic acid market was estimated at 6.3 million tonnes in 2019 [(1)].

The main markets for acrylics are coatings (such as decorative paints, industrial coatings and photocure resins), superabsorbents, adhesives, water treatment as well as the energy industry and, more particularly, enhanced oil and gas recovery. Over the next few years, acrylics end markets may grow by an average of 3% to 3.5% annually [(1)]. Growth should average an annual 4% in Asia and around 2.5% in the Americas (North, Central and South) and in Europe [(2)].

Arkema is the second largest acrylics producer worldwide [(1)]. Its main competitors are BASF, Nippon Shokubai and Dow, as well as several other Asian players.

The Group estimates that market conditions in 2019 were close to the middle of the cycle in Europe and the United States, but still between the bottom and the middle of the cycle in China.

Highlights

The steps taken by Arkema to keep pace with growth in its end markets and reinforce its geographic presence in Acrylics include:

- the successful start-up in summer 2019 of a new acrylic-acid reactor with an annual capacity of 90,000 tonnes at its Clear Lake site in the United States, to replace two end-of-life reactors with annual capacities of 45,000 tonnes each. Representing an investment of around US$90 million, the new reactor makes Clear Lake one of the most competitive acrylics sites in North America and enables Arkema to support its customers' growth in the region in the superabsorbents, paints, adhesives and water treatment markets; and
- the completion in September 2019 of the acquisition of its partner's stake in Taixing Sunke Chemicals, the joint venture that produces acrylic monomers in China, for an impact of around €70 million on the Group's net debt. 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.

In addition, in March 2017, Arkema completed the sale to INEOS of its 50% interest in Oxochimie, their oxo alcohol production joint venture, along with the associated business assets. INEOS continues to supply Arkema's acrylic ester units.

Coating Resins and Additives (13% of Arkema sales in 2019)

The Coating Resins and Additives Business Line comprises two businesses: coating resins and rheology additives (Coatex). These activities are conducted downstream of the Acrylics and PMMA Business Lines.

Products and markets

- **Coating resins**

Arkema is one of the major suppliers of resins to the paint and coating industry, with a comprehensive offering in terms of technologies and geographical coverage. Arkema's wide-ranging innovative product range comprises the following:

- liquid resins: these include emulsions and alkyd, acrylic and polyester resins and serve the decorative paint and industrial coating markets, as well as the adhesive and sealant, ink and road paint markets;
- powder resins for the metal coatings market: by eliminating the need for solvents, these 100% dry content solutions comply with European requirements for the production of low-VOC coatings; and
- PVC additives, which are acrylic-acid derivatives that include impact modifiers and processing aids.

The coating resins business operates worldwide, with sites in the United States, Europe, Asia and South America and R&D centers in Europe and the United States, enabling Arkema to support its global customers in their search for innovative and environmentally friendly formulations.

Growth in the business's end markets could average up to 4% annually over the coming years [(1)].

Arkema ranks among the world's leading companies in the coating materials market. Its main competitors are BASF, Dow, Allnex, Synthomer and DSM.

- **Rheology additives (Coatex)**

The rheology additives business manufactures primarily acrylic-based polymers that are used as dispersants and thickeners. The main applications for these high-growth specialty chemical activities are in the paper, paint, water treatment,

(1) Source: Arkema internal estimates.

(2) Source: IHS Chemical Economics Handbook - Acrylic Acid and Esters, September 2017 and Arkema internal estimates.

cosmetics, textile and concrete industries. Coatex has industrial sites and storage facilities in Europe, the United States, Asia and Latin America.

Highlights

To further develop its Coating Resins and Additives Business Line, Arkema started up a new powder resin production unit at its resin manufacturing complex in Navi Mumbai, Maharashtra, India in early 2019. Representing an investment of around US$15 million, the new facilities will enable Arkema to serve customers more effectively in the fast-growing powder coating market.

In addition, in 2017, Coatex renewed its long-term contract for the supply of dispersants to the Omya group.

1.3 CORPORATE DEPARTMENTS

The corporate departments provide continuous support to Arkema's divisions, 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, External Communication, Investor Relations, Accounting and Controlling, and Legal Affairs.

As an exception to the general organizational principles governing the corporate departments, the Raw Materials and Energy Procurement department reports directly to one of the three operational Executive Vice-Presidents.

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 2019.

Corporate department	Units within the corporate department	Main responsibilities
Human Resources & Communication	HR Development and Internal Communication	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.
	External Communication	Communicate and share the Group's strategy and ambitions with external stakeholders (customers, journalists, civil society representatives and the general public).
Industry	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.
	Operational Excellence	Develop a culture of operational efficiency to ensure the competitiveness of our 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 various Business Lines.
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 tracking 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 relations, organize the annual general meeting and contribute to communicating the Group's strategy.

Corporate department	Units within the corporate department	Main responsibilities
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.).
	Business development	Help identify new business development opportunities for the Group.
R&D	Research Program	Drive commercial development of products and solutions with the aim of continually improving Group's performance and enhance operational excellence by providing production facilities with new technologies and processes that will enable the Group to produce safely and competitively while limiting its environmental footprint.
	Research Platforms	Coordinate the Group's six cross-business research platforms, which target areas with strong development potential.
	Partnerships	Set up partnerships with academic research teams and industrial partners (customers, suppliers and even competitors).
Raw Materials and Energy Procurement	Raw Materials and Energy Procurement Europe, North America and Asia	Secure and optimize the procurement of raw materials, energy and packaging for the Group in the short- and medium-term. Select suppliers according to their ability to meet the Group's purchasing requirements and to adhere to Arkema's corporate social responsibility policy.
Digital Transformation	Centralized coordination of the digital managers appointed within the corporate departments and Business Lines	Define the Group's digital transformation strategy and roadmap. Implement the appropriate governance and organizational structure. Coordinate the various initiatives undertaken within the Group.
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 the close-to-the-customer approach and the development of associated innovations.

1.4 MATERIAL CONTRACTS

In the ordinary course of its business, Arkema has entered into a number of contracts, including multi-year sales contracts, agreements that relate to certain operating procedures at its production sites and contracts to secure access to raw materials or energy resources. The contracts that represent a material source of supply or financial income for certain Group activities are described in sections 1.2 or 2.1 of this document, as appropriate.

To the best of the Group's knowledge, there are no other material contracts outside those entered into in the ordinary course of its business.

In connection with the Spin-Off of Arkema's Businesses in 2006, Total S.A. and certain Total group companies have made certain guarantees or commitments 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 31 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

RISKS AND INTERNAL CONTROL 2

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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. 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 the present 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;
- project and innovation risks;
- economic and business 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 ordered 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. 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

Arkema's business activities are subject to frequently changing international and national laws and regulations in the areas of environmental protection and health and safety. These laws and regulations impose increasingly strict obligations, particularly concerning industrial safety, emissions and discharges into air, water and land of toxic or hazardous substances, use of resources, labeling, traceability, handling, transportation, storage and disposal of toxic or hazardous substances and exposure thereto, the clean-up of past industrial sites, and soil and groundwater remediation.

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 (i.e., customers, suppliers and people living nearby).

Accidents 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, finished products and production or supply 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 35 "Seveso" classified sites in Europe (as defined by directive 2012/18/EU of the European Parliament and of the Council dated 4 July 2012 on the control of hazards linked to major accidents involving dangerous substances) i.e., more than half of the Group's 61 European sites. Outside Europe, the Group operates industrial facilities that fall under a similar classification – including 22 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 57% of Arkema's total sales in 2019.

Like other chemical sector players, Arkema also owns or uses a small number of pipelines to transport hazardous chemical products.

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. Arkema could also be held liable (i) following injury or damage to property or people, notably due to exposure to hazardous substances being used, produced or destroyed by Arkema or present on its sites, 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 such as the potential consequences of climate change, which could increase the frequency and intensity of certain weather events (storms, flooding, droughts).

As part of its preventive measures, all Arkema facilities and activities worldwide are covered by a Group-wide safety management program adapted to the risks that each may face. Details are provided in section 4.3 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 and develops compensatory measures to minimize risks where necessary, defines monitoring and response plans, and carries out drills with the emergency services.

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 led to minor adjustments being made where necessary. In addition, Arkema has raised security levels at its industrial facilities and R&D centers since 2015 in response to terrorist attacks in France, Germany, the United Kingdom and elsewhere. In particular, additional security measures have also been taken in response to malicious acts at other industrial companies in France.

Furthermore, 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 2019, 35 occupational illnesses were reported Group-wide, of which 15 were related to exposure to asbestos and 11 to exposure to chemicals. These figures include illnesses not yet included in the tables listing occupational illnesses. 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. For further details, see section 4.3.2.2.4 of this document. Lastly, certain Arkema Group products may also 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. These aspects are taken into account during the product design stage. Regulatory compliance plays a key role in ensuring product safety for customers, the entire value chain 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, Arkema employs regulatory experts supported by a global network of correspondents based in the industrial sites, within the 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. Arkema, if necessary, may also 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 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. 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. 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 are detailed in note 22 to the consolidated financial statements at 31 December 2019 presented 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 section 4.3.3 of this document.

Arkema also benefits from guarantees from subsidiaries of Total S.A. 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 31 to the consolidated financial statements at 31 December 2019 presented 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 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 "Group profile" 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 32% of its consolidated sales.

As indicated in paragraph 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 anti-corruption 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, 20 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).

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 regulations in the aforementioned areas in one or several 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. For further details on this program and related procedures see section 4.4 of this document.

Furthermore, a specific map of corruption-related risks has been drawn up, 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 CSR expectations CSR

Given the fact that it is present in 55 countries, Arkema is subject to complex and constantly changing local, national and international laws and regulations that differ depending on the countries in which it operates and may be lacking in clarity in certain countries. These laws and regulations encompass a large number of fields, including safety, environmental protection, antitrust legislation, company law, commercial law, patent protection, labor law, personal data protection, tax law, customs regulations, and product listing.

If existing product regulations were to be amended to become more restrictive for Arkema or if new regulations were issued, 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, and (iii) possibly compel it to abandon certain markets, incur significant expenditure to produce substitute substances, 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 (which represented 8% of Arkema's sales in 2019) have been identified as most exposed to regulatory changes and Arkema is actively developing new blends or substitutes, given regulatory changes in recent years and possible future developments. These regulatory changes, which weigh on volumes, may lead to temporary pressure on selling prices. For example, EU F-Gas regulations, which aim to cut emissions by two-thirds between 2015 and 2030, have set up a system of quotas and gradual prohibitions on certain uses. Consequently, from 2020, the use of cooling gases with a Global Warming Potential (GWP) greater than or equal to 2,500 will be prohibited in stationary refrigeration equipment. Between 2015 and 2019, the Fluorogases Business Line generated a significant share of earnings in the United States from the sale of HCFC-22, however, since 2020, the production and import of HCFC-22 are no longer allowed in the United States. Only sales of existing stockpiles and recycled products are authorized. 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 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.

Similarly, amidst heightened geopolitical tensions, changes in customs regulations (particularly between the United States and China) could lead to a significant increase in the costs borne by the Group. Moreover, 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. For example, in 2013, the regional tax department of Lombardy carried out a tax audit of Arkema Srl for 2008, 2009 and 2010, subsequently extended to 2011, 2012, 2013 and 2014 after which it contested, *inter alia*, the purchase price of products for resale and the amount of commission paid to the Company in inter-company transactions, and it applied a withholding tax on inter-company financing. Tax reassessments, plus interest and penalties, for 2008, 2009, 2010, 2011, 2012, 2013 and 2014 amount to €14.7 million. All of these tax reassessments are being challenged, and all of the decisions handed down so far have been favorable to Arkema Srl.

Non-compliance with any of these laws or regulations could result in significant fines being levied on Arkema or civil or criminal charges being brought against it and/or its employees.

Lastly, the Group is especially attentive to the societal expectations expressed by civil society, non-governmental organizations and 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 a loss of reputation for the Group.

Risk management

Group's operational and corporate departments, both at the corporate and local levels, assisted by the Group's Legal department and, where necessary, specialist law firms or the relevant government authorities, work continuously to ensure that a high level of legal expertise and knowledge of applicable laws 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 the industrial sites, within the businesses 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 notably section 4.2.4 of this document.

In cases where regulatory changes lead to restrictions on the use of raw materials or the marketing of finished products, Arkema 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 22.2 to the consolidated financial statements at 31 December 2019 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 twelve 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

All legal risks related to current or potential litigation are subject to a quarterly review. On the first day of the last month of every quarter, each business, corporate department and subsidiary must provide Arkema's Accounting and Controlling department and Legal department with a written summary of any legal risks or proceedings that affect, or are likely to affect Arkema's business activities, results or financial position. These two departments analyze the risks and legal proceedings that were identified and they 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 B. "Accounting policies" to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

Internal control failures linked to acquisitions of small and mid-sized businesses

As part of its overall corporate strategy, Arkema pursues a bolt-on acquisition program that targets small and mid-sized businesses. Over the past five years, the Group has assembled a portfolio of more than 80 industrial subsidiaries, representing total sales of over €2,300 million. Consequently, the number of subsidiaries included in the scope of consolidation, which appears in chapter 5 of this document, has increased rapidly. 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. Potential internal control failure is a risk specific to Arkema due to the "Seveso" classification of some of its European sites or a similar-type classification for some of its non-European industrial sites, as well as for the products manufactured by the Group.

Risk management

Arkema needs an average of two years to deploy its internal control and risk management systems, and particularly its organization, main stakeholders and framework, as described in section 2.2 of this chapter.

2.1.3 Operational risks

Risks related to the disruption caused by the Covid-19 public health crisis (added following the Board of Directors' meeting of 26 February 2020)

The Covid-19 epidemic which emerged in China in January 2020 and which has now spread to several other regions throughout the world, such as Europe and the United States, has led the governments of a number of countries where Arkema operates to introduce lockdowns and adopt measures to restrict the movement of people and the transportation of goods. At the date of this document, these rules have caused disruptions for the Group at various levels. They have notably impacted the supply chain and weighed on customer demand in the different regions of the world. They could in some cases result in partial or total closures of production units. At the date of this document, the majority of our plants across the world are still operating, even though production has become difficult to organize at certain sites due to absenteeism. Some sites are at a standstill, particularly in India and Malaysia. At the end of February 2020, the impact of these disruptions on the Group's EBITDA was approximately €20 million.

If the current situation were to last, or worsen, this could have an impact on our employees' health and availability and create difficulties with respect to the supply of certain raw materials or the delivery of products to our customers. It could therefore lead to temporary shutdowns of the Group's production units. The epidemic could also impact the Group's financial performance (sales and operating income) and its ability to generate cash, although it is not possible to assess the impact with precision at the date of this document.

In compliance with the applicable regulations, Arkema is implementing the necessary measures to protect in priority its employees' health and limit the impact of the crisis on its business and results. The Group has put in place crisis management measures at the central level, as well as in the different countries in which it operates, in order to protect its employees' health, adapt to evolving local regulations, and more generally to the consequences of the crisis, as well as to prepare the return to more normal conditions. In this context, the Group will benefit from the strength of its balance sheet and the recent renewal of its financing capabilities.

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 entered into certain multi-year supply contracts, including those governing Arkema's supply of propylene and oxo alcohols, hydrofluoric acid (HF) and cyclododecane (CDAN), which are used as a main raw material for acrylic monomers, fluorogases 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, a new agreement was signed on 3 September 2015 with Total, covering the period to 30 April 2021. Arkema is working with the Total group on the supply of propylene to the site beyond the end of the current agreement. In addition, Arkema France signed an electricity supply agreement with EDF covering some of its industrial sites for a 25-year period (1996–2020) in return for payment to EDF of a sum corresponding to a drawing right. Beyond 2020, Arkema France will have to negotiate new supply conditions with electricity providers for its industrial sites. There is a possibility that these conditions will be significantly less favorable than the current ones.

Arkema's French industrial chemical plants, which consume and ship significant quantities of bulk raw materials classified as "hazardous materials" for transport 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 transport 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.

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;
- careful 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 risks

For certain business activities, Arkema has entered into agreements representing significant income with certain customers, the most significant of which are described in section 1.2 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, please refer to note 22.2 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

More generally, the Group's relationships with a large number of clients expose it to credit risk. At 31 December 2019, accounts receivable net of provisions amounted to €1,204 million. These accounts receivable are detailed by due date in note 24.4 to the consolidated financial statements at 31 December 2019 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.

Lastly, 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, please refer to note 24.4 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document. The policy concerning provisions for doubtful accounts on fully or partially uninsured accounts receivable 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, boosting user awareness, user access management, business continuity plan) and technical measures (global cybersecurity operational center, data protection, networks and infrastructures) that reduce the Group's cyber risk exposure.

To ensure the reliability of the Group's critical processes and compliance with security rules, the Group has set up an internal control system consisting of a number of general IT 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 local level, each site must also comply with ten directives. Accordingly, the technical requirements of the Group's IT systems security policy comprise a behavioral component with the implementation of the iSafe program to raise employee awareness in the areas of data protection and cybersecurity throughout the world.

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, the Group may not reach the minimum annual 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 €654 million at 31 December 2019. For more information, please refer to section 31.1.2 "Contractual obligations relating to the Group's operating activities" in Note 31 to the consolidated financial statements at 31 December 2019 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.

Natural disasters and climate change CSR

Due to their geographic location, 37 of Arkema's 144 industrial sites (especially those located in Texas in the United States) are exposed to seismic and/or climate risks such as floods, drought and storms, the severity and frequency of which may evolve as a result of climate change. In 2019, 25 of these 37 sites were identified as being specifically exposed to climate risks. These classified sites accounted for approximately 23% of Arkema's total sales in 2019. If they 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.

In addition, in light of increasingly high expectations in the area of climate change response, the tightening of international, European and national regulations, notably those aimed at reducing greenhouse gas emissions (CO_2 allowance systems), could have a negative impact on Arkema's business activities, operating costs or profitability. Fluorogases, for example, have been identified as the products that have been most exposed to regulatory developments for many years.

Risk management

In order to prevent and limit the potential impact of natural disasters and climate change at the 37 exposed sites, insofar as this is possible, the Group has defined scenarios that take into account the evolution and potential 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 others 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.

In addition, Arkema endeavors to reduce the greenhouse gas emissions generated by its operations and energy use, and also strives, through its innovation, to adapt its product range in order to reduce emissions across its value chain. Concerning fluorogases, Arkema is already anticipating the applicable regulatory changes by developing new blends or substitutes. The various initiatives taken and the results achieved as part of the fight against global warming are presented in section 4.3.3.2 of this document.

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), a supplier, a customer, 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, and 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.

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 Group-manufactured products.

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 risks

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 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 sound 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 risks 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.

Arkema's experienced and committed teams enable it to:

- innovate by creating sustainable product and application solutions (in 2019, 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);
- consolidate acquisitions (in particular within Bostik) ;

- and, more generally, adapt to different macro-economic environments and significantly improve Arkema's financial and CSR performance.

Given that 32.5% of Arkema's employees are over 50 years old at the date of this document, the Group needs to organize 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 4.4.1 of this document.

Arkema's compensation policies value and reward fairly 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 4.4.1.3 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.

2.1.4 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 investments in the thiochemicals platform in Malaysia and specialty polyamides in Asia, representing a total estimated investment at the end of 2019 of approximately €500 million, mainly concentrated over the period 2018 to 2021 and which are described in section "Profile, ambition and strategy". 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 investments could weigh on the Group's growth prospects and the expected profitability of its other investments and thus have a negative impact on its business, earnings and financial position.

Arkema is also deploying a bolt-on acquisition program that targets small and mid-sized businesses to strengthen its portfolio and boost the share of its specialty activities from 72% of sales in 2019 to more than 80% by 2023. The Group has invested nearly €950 million in this program 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, notably those relating to 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.

Furthermore, Arkema holds non-controlling interests in certain companies, which could lead to disagreements or deadlocks, and in certain cases that are beyond Arkema's control, to decisions that go against Arkema's interests. The interests included in the Group's scope of consolidation are described in the notes to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

Lastly, as part of its program to dispose of non-strategic activities described in the "Profile, ambition and strategy" section of this document, 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.

For further details concerning the potential impact on the Group's prospects, see the "Profile, ambition and strategy" section of this document.

Risk management

Arkema has demonstrated its ability to carry out significant projects and has acquired solid experience in this area over the years. 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.

Arkema has a small number of non-controlling or joint-controlling interests in joint ventures, and protects its interests by introducing, where possible, contractual provisions designed to resolve deadlocks and maintain the Group's decision-making powers.

Innovation and technologies CSR

Group innovation policy, formulated in 2018 and 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 providing its customers with the technical support they need as well as the solutions its customers will need in the years ahead; 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 2019, R&D expenditure totaled €249 million, representing 2.8% of Group sales. 222 patents were filed in 2019 (244 in 2018) and the number of sustainable development-related patents filed was 149 (154 in 2018).

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, particularly in the batteries or hygiene products sector, could drag down the Group's sales.

In the course of its business, Arkema uses technologies that it owns or technologies under license from third parties. If Arkema were no longer able to use these technologies, it could have an adverse impact on its business activities or results.

Risk management

Each year, Arkema invests heavily in R&D to develop new products and processes that cater to both market demands and societal challenges: more than 1,600 researchers and €249 million in R&D expenditure spread across 15 research centers in three regional hubs (in Europe, Asia and North America). This major focus on innovation also enables the Group to adapt to regulatory changes. The R&D teams carry out important monitoring work which, beyond Arkema's own specialist technological fields, is also carried out downstream in technological monitoring 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 data and know-how

Arkema is developing an innovation-based growth strategy structured around a dedicated organization, 15 research centers spread throughout the world and a research incubator. It therefore has a large R&D project portfolio. As such, the patents and trademarks that protect the innovations generated by Arkema's research represent a key asset for its business. At 31 December 2019, Arkema owned 10,268 patents and 222 new patent applications were filed in 2019, 149 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 types of intellectual or industrial property rights infringements could also harm the reputation and the perceived quality of the products concerned as well as the image of the Group. Arkema could also infringe a patent involuntarily, given the time during which patent applications are not made public. Patent applications filed by third parties and made public only on publication could therefore have an impact on ongoing developments or even products recently brought to market and 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 its business activities or results.

Risk management

Arkema has developed an assertive policy to protect its innovations and know-how through the registration of patents and trademarks, particularly with the support of a global network of industrial property consultants. The Group's intellectual and industrial property rights are managed by the Intellectual Property department, which reports to the R&D department for patent matters and to the Group's Legal department for trademark and design matters. These departments are mindful of any infringements that may be committed against the Group's intellectual and industrial property rights and can, where required, take whatever action they deem necessary to prevent those infringements, halt them and obtain redress for said infringements. When new products, applications and processes are being developed, the departments also verify whether a given technology can be freely used in order to prevent any patent infringement due to such use. For further details, see section 1.1.3 of this document.

When it comes to protecting 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.

2.1.5 Economic and business risks

Geopolitical and macroeconomic instability

Arkema's global business, which generates a significant portion of sales in certain regions of the world or countries (36% in Europe, 29% in the United States and 12% in China in 2019), exposes it to the direct and indirect consequences of trade disputes, embargoes, epidemics or pandemics, sudden changes in customs duties, terrorist activities and political instability. 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.

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. In addition, as Arkema gradually establishes production plants in the main geographical regions, this 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.

Lastly, as part of its compliance and business ethics program, Arkema has put in place procedures that cover export control and other restrictive regulations applicable in some countries.

Change in key raw materials prices

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 24.5 and 25.2 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document).

The Group also forges partnerships with customers and 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 activities like downstream acrylics, in order to pass on increases in the cost of the raw materials used to manufacture its products to its sales prices.

Strengthening competition

Arkema faces strong competition in each of its businesses, especially intermediate chemicals, the strengthening of some of its competitors and the emergence of new players that could impact its own competitive position. Regarding the Group's intermediate product lines, some competitors are larger and more vertically integrated, which could enable them to benefit from lower production costs for certain products that are also manufactured by the Group. The economic emergence of certain countries like China, has been accompanied by the rise of local competitors, resulting notably from new global capacities and leading to growing competition on certain product lines, such as fluorogases and acrylics. This could result in lasting downward pressure on the selling prices 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.

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

Finally, the Group is forging 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.

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 Arkema's subsidiaries' accounts 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, for example, would have an estimated impact on consolidated EBITDA of €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 results.

Risk management

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

Transactional risks are systematically hedged 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 24.1 and 25 to the consolidated financial statements at 31 December 2019 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 23 and 24 to the consolidated financial statements at 31 December 2019 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 to EBITDA ratio of less than 2;
- maintaining cash reserves in excess of €500 million;
- a Euro Medium Term Note (EMTN) program, to facilitate access to bond markets;
- maintaining average maturity at over three 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 three divisions, each comprising Business Lines, which are responsible for their respective performance and the implementation of internal control procedures (see section 1.2 of this document);
- the corporate departments (or support functions), which assist the divisions and businesses in their area of competence, such as accounting, human resources, legal affairs, IT and procurement, and ensure the coherence and optimization at the Group level (see section 1.3 of this document); and
- the subsidiaries, in which Arkema performs its business activities (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, the two committees in place (the Audit and Accounts Committee and the Nomination, Compensation and Corporate Governance Committee) and their members through their experience and expertise, 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 in the entities and, in particular, the 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 Accounting, 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 Accounting 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 2019.

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.

Our internal control system meets the three lines of defense principle 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 principally 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.

All processes and management systems may be subject to an internal audit. The Internal Audit department discusses and agrees its findings with the audited entities before presenting them with a set of recommendations and related action plans that the entities 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 2019, the Internal Audit department, made up of eight internal auditors, carried out the following 36 audits:

- 10 audits of industrial sites in France and North America;
- 13 audits of subsidiaries in Europe, Asia, Africa, Oceania and North America;
- 7 process audits in Europe, Asia, North America and the Middle East;

- 5 audits of businesses in Asia, Europe and North America; and
- 1 follow-up audit in Europe.

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 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 2019. Its performance is measured annually, by self- or peer-assessment, and recorded in the dedicated GRC (Governance, Risk and Compliance) tool.

Additionally, the Internal Control department has sub-contracted a Data & Analytics analysis (mass data management) on payments and the risks related to double payments.

DIVISIONS, BUSINESS LINES, CORPORATE DEPARTMENTS AND SUBSIDIARIES

Arkema is organized into divisions as described in section 1.2 of this document. The divisions are made up of Business Lines, which coordinate the use of the resources required to meet the targets set in their respective areas. Each business 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, Code of Conduct and Business Ethics, 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 Code of Conduct and Business Ethics put in place by Arkema, available on Arkema's website under the heading "Ethics and integrity". 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 internal control systems.

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 Code of Conduct and Business Ethics 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 Code of Conduct and Business Ethics, 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, which mainly covers antitrust, export control and anti-corruption laws. Each area is the subject of various procedures and/or guides, which are provided to employees. To ensure that the compliance program has been followed, the Group's Legal department sends a declaration of compliance each year to the heads of the businesses, the corporate departments and the main subsidiaries and sites, which they must sign and return to show that they are aware of the compliance program, that they have acted in accordance with it over the past year, and that they undertake to continue to do so in the coming year. These heads are then responsible for obtaining an identical declaration, signed by the employees concerned within their business, corporate department, subsidiary or site.

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 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 the Arkema Group.

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 be able 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;
- 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 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, please refer to 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 is responsible for 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 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, member of the Executive Committee, and the Executive Committee reviews the results of the divisions and their respective businesses;
- the 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 Accounting and Controlling 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 amongst 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,
  - project and innovation risks,
  - economic and business risks, and
  - financial risks.

2.2.5 Accounting and financial control procedures

Operational and corporate managers' control and understanding of their business' financial performance represent 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:

- an 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 MANAGEMENT CONTROL

The 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 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 three divisions, their respective businesses, the corporate departments and Arkema's subsidiaries as a whole;
- 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 division and business, based on the consolidated data provided by the 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 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 team and submitted to the Company's Board of Directors for approval.

At the end of each accounting period, the 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 transformation program using SAP integrated software, which is helping to improve the Group's control environment, particularly through procedure review, improved automated checks, and the removal of interfaces.

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' halfyearly 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 2019, 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 €1 billion 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 2019, the maximum total retention in the event of a claim was €20 million.

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

TRANSPORT

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 production sites of the Group. 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 €50 million with effect from 15 January 2019, with a deductible of €2 million.

CORPORATE GOVERNANCE

3

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The different parts constituting the annual fi nancial report are identifi ed in the table of contents by the pictogram AFR

Chapter 3 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 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 3 December 2019, and the recommendations contained in the AMF annual report for 2019 on corporate governance and executive compensation in listed companies published on 3 December 2019; and
- the recommendations of the AFEP-MEDEF *Haut Comité du Gouvernement d'Entreprise* set out in its annual report published in December 2019.

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 and L. 225-37-5 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 general shareholders' 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 the commitment to the Chairman and Chief Executive Officer relating to compensation for termination of office, mentioned in the statutory auditors' report presented in section 7.1 of this document, 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 3.4.2.1 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. 225-37-4 §8 of the French Commercial Code and section 27.1 of the AFEP-MEDEF Code, the Company considers, at the date of this document, that, barring exceptions for which explanations are provided in the following summary table, the Company complies with the corporate governance system in force in France.

Disregarded provisions of the AFEP-MEDEF Code	Explanations
17. The Compensation Committee *"[…] It is recommended that the Chairman of the committee be independent […]"*	Pursuant to the AFEP-MEDEF Code – incorporated into the Board of Directors' Internal Rules – Thierry Morin has been a Director of Arkema for over twelve years and therefore is no longer considered as independent. However, in view of the significant renewal of its composition over the last three years, the Board of Directors, which was set up ex nihilo in 2006, wished to ensure a continuity in the chairmanship of the Nominating, Compensation and Corporate Governance Committee. As a result, at its meeting on 3 April 2019, the Board, being convinced of his complete independence of judgment, as well as his freedom of expression and thought, decided to maintain Thierry Morin as Chairman of the committee in order to continue to benefit from his in-depth knowledge of Arkema, its challenges and its governance principles which he contributed to develop and maintain at a level in line with best practice. Two-thirds of the members of the Nominating, Compensation and Corporate Governance Committee are independent members, which is higher than the rate recommended by the AFEP-MEDEF Code. As Thierry Morin's term of office is due to expire at the close of the annual general meeting convened to approve the financial statements for the year ending 31 December 2020, the chairmanship of the committee will be reviewed at that time.

Disregarded provisions of the AFEP-MEDEF Code	Explanations
17. The Compensation Committee *"[…] It is recommended […] that one of its members be an employee director"*	The director representing employees attends the Board of Directors' meetings during which compensation packages are reviewed and discussed. However, given that the Nominating, Compensation and Corporate Governance Committee deals with broader issues than merely compensation, the director representing employees is not a member of said committee. In addition, the committee's minutes are very comprehensive and are provided in their entirety to the Board of Directors.

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 Internal Rules of the Board of Directors.

The Company is run by a Board of Directors comprising thirteen members, seven of whom are independent. The Board includes six women, one member representing shareholder employees and one member representing 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
Directors	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	Article L. 225-23 of the French Commercial Code
Director representing employees	Designated by the French delegation of the European Group Works Council	4 years	1	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. 225-37-4, § 6 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, age and gender balance, as well as the range of experience, in particular international experience, and complementary skills. Consequently, the committee, with the help of recruitment specialists, as the case may be, aims to select and propose candidates, including current and former executives for Board approval with skills in areas such as industry, finance, acquisitions and integration of acquired entities, corporate social responsibility, research/innovation and information technology in view of the increasingly digitized business environment.

In terms of developing the Board's international dimension, and given the Group's relatively short history as an independent company, the Board of Directors gives priority to complementary skills and expertise and to the physical presence of members at its meetings while seeking candidates who have acquired considerable international experience by having spent significant time working abroad. There is nonetheless an unequivocal willingness to appoint foreign nationals and it is in this context that Ian Hudson, who is British, was appointed by the shareholders at the annual general meeting of 21 May 2019. In light of the renewal dates of the terms of office of its members, the Board of Directors aims to appoint, by 2021, another director who is either a foreign national or has spent most of his/her career outside France, in one or more countries that are strategic for the Group.

At the date of this document, the Board of Directors considers that its members' skills and career paths, as well as their strong and independent personalities, are diverse enough to allow it to carry out its duties with the necessary 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 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 the Group, or for which the Company or 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 meetings of 3 and 19 February 2020 and at the Board of Directors' meeting of 26 February 2020.

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 with which one or several directors are associated 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 to the Board of Directors 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. The Board of Directors accordingly performed materiality tests to compare the fees received by all of the 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.

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 Yannick Assouad, Marie-Ange Debon, Victoire de Margerie and Hélène Moreau-Leroy as well as Ian Hudson, Alexandre de Juniac and Marc Pandraud.

In accordance with the AFEP-MEDEF Code, which provides that the director representing shareholder employees, Jean-Marc Bertrand, and the director representing employees, Nathalie Muracciole, should not be included when calculating the percentage of independent directors, the rate of independence of the Board of Directors is 64% (seven 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 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
Yannick Assouad	X	X	X	X	X	X	X	**YES**
Jean-Marc Bertrand	√	X	X	X	X	X	X	NO
Marie-Ange Debon	X	X	X	X	X	X	X	**YES**
Ian Hudson	X	X	X	X	X	X	X	**YES**
Alexandre de Juniac	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**
Thierry Morin	X	X	X	X	X	√	X	NO
Nathalie Muracciole	√	X	X	X	X	X	X	NO
Marc Pandraud	X	X	X	X	X	X	X	**YES**
Fonds Stratégique de Participations	X	X	X	X	X	X	√	NO

X The criterion is not applicable.
√ The criterion is applicable.

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.

At the date of this document, the Company's Board of Directors includes six women among its thirteen members, *i.e.*, 45% (five out of eleven members), given that the director representing employees, Nathalie Muracciole, and the director representing employee shareholders, Jean-Marc Bertrand, are not taken into account when calculating the gender balance, in accordance with articles L. 225-23 and L. 225-27-1 of the French Commercial Code.

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 article L. 225-23 of the French Commercial Code as amended by French Law no. 2019-486 of 22 May 2019 relating to the action plan for business growth and transformation *(Loi Pacte)*, the director representing shareholder employees receives the training needed to perform his duties. The training time involved is at least 40 hours per year.

In addition, pursuant to the provisions of article L. 225-27-1 of the French Commercial Code, Nathalie Muracciole was appointed on 7 July 2016 as director representing employees.

Like all directors, and in accordance with article L. 225-30-2 of the French Commercial Code as amended by French Law no. 2019-486 of 22 May 2019 relating to the action plan for business growth and transformation *(Loi Pacte)*, Nathalie Muracciole receives the training needed to perform her duties. Since the Pacte law, the training time involved is at least 40 hours per year, compared with 20 previously.

In accordance with article L. 225-27-1 of the French Commercial Code, as amended by the *Loi Pacte*, the Board of Directors, which comprises more than eight directors appointed by the shareholders at the annual general meeting, must now include two directors representing employees. Consequently, at the annual general meeting scheduled for 19 May 2020, the shareholders will be asked, with regard to the 20th resolution, to amend the Company's Articles of Association to enable the appointment of a second director representing employees. For further details on this resolution, see sections 7.2 and 7.3 of this document.

Accordingly, due firstly to the expiration of Nathalie Muracciole's term of office in July 2020 and secondly to the aforementioned obligation to appoint a second director representing employees, the European Group Works Council, which performs the duties of the Group Works Council and the European Works Council, will – on condition that the Articles of Association submitted to the annual general meeting in July 2020 are approved – appoint two directors representing employees. After their appointment, the Board of Directors will consult with them in order to establish the content of their training.

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 general shareholders' 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; the directors representing employees 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; 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).

3.2.1.2 COMPOSITION OF THE BOARD OF DIRECTORS

At 31 December 2019, the composition of the Board of Directors was as follows:

	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	Expertise
Thierry Le Hénaff Chairman and Chief Executive Officer	French	56		2006	2020	1			Chairman and Chief Executive Officer
Yannick Assouad	French	61	♦	2017	2021	2			Executive management, digital and industry

♦ *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.*

	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	Expertise
Jean-Marc Bertrand Director representing shareholder employees	French	62		2018	2022	None			IT and knowledge of the Group as an employee
Marie-Ange Debon	French	54	♦	2018	2022	2	Chairman		Executive management, finance and M&A
Ian Hudson	British and Swiss	63	♦	2019	2023	1	•		Executive management, chemicals, finance and CSR
Alexandre de Juniac	French	57	♦	2018	2022	None		•	Executive management, industry and digital
Victoire de Margerie	French	56	♦	2012	2023	2		•	Chemistry, industry and CSR
Laurent Mignon	French	56		2006	2023	2			Executive management, banking and finance, M&A
Hélène Moreau-Leroy	French	55	♦	2015	2023	None	•		Industry, finance and M&A
Thierry Morin	French	68		2006	2021	1		Chairman	Executive management, industry and finance
Nathalie Muracciole Director representing employees	French	55		2016	2020	None			Human resources and knowledge of the Group as an employee
Marc Pandraud	French	61	♦	2009	2021	None			Finance and M&A
Fonds Stratégique de Participations represented by **Isabelle Boccon-Gibod**	French	52		2014	2022	4 3	•		Industry, finance and M&A

♦ *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.*

The following changes to the composition of the Board of Directors took place in 2019:

Annual general meeting of 21 May 2019

Departure	François Enaud, director, senior independent director and member of the Nominating, Compensation and Corporate Governance Committee
Appointment	Ian Hudson, independent director and member of the Audit and Accounts Committee
Reappointments	Victoire de Margerie, independent director and member of the Nominating, Compensation and Corporate Governance Committee Hélène Moreau-Leroy, independent director, senior independent director and member of the Audit and Accounts Committee Laurent Mignon, director

At its meeting of 26 February 2020, the Board of Directors noted that Thierry Le Hénaff's term of office was due to expire at the close of the annual general meeting of 19 May 2020 and that Nathalie Muracciole's term of office would expire at the close of the first ordinary meeting of the European Group Works Council following the annual general meeting convened to approve the financial statements for the year ended 31 December 2019.

Consequently, on the proposal of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors decided to submit to the shareholders at the annual general meeting to be held on 19 May 2020 the reappointment of Thierry Le Hénaff as a director for a new term of four years.

Subject to the shareholders approving this appointment, the Board of Directors also announced its intention to reappoint Thierry Le Hénaff as Chairman and Chief Executive Officer of the Company. Further details on the Board of Directors' recommendations in favor of Thierry Le Hénaff's reappointment as a director, and the continued combination of the positions of Chairman of the Board and Chief Executive Officer of the Company are provided in sections 3.2.2.1 and 7.2.2 of this document.

Annual general meeting of 19 May 2020	
Reappointment	Thierry Le Hénaff, director and Chairman and Chief Executive Officer

The following table summarizes the principles underlying the composition of the Board of Directors and the results obtained during the year.

SUMMARY OF THE COMPOSITION OF THE BOARD OF DIRECTORS

Composition of the Board of Directors	Objectives/priorities	Status as of end-2019
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%).	1 senior independent director: Hélène Moreau-Leroy **Independence rate: 64%**
Skills complementarity (excluding the Chairman and Chief Executive Officer)	Profiles of current or former executives. Combination of skills contributing to the Group's transformation strategy.	• **Chemicals:** 4 • **Industry:** 7 • **Finance:** 8 • **Information/digital technologies:** 4 • **CSR:** 4
Gender balance on the Board	At least 40% of women Board members.	**Women Board members: 45%**
Diversity – international profiles	Appointment, by 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: 80%** **Foreign national: 1**
Representation of employees and shareholder employees	Director representing shareholder employees (holding over 3% of share capital). Two directors representing employees (see proposed amendment of article 10.3 of the Company's Articles of Association).	1 director representing shareholder employees. 1 director representing employees since 2016. Appointment of a second director representing employees in July 2020, on the condition that the Articles of Association are amended by the shareholders at the annual general meeting.
Age of directors	The maximum age is 70.	No director is over 70 years of age. Average age: 58 years.

3.2.1.3 INFORMATION ON THE MEMBERS OF THE BOARD OF DIRECTORS AT 31 DECEMBER 2019

Thierry Le Hénaff
CHAIRMAN AND CHIEF EXECUTIVE OFFICER

Date of first appointment: 6 March 2006

Date of last renewal: 7 June 2016

Date appointment expires: AGM held to approve financial statements for 2019 financial year

Nationality: French

Number of shares held at 31 December 2019: 286,805

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

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. Thierry Le Hénaff was appointed Chairman and Chief Executive Officer of Arkema on 6 March 2006 and Chairman of the Board of Directors of Arkema France on 18 April 2006. He is also a member of the Board of Directors of the École polytechnique Foundation.

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. On 1 January 2003, he joined Atofina's Executive Committee, where he was in charge of three business units (Agrochemicals, Fertilizers and Thiochemicals) and three corporate departments. In 2004, he became a member of Total's management committee. On 6 March 2006, he was appointed Chairman and Chief Executive Officer of Arkema and led the Company's stock market listing on 18 May 2006.

OTHER OFFICES CURRENTLY HELD

France

Within the Group
- Chairman of the Board of Directors, Arkema France

Outside the Group
- Member of the Supervisory Board and Audit Committee of Michelin*

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- Director, Eramet*

Yannick Assouad
INDEPENDENT DIRECTOR

Date of first appointment: 23 May 2017

Date appointment expires: AGM held to approve financial statements for 2020 financial year

Nationality: French

Number of shares held at 31 December 2019: 450

Business address: Latécoère, 135 rue de Périole, 31079 Toulouse Cedex 5

PROFESSIONAL EXPERIENCE

Born in 1959, Yannick Assouad is a graduate of the Institut National des Sciences Appliquées (INSA) based in Lyon, France, and holds a Ph.D. in aeronautical engineering from the Illinois Institute of Technology (IIT) in the United States. She is Chief Executive Officer of Latécoère group.

She started her career in 1986 with Thomson-CSF (now Thales) where she was head of the thermal and mechanical analysis group until 1998. She then served successively as Technical Director and then as Chief Executive Officer of SECAN, a subsidiary of Honeywell Aerospace before being appointed as Chairman. In 2003, she joined Zodiac Aerospace, as Chief Executive Officer of Intertechnique Services, a position she held until 2008. Appointed to Zodiac Aerospace's Executive Committee that same year, she was selected to create the group's Services business segment, which she headed until 2010, when she was appointed Chief Executive Officer of its Aircraft Systems segment. In May 2015, she was appointed Chief Executive Officer of Zodiac Aerospace's newest segment, Zodiac Cabin. She was appointed Chief Executive Officer of Latécoère group in November 2016.

OTHER OFFICES CURRENTLY HELD**

France
- Chief Executive Officer and director of the Latécoère group*
- Senior independent director, Chairman of the Nominating and Corporate Governance Committee and member of the Audit Committee of Vinci*
- Director of École nationale d'aviation civile (ENAC)
- Vice-Chairman of the Board of GIFAS (Groupement des industries françaises aéronautiques et spatiales)

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- Member of the Executive Board of Zodiac Aerospace
- Chairman and director of companies in the Aircraft Systems division and later the Cabin division of Zodiac Aerospace
- Director of the Institut de recherche technologique Saint-Exupéry

* *Listed company.*
** *Outside the Arkema Group.*

Jean-Marc Bertrand

Director representing shareholder employees

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 2019: 855

Business address: Arkema,
420, rue d'Estienne d'Orves, 92700 Colombes

PROFESSIONAL EXPERIENCE

Jean-Marc Bertrand was born in 1958 and is a graduate engineer from CESI (Centre des Études Supérieures Industrielles). He is currently a project manager within the IT Infrastructures department of Arkema's iTeam (IT division).

Jean-Marc 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

International

- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019

- None

Expired from 2015 to 2018

- None

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 2019: 550

Business address:
420, rue d'Estienne d'Orves – 92700 Colombes

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-FMC and as Chairman of its Audit Committee.

Before joining Suez Environnement in 2008, Marie-Ange Debon held several positions in both the public and private sector: 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 Thomson group as Deputy Chief Financial Officer, and in July 2003 became General Secretary. In 2008, she joined Suez Environnement as General Secretary in charge of legal affairs, information systems auditing, risks, insurance and purchasing and member of the Suez Group management 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 was a member of the decision-making body of the French financial markets authority (Collège de l'Autorité des marchés financiers) from 2008 to 2014 and Chairman of the MEDEF Corporate Law Committee from 2009 to 2013.

OTHER OFFICES CURRENTLY HELD**

France

- Director and Chairman of Audit Committee, Technip-FMC*
- Member of the Board of Directors and Chairman of the Responsible Gaming and Sustainable Development Committee of the FDJ-Française des Jeux*

International

- Member of the Board of Directors of a Suez Group company* in Morocco

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019

- None

Expired from 2015 to 2018

- None

* *Listed company.*
** *Outside the Arkema Group.*

Ian Hudson

Independent director and member of the Audit and Accounts 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 2019: 450

Business address:
420, rue d'Estienne d'Orves – 92700 Colombes

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 10 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 2019
- None

Expired from 2015 to 2018
- President of Europe, Middle East & Africa, DuPont International S.A.
- Member of the Executive Committee and Board of the European Chemical Industry Association
- Member of the Foundation Board of the International Institute for Management Development (IMD)
- Member of the Executive Committee, EuropaBio

Alexandre de Juniac

Independent director and member of the Nominating, Compensation and Corporate Governance 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 2019: 450

Business address: IATA,
33 route de l'aéroport, PO BOX 416,
1215 Genève 15 Aéroport – Switzerland

PROFESSIONAL EXPERIENCE

Born in 1962, Alexandre de Juniac holds degrees from France's École polytechnique and École nationale de l'administration (ENA). He has been CEO of the International Air Transport Association (IATA) since 1 September 2016.

Alexandre de Juniac began his career with the French Council of State (Conseil d'État) from 1988 to 1993, where he served as auditor, counsel and then deputy general secretary. From 1993 to 1995, he served as technical advisor and then deputy Chief of Staff to Nicolas Sarkozy, then France's Budget Minister. In 1995, he joined Thomson S.A. (now Thales) as director of the development plan. He was appointed Sales Director of Thales Avionics in 1997, then General Secretary of Thales (1999-2004), Chief Operating Officer of Thales Air Systems (2004-2008) and Chief Executive for Asia, Africa, Middle East and Latin America in May 2008. From June 2009 to September 2011, he served as Chief of Staff under Christine Lagarde, France's Minister for the Economy, Finance and Employment. He was Chairman and Chief Executive Officer of Air France from 2011 to 2013, then served as Chairman and Chief Executive Officer of Air France-KLM until July 2016. Alexandre de Juniac was also a member of Vivendi's Supervisory Board from 2013 to 2017.

OTHER OFFICES CURRENTLY HELD**

France
- None

International
- CEO of the International Air Transport Association (IATA).

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- Chairman and Chief Executive Officer, Air France-KLM*
- Member of the Supervisory Board, Vivendi*

* *Listed company.*
** *Outside the Arkema Group.*

Victoire de Margerie
INDEPENDENT DIRECTOR AND MEMBER OF THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE 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 2019: 450

Business address: Rondol Industrie, 2 allée André Guinier, 54000 Nancy

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 Vice-Chairman of the World Materials Forum and a Director of Eurazeo (France) and Babcock International (United Kingdom).

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 Management business school.

OTHER OFFICES CURRENTLY HELD**

France
- Chairman, Rondol Industrie
- Member of the Supervisory Board and Finance Committee, Eurazeo*

International
- Director, member of the Nominations and Remuneration Committee and member of the Audit and Risk Committee of Babcock International Group Plc.*

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- Chairman of the Board of Directors, Soitec*
- Director, Écoemballages
- Director, Morgan Advanced Materials* (United Kingdom)
- Director, Italcementi* (Italy)
- Member of the Supervisory Board, Banque Transatlantique

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 2019: 300

Business address: Groupe BPCE, 50 avenue Pierre Mendès France – 75201 Paris Cedex 13

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 Chairman of the Executive Board of BPCE since 1 June 2018.

For over ten years, he 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
- Chairman of the Executive Board, BPCE
- Chairman of the Board of Directors, Natixis S.A.*
- Director, Compagnie Nationale de Prévoyance (CNP)*

Outside the BPCE group
- Non-voting director, ODDO
- Non-voting director, Fimalac

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- Chairman of the Board of Directors, Crédit Foncier de France

Expired from 2015 to 2018
- 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.*
- Chairman of the Board of Directors, Natixis Assurance
- Director, Lazard Ltd*
- Member of the Board of Directors, Peter J. Solomon Company LLC

* *Listed company.*
** *Outside the Arkema Group.*

Hélène Moreau-Leroy

INDEPENDENT DIRECTOR, SENIOR INDEPENDENT DIRECTOR AND MEMBER OF THE AUDIT AND ACCOUNTS 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 2019: 450

Business address: Safran, 46 rue Camille Desmoulins, 92130 Issy les Moulineaux

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 in International Business Administration from Australia's University of New England. She is an APICS-certified Supply Chain Professional. She is Director of the Zodiac Aerospace integration project at Safran.

Hélène Moreau-Leroy has held various management positions in the areas of research and development, project management, procurement and production 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 Messier-Bugatti Dowty's supply chain in emerging markets, before becoming the Company's programs director and a member of its management committee. She held the position of Chairman of Safran Transmission Systems from 2013 to 1 December 2017, when she was appointed to head up the integration of Zodiac Aerospace.

She is 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 – GEAD) and of various networks and associations set up to promote workplace diversity.

OTHER OFFICES CURRENTLY HELD**

France

- None

International

- Director, Safran Aero Booster (Belgium)

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019

- None

Expired from 2015 to 2018

- Director, SEM-MB
- Chairman, Safran Transmission Systems

Thierry Morin

DIRECTOR AND CHAIRMAN OF THE NOMINATING, COMPENSATION AND CORPORATE GOVERNANCE COMMITTEE

Date of first appointment: 10 May 2006

Date of last renewal: 23 May 2017

Date appointment expires: AGM held to approve financial statements for 2020 financial year

Nationality: French

Number of shares held at 31 December 2019: 1,281

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

PROFESSIONAL EXPERIENCE

Born in 1952, Thierry Morin holds a degree in management from the Université de Paris IX – Dauphine. He is Chairman of Thierry Morin Consulting and Manager of TM France.

Thierry Morin joined the Valeo group in 1989, where he held various positions, including divisional finance director, Group finance director, head of strategy and purchasing, before becoming Executive Vice-President in 1997, Chief Executive Officer in 2000, Chairman of the Management Board in 2001, and then Chairman and Chief Executive Officer from March 2003 to March 2009. Prior to that, he held various positions at Burroughs, Schlumberger and Thomson Consumer Electronics. He has also been Chairman of the Board of Directors of the Université de Technologie de Compiègne (until 2017) and Chairman of the Board of Directors of INPI (Institut national de la propriété industrielle).

OTHER OFFICES CURRENTLY HELD**

France

- Chairman, Thierry Morin Consulting (TMC)
- Manager, TM France
- Chairman of the Supervisory Board, Elis*

International

- Chairman, TMPARFI S.A. (Luxembourg)
- Chairman, HNT Electronics Co., Ltd (Korea)

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019

- None

Expired from 2015 to 2018

- Chairman of the Board of Directors, Université de Technologie de Compiègne

* *Listed company.*
** *Outside the Arkema Group.*

Nathalie Muracciole
DIRECTOR REPRESENTING EMPLOYEES

Date of first appointment: 7 July 2016

Date appointment expires: European Group Works Council meeting following the annual general meeting held to approve the financial statements for 2019 financial year

Nationality: French

Business address: Arkema,
420, rue d'Estienne d'Orves, 92700 Colombes

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 developing the Group's skills sets within the Human Resources Development 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.

OTHER OFFICES CURRENTLY HELD**

France
- None

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- None

Marc Pandraud
INDEPENDENT DIRECTOR

Date of first appointment: 15 June 2009

Date of last renewal: 23 May 2017

Date appointment expires: AGM held to approve financial statements for 2020 financial year

Nationality: French

Number of shares held at 31 December 2019: 500

Business address: JP Morgan
14 place Vendôme, 75001 Paris – France

PROFESSIONAL EXPERIENCE

Born in 1958, Marc Pandraud is a graduate of France's École supérieure de commerce de Paris (ESCP Europe). He has been Vice-Chairman of investment banking for Europe, the Middle East and Africa at JP Morgan since 14 April 2016.

Marc Pandraud began his career as an auditor with Peat Marwick Mitchell (1982-1985). He was subsequently Vice-Chairman of Bear Stearns & Co Inc. (1985-1989), Chief Executive Officer of SG Warburg France S.A. (1989-1995) and Chief Executive Officer of Deutsche Morgan Grenfell (1995-1998). He then joined Merrill Lynch as Managing Director of Merrill Lynch & Co Inc. (1998) and Chief Executive Officer of Merrill Lynch France (1998) before becoming Chairman of Merrill Lynch France (2005-2009). In 2009, he moved to Deutsche Bank to take up a position as Chairman of the bank's French operations, going on to serve as Vice-Chairman of Deutsche Bank Europe, Middle East and Africa between June 2013 and January 2016.

OTHER OFFICES CURRENTLY HELD**

France
- *Vice-Chairman* of investment banking for Europe, the Middle East and Africa at JP Morgan

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- Vice-Chairman, Deutsche Bank Europe – Middle East and Africa

* *Listed company.*
** *Outside the Arkema Group.*

Fonds Stratégique de Participations
DIRECTOR REPRESENTED BY ISABELLE BOCCON-GIBOD

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 2019: 4,759,008

Business address:
47 rue du Faubourg Saint-Honoré,
75401 Cedex 08 Paris

PROFESSIONAL EXPERIENCE

Fonds Stratégique de Participations (FSP) is a SICAV, or open-ended investment company, which is registered with the French financial markets authority (AMF) and which seeks to promote long-term equity investments by acquiring strategic stakes in French companies. FSP's Board comprises eight members, including seven insurance companies (all shareholders) and the Edmond de Rothschild group.

FSP is divided into five sub-funds, each of which holds an interest in the capital of one company.

FSP is an independent investment body with its own governance structure. Its portfolio is managed by a dedicated team within Edmond de Rothschild Asset Management, part of the Edmond de Rothschild group, which is responsible for the financial monitoring of the companies in which FSP has invested and relations with FSP's permanent representatives on those companies' Boards of Directors. FSP does not act in concert with other shareholders and votes independently at annual general meetings. FSP appointed Isabelle Boccon-Gibod as its permanent representative on the Company's Board of Directors.

OTHER OFFICES CURRENTLY HELD**

France
- Director, SEB S.A.*
- Director, Eutelsat Communications*
- Member of the Supervisory Board, Tikehau Capital SCA*
- Director, Elior Group*
- Director, Neonen

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- None

Expired from 2015 to 2018
- Director, Zodiac Aerospace*

Isabelle Boccon-Gibod
PERMANENT REPRESENTATIVE OF FSP
AND MEMBER OF THE AUDIT AND ACCOUNTS COMMITTEE

Date appointed: 15 May 2014

Nationality: French

Number of shares held at 31 December 2019: 250

Business address: Arkema, 420, rue d'Estienne d'Orves, 92700 Colombes

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 a member of the national investment strategy Board (Conseil national d'orientation) of BPI France, Vice-President of the MEDEF Economic Commission, Director of the Paprec group, Director of Sequana, Director of Legrand and permanent representative of Fonds Stratégique de Participations, a Director of Zodiac Aerospace.

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.

OTHER OFFICES CURRENTLY HELD**

France
- Director, Legrand*
- Member of the national investment strategy Board (Conseil national d'orientation), BPI France
- Director, Paprec
- Director, Centre Technique du Papier
- Chairman, Demeter
- Director, SilMach
- Director, Arc International

International
- None

OTHER OFFICES HELD IN THE PAST FIVE YEARS BUT NOW EXPIRED**

Expired in 2019
- Director, Sequana*

Expired from 2015 to 2018
- Permanent representative of Fonds Stratégique de Participations, a Director of Zodiac Aerospace*
- Vice-President of the Economic Commission, MEDEF

* *Listed company.*
** *Outside the Arkema Group.*

3.2.2 Executive management

3.2.2.1 CHAIRMAN AND CHIEF EXECUTIVE OFFICER

As a preliminary remark, it shall be noted that Arkema's Board of Directors has not adopted a position of principle regarding the combination or separation of the roles of Chairman of the Board of Directors and Chief Executive Officer.

In 2006, the Board of Directors decided not to separate the roles of Chairman of the Board of Directors and Chief Executive Officer in order to put in place a simple, reactive and responsible decision-making process. At the time, this governance structure was – and still is today – the most common structure within French listed companies.

Following the reappointment of Thierry Le Hénaff as a director by the shareholders of Arkema at the annual general meeting of 7 June 2016, the Board of Directors unanimously confirmed that the positions of Chairman of the Board of Directors and Chief Executive Officer would continue to be combined, as recommended by the Nominating, Compensation and Corporate Governance Committee, and consequently reappointed Thierry Le Hénaff as Chairman and Chief Executive Officer of the Company.

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, as shown by the Group's results and performance since 2006, in particular during the Chairman and Chief Executive Officer's most recent term of office.

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 has ensured that the Board functions correctly and has facilitated the strategic operation of the Company, thanks to rapid decision-making and better communication between the Board 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.

Within the context of the expiration of the Chairman and Chief Executive Officer's term of office at the close of the annual general meeting of 19 May 2020, the Nominating, Compensation and Corporate Governance Committee carried out an in-depth analysis of the Group's governance in 2019 and since early 2020, taking a combination of factors into account, such as:

- the Group's results and performance since 2016, as well as Thierry Le Hénaff's achievements during his most recent term of office;
- the increasing importance given by management to social and environmental issues;
- feedback from the governance roadshows held each year with the governance teams of Arkema's main shareholders and proxy advisors, where applicable in the presence of the senior independent director;
- the recommendations of the AFEP-MEDEF Code;
- the results of the assessments of the Board of Directors' operating procedures, in particular the assessment carried out by an independent firm in early 2019, the results of which are provided in section 3.3.2.4 of this chapter;
- the presence of an Executive Committee with the required experience and skills and; lastly,
- the existence of a robust succession plan, which the Board of Directors works on each year.

Thus, based on the Group's results since 2016 (in respect of which the main indicators are set out in section 3.4.2.2 of this chapter), their constant growth over almost 15 years, and the favorable development of operating conditions of the Company's governance bodies which have also progressed considerably and are now in line with best governance practice, the committee confirmed its recommendation to reappoint Thierry Le Hénaff as a director, and provided that the shareholders approve this appointment, as Chairman and Chief Executive Officer.

At its meeting of 26 February 2020, and on the recommendation of the committee, which enabled it to make an informed decision in the interest of the Company and its stakeholders, the Board of Directors unanimously decided to propose the reappointment of Thierry Le Hénaff as a director at the next annual general meeting, with a view to his reappointment as Chairman and Chief Executive Officer, for another four-year term as from the date of said meeting. Within this context, the Board of Directors stressed the decisive role played by Thierry Le Hénaff, Chairman and Chief Executive Officer of Arkema since its creation in 2006, in leading the Group from its precarious and heterogeneous beginnings to a major, competitive and socially committed player in specialty chemicals and advanced materials, enjoying a player leading industrial and commercial presence and a balanced geographical footprint, with strong positions in Europe, North America and Asia. The Board also commented on his role as "Arkema founder", as well as his necessary presence at the head of the Company, in one single role, in order to complete Arkema's ongoing transformation into a coherent and profitable world leader within specialties around specialty adhesives, advanced materials, and coating solutions, and to continue to enhance the Group's profile.

Within the scope of its decision, the Board of Directors also ensured that Arkema's governance structures operated fluidly and efficiently and in strict respect of the balance of powers thanks to the robust checks and balances set up within the Group, 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 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, which were enhanced in early 2020 with a systematic, annual executive session (in addition to the meeting held each year within the scope of discussions about the Chairman and Chief Executive Officer's compensation, without his presence) and his access, on request, to meetings of the Nominating, Compensation and Corporate Governance Committee on governance issues falling within the scope of his role, 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 strong, independent and committed personalities, allowing for open, adversarial and constructive discussions;
- the presence of a large majority of independent members on the Board – 64% at the date of this document – and its committees (3/4 for the Audit and Accounts Committee and 2/3 for the Nominating, Compensation and Corporate Governance Committee), *i.e.*, higher than the rates recommended by the AFEP-MEDEF Code, and committee Chairmen who are, in principle, all independent (see the explanations about the chairmanship of the Nominating, Compensation and Corporate Governance Committee and the development plan in section 3.1 of this chapter);
- 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;
- 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 meeting dealing with his reappointment, the assessment of his performance and the setting of his compensation.

The Board of Directors, as constituted at the date of this document, nonetheless wished to specify that the combination of Chairman and Chief Executive Officer positions, which it decided to maintain, applies specifically to Thierry Le Hénaff in view of his capacity as "Arkema founder", his individual and collective performance and approach, and the relevance of his proposed strategy for his upcoming term of office. However, the vast majority of the Board members do not consider the combination of Chairman of the Board of Directors and Chief Executive Officer positions as compulsory and believe, on the contrary, 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, will continue 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 2019

Name	Position	Area of responsibility	Year of appointment
Thierry Le Hénaff	**Chairman and Chief Executive Officer**		2006
Operational Executive Vice-Presidents			
Christophe André	Executive Vice-President, advanced materials	*Technical Polymers* and Performance Additives Business Lines and Commercial Excellence	2016

Name	Position	Area of responsibility	Year of appointment
Vincent Legros	Executive Vice-President, Bostik	Bostik	2016
Marc Schuller	Executive Vice-President, Coating Solutions and Industrial Specialties	Coating Solutions, Industrial Specialties and raw materials and energy procurement	2006
Functional Executive Vice-Presidents			
Luc Benoit-Cattin	Executive Vice-President, Industry	Industrial safety, environment and sustainable development, technique and construction, *supply chain*, quality and goods and services procurement, processes and operational excellence	2011
Bernard Boyer	Executive Vice-President, Strategy	Planning, economic studies, acquisitions/ divestitures, internal audit and internal control, insurance and risk management, and legal affairs	2006
Marie-José Donsion	Chief Financial Officer	Accounting, management control, treasury management, financing, taxation, investor relations and IT	2018
Thierry Parmentier	Executive Vice-President, Human Resources and Communication	Human resources and communication	2019

Thierry Parmentier joined Arkema as Executive Vice-President Human Resources and Communication and member of the Executive Committee on 1 July 2019, to replace Michel Delaborde upon the latter's retirement.

At 31 December 2019, the Executive Committee comprises one woman, or 12.5% of the committee's members.

The R&D department, which falls within the remit of Christian Collette, Chief Technical Officer (CTO) of Arkema, 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.

On 3 March 2020, the Chairman and Chief Executive Officer announced the following changes to the Executive Committee:

- as from 3 March 2020: Marc Schuller became Chief Operating Officer (COO) of Arkema with responsibility for overseeing Coating Solutions, Industrial Specialties and Advanced Materials. He also has responsibility for North America, raw materials and energy procurement as well as for commercial excellence;
- as from 4 May 2020, the Executive Committee will have three new members: Marie-Pierre Chevallier, Richard Jenkins and Erwoan Pezron, who will report to Marc Schuller and whose business remits will be disclosed as of that date.

These changes will provide a broader and more diversified representation of the Business Lines to continue adapting the Group to the challenges facing the world today and in the future.

Taking into account those appointments, from 4 May 2020 the Executive Committee will comprise 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 Finance – 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 Group management committee, whose duties entail in particular the quarterly review of the Group's performance (HSE, financial and operational) and monitoring of the Group's major projects and priorities. This committee also discusses the Group's medium- and long-term orientations. It meets four times a year.

At 31 December 2019, the Group management committee was made up of nineteen members, including the eight Executive Committee members, seven Vice-Presidents of Business Lines, two Vice-Presidents of corporate functions and two regional Vice-Presidents. The Executive Committee members comprise three women, or 16% of the committee's members.

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 executive officer 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 practice 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 responsabilities 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 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 accordance with article L. 225-39 of the French Commercial Code as amended by the *Loi Pacte*, the Board of Directors, at its meeting of 26 February 2020, approved the procedure for assessing agreements relating to ordinary operations entered into under normal conditions. Under this procedure, a committee for assessing agreements relating to ordinary operations, comprising the head of compliance, the head of the Financing and Treasury department and the Internal Audit and Internal Control Vice-President, meets twice a year in an ordinary session and on an extraordinary basis if necessary, to ensure that the agreements relating to ordinary operations and 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.

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 Internal Rules of the Board of Directors. The latter documents can be found on the Company's website (www.arkema.com) under Finance – Governance.

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 general 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 2016.

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 21 January 2019, 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.

At its meeting on 20 January 2020, the Board of Directors renewed 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, as amended by French law no. 2019-744 of 19 July 2019 on the simplification, clarification and updating of company law, 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.

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 analyses 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 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. Additional information on these objectives, the implementation thereof and the results achieved is provided in section 4.4.1.6 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 Internal Rules as updated most recently on 26 February 2020, in compliance with the various legislative and regulatory changes that have occurred in 2019, as well as the AFEP-MEDEF Code.

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 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 notice of meeting if all members are present or represented. In accordance with its Internal Rules, in all cases permitted by law and if specified in the notice of meeting, 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 practice 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;
- 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; 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 the Company's Board of Directors' meetings and the meetings of the committees to which they have been appointed, as well as general 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 notice of meeting 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 meetings' 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 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. The Internal Rules, amended by the Board of Directors on 26 February 2020, now also provide that 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 directors are excluded.

3.3.2.3 ACTIVITIES OF THE BOARD OF DIRECTORS

The Board of Directors met eight times in 2019. There was a high attendance rate at these meetings of 95% (*versus* 97% in 2018 and 90.5% in 2017). On average, the meetings lasted approximately four hours.

The following table summarizes the individual attendance rates of directors at the meetings of the Board of Directors and its committees in 2019.

	Board of Directors		Audit and Accounts Committee		Nominating, Compensation and Corporate Governance Committee	
Directors	**Attendance rate**	**Number of meetings**	**Attendance rate**	**Number of meetings**	**Attendance rate**	**Number of meetings**
Thierry Le Hénaff	100%	8/8	-	-	-	-
Yannick Assouad	100%	8/8	-	-	-	-
Jean-Marc Bertrand	100%	8/8	-	-	-	-
Marie-Ange Debon	100%	8/8	100%	6/6	-	-
François Enaud (1)	100%	4/4	-	-	100%	2/2
Ian Hudson (2)	100%	4/4	100%	4/4	-	-
Alexandre de Juniac	100%	8/8	-	-	100%	4/4
Victoire de Margerie	75%	6/8	-	-	75%	3/4
Laurent Mignon	75%	6/8	-	-	-	-
Hélène Moreau-Leroy	100%	8/8	100%	6/6	-	-
Thierry Morin	100%	8/8	-	-	100%	4/4
Nathalie Muracciole	100%	8/8	-	-	-	-
Marc Pandraud	88%	7/8	-	-	-	-
Fonds Stratégique de Participations represented by Isabelle Boccon-Gibod	100%	8/8	100%	6/6	-	-
TOTAL	**95%**	**8**	**100%**	**6**	**92%**	**4**

(1) Term of office expired on 21 May 2019.
(2) Appointed on 21 May 2019.

The agenda of the Board of Directors' meetings included recurring annual topics as well as more specific topics, as follow:

Operations, strategy and risk management	**Recurring annual topics** • review and approval of the strategy and main operational priorities presented during the annual seminar • monitoring the implementation of the targeted 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 situation in terms of cybersecurity • progress report on the Group digital transformation program • business presentation by the industrial division • presentation and review of the business of each division **Specific topics in 2019** • various strategic projects: acquisition of ArrMaz, Lambson and Prochimir, divestment of the Functional Polyolefins business, additional photocure resins capacity in China and increased production capacity for Kynar® fluorinated polymers, also in China

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, management report and, more generally, of 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 2019** • partial refinancing of the Company's hybrid bonds: new, euro-denominated hybrid bond issue and redemption of existing hybrid bonds • authorization to renew the Euro *Medium Term Notes* (EMTN) program for a maximum amount of €3.5 billion.
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 2019** • assessment of the Board of Directors' operating procedures by consulting firm Spencer Stuart • appointment of Ian Hudson as director and reappointment of Hélène Moreau-Leroy, Victoire de Margerie and Laurent Mignon as Board members • appointment of Hélène Moreau-Leroy as senior independent director to replace François Enaud • acknowledgment of the fulfillment of the performance conditions applicable to the 2015 and 2016 performance share plans • 2019 performance share plan: definition of criteria and introduction of a non-financial performance condition.
Corporate social responsibility	**Recurring annual topics** • the Group's situation in terms of safety and the environment • Group human resources policy, especially its diversity policy • Group CSR approach and roadmap • Non-financial performance report and duty of care **Specific topics in 2019** • detailed review of CSR aspects within the scope of recent acquisitions and investments.

At each meeting, the Chairman monitors 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 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 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 in general among the 10% of most senior positions. Each year it reviews the policy established by the executive management in this regard, including the objectives, actions implemented and results achieved. For further details on 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, and career management policy for Group executives. This work is used 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, he set out the conditions for replacing the Chairman and Chief Executive Officer, notably in the event of an emergency (so-called "tramway" scenario), as well as the key principles for his long-term succession.

Since the beginning of 2020, the Board of Directors has met twice, with an attendance rate of 96%. In addition to recurring topics such as the approval of the 2020 annual budget, the approval of the annual consolidated and Company financial statements for 2019, the proposed allocation of profit and distribution of dividends and, more generally, the preparation of the annual general meeting including approval of the proposed resolutions, these meetings focused in particular on:

- reviewing the Company's governance structure and the confirmation of the continuing combination of the roles of Chairman and Chief Executive Officer and, within this context, the proposal to reappoint Thierry Le Hénaff as a director and as Chairman and Chief Executive Officer of the Company;
- the proposal to amend the compensation policy for directors excluding the Chairman and Chief Executive Officer, and the compensation policy for the Chairman and Chief Executive Officer;
- directors' compensation in accordance with the compensation policy applicable in 2019, as well as the compensation paid or awarded to the Chairman and Chief Executive Officer in 2019;
- the Executive Committee members' compensation for 2019 and their compensation policy for 2020;
- the conditions of the share capital increase reserved for employees;
- changes in the Executive Committee;
- the review of the Group's social and environmental challenges as part of CSR performance declaration pursuant to article L. 225-102-1 of the French Commercial Code and the report on the effective deployment of the *plan de vigilance* (duty of care plan);
- the adoption of a procedure for assessing the agreements relating to ordinary operations entered into under arm's length conditions;
- reviewing the Group's insurance policy;
- the annual assessment of the operating procedures of the Board of Directors and its committees performed by means of a self-assessment questionnaire; and
- changes in the Internal Rules of the Board of Directors in particular to take into account the strengthening of the senior independent director's duties.

One of the two sessions was held in Breda in the Netherlands and was followed by a site visit of Bostik B.V., which gave the directors a detailed overview of Bostik's activities in Holland, in particular the sealing and bonding business, and enabled them to meet the executives in charge of these activities. In addition to recurring topics, the Board focused on key strategic priorities and projects for 2020.

An executive session was held as provided for by the Internal Rules, following the meeting held on 26 February 2020.

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).

For 2019, the annual assessment of the Board of Directors was performed, on the recommendation of the Nominating, Compensation and Corporate Governance Committee and in view of the assessment carried out by an external consultant in early 2019 and recalled below, by means of a questionnaire prepared by the Nominating, Compensation and Corporate Governance Committee. This notably included questions about the composition of the Board and its committees, the Board's collective performance during the year, the work of the committees and their report, the individual contributions of each director, the quality of the Board's discussions, and the Company's governance structure. The assessment was discussed by the aforementioned committee on 19 February 2020 and voted on by the Board of Directors at its meeting of 26 February 2020. After analyzing the answers given by the directors, the Chairman of the Nominating, Compensation and Corporate Governance Committee presented a report on this self-assessment to the Board of Directors. The report showed that the directors continue to be very satisfied with the overall operating procedures of the Board and that the main recommendations made after the previous assessment had all been taken into account, in particular with the arrival of Ian Hudson as member of the Board. The Company's governance structure, in the presence of Thierry Le Hénaff, was moreover reconfirmed within this context. The assessment shows, however, that the Board of Directors has not adopted a position of principle regarding the combination or separation of the roles of Chairman and Chief Executive Officer and that a separated governance structure may be prioritized in the future, notably in the context of Thierry Le Hénaff's succession at a given time.

It is recalled that in early 2019, the Board of Directors' 2018 operating procedures were assessed by the 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 19 February 2019 and then to the Board of Directors on 26 February 2019.

In general, this assessment has shown that Arkema's governance is among the best in the industry in terms of governance practices. More than 75% of directors consider that the operating procedures of Arkema's Board of Directors continued to improve compared with the last external assessment, which was carried out in 2016, and a large majority of directors who also sit on the Boards of comparable companies consider the operating procedures of Arkema's Board to be the best, in particular due to the Chairman's attitude towards the directors and the directors' active and positive contribution.

This assessment highlighted the following strengths:

- the current governance structure with the combined role of Chairman and Chief Executive Officer, which is entirely suited to Arkema, in particular due to the attitude of transparency of the Chairman and Chief Executive Officer towards the Board. Indeed, the Chairman and Chief Executive Officer listens to the Board's opinion and seeks discussion and interactions;
- the diverse expertise of the directors;
- the directors' genuine commitment to and interest in Arkema and the successful integration of new directors;
- the freedom of expression, friendliness and trusting relationship among the Board members, which has not been affected by the replacement of directors;
- increased interaction with the entire Executive Committee team thanks to more regular meetings with its members and better knowledge of the latter;
- committees that play an excellent role in fulfilling their duties and provide the Board with real support;
- high quality Board documents; and
- a highly successful strategy seminar and trip to China in early 2019, which brought genuine value-added.

Following this assessment, the following subjects were identified by the Board to be further developed or consolidated:

- strengthening of skills in the areas of chemicals and international exposure and the continued presence of a Chief Executive Officer or former Chief Executive Officer from the industrial sector with a strong international dimension on the Board;
- the ongoing succession plan for the Chief Executive Officer and the Executive Committee in general; and
- institutionalizing the holding of a Board meeting at one of the Group's foreign sites.

As specified above, all of these improvements were made in 2019.

3.3.3 Senior independent director

In accordance with best practice, 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, which – on the proposal of the Nominating, Compensation and Corporate Governance Committee – were enhanced by the Board of Directors at its meeting of 26 February 2020.

1. Concerning the 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 (new prerogative) (new prerogative);
- he or she holds discussions with the Chairman of the Nominating, Compensation and Corporate Governance Committee on all matters connected with the Board's operating procedures (new prerogative);
- he or she may, on request, participate in committee meetings without the right to vote (new prerogative);
- in the event that a governance issue arises, he or she shall be the directors' main point of contact and shall hold discussions with the Chairman and Chief Executive Officer (new prerogative);
- 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. Concerning 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. Concerning 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.

ACTIVITY REPORT OF THE SENIOR INDEPENDENT DIRECTOR FOR 2019

François Enaud's term of office as director expired at the close of the annual general meeting held on 21 May 2019. In accordance with the decision of the Board of Directors on 3 April 2019, Hélène Moreau-Leroy succeeded him in this position, at the time of her reappointment as director during said general shareholders' meeting.

Hélène Moreau-Leroy reported to the Board of Directors about her role, during the meeting of 26 February 2020, and in particular about the meetings she had with the governance teams of Arkema's main shareholders and proxy advisors during the governance roadshows held in January and February 2020. These meetings allowed them a better insight into the workings of Arkema's governance bodies. They did not express any major issues with respect to Arkema, with the exception of those that hold strong principled positions regarding the combination of the Chairman and Chief Executive Officer positions and who, where applicable, will pay specific attention to the analysis of the checks and balances implemented within Arkema and the effectiveness thereof. Among the topics contained in the report to the Board of Directors, the investors' growing interest in CSR issues and the inclusion thereof in the Company's strategy was also highlighted.

The annual assessment of the operating procedures of the Board of Directors and the committees did not reveal any dysfunction. Notwithstanding this observation, and as provided for by the Internal Rules, Hélène Moreau-Leroy held an executive session following the Board meeting of 26 February 2020, from which the executive directors were excluded. In addition, Hélène Moreau-Leroy was careful to hold regular, individual meetings with the directors throughout the year, in particular Thierry Morin, Chairman of the Nominating, Compensation and Corporate Governance Committee, prior to the decisions of the Board of Directors regarding these topics.

3.3.4 Committees of the Board of Directors

The Board of Directors has two permanent specialized committees: the Audit and Accounts Committee and the Nominating, Compensation and Corporate Governance Committee. The role of the committees is to examine and prepare certain matters to be discussed by the Board of Directors. Accordingly, the committees put forward 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.

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 2019, 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]), Hélène Moreau-Leroy and Ian Hudson.

All 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 biographies of the committee members in sections 3.2.1.2 and 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 give their conclusions after each meeting 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, which 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 2019, with an attendance rate of 100%.

As part of the duties set out in its Internal Rules, the Audit and Accounts Committee is more specifically in charge of the following:

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 Arkema's corporate social responsibility policy and changes to the policy 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 2019** • purchase of shares held by Taixing Jurong Chemical, partner in the *Sunke* joint-venture • planned divestment of the Functional Polyolefins business • assessment of the potential impact of Brexit and of the strategy put in place in this respect • refinancing of the hybrid debt and senior debt • CSR materiality assessment.
Overseeing the efficiency of internal control and risk management systems	**Recurring topics** • review of the Group's 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) • review of main litigation. **Specific topics in 2019** • review of internal control fundamentals and presentation of the specific programs that have been put in place • monitoring of the application of the provisions set out in the Sapin II Law and EU regulation 2016/679, the general data protection regulation.
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 2020, the Audit and Accounts Committee has met once with an attendance rate of 100%. In addition to recurring topics such as the review of the annual consolidated and Company financial statements for 2019, the meeting focused, among other topics, on the review of the statutory auditors' additional report to the Audit and Accounts Committee for the year ended 31 December 2019, the CSR performance report and the report on the effective deployment of the *plan de vigilance* (duty of care plan), the new provisions applicable to the universal registration document and in particular the change in the risk factors set out in chapter 2 of this document in light of the entry into force of the Prospectus III directive and discussions with the AMF, a review of the share buyback program and a review of the draft procedure for assessing agreements relating to ordinary operations entered into under arm's length conditions.

In accordance with the AFEP-MEDEF Code and its Internal Rules, the Audit and Accounts Committee conducts an annual self-assessment of its work except when conducted by an external consultant. The assessment for 2019 shows 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, 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 2019, the Nominating, Compensation and Corporate Governance Committee is made up of three directors: Thierry Morin (Chairman), Alexandre de Juniac, and Victoire de Margerie. In accordance with the AFEP-MEDEF Code, none of its members hold an executive position in the Company. It comprises a majority of independent members (2 in 3), *i.e.*, an independence rate of 67%, in line with the recommendations of the AFEP-MEDEF Code.

The Board of Directors decided on 3 April 2019 to allow Thierry Morin to continue to serve as Chairman of the committee. Thierry Morin who has served as director since the Company was created in 2006, has gained in-depth knowledge of the complex chemicals sector and the key factors for success and has been supporting Arkema to become a major player in advanced materials and adhesives with a balanced geographical footprint. He was instrumental in the deployment of an ambitious industrial development, acquisition and innovation strategy while striving to develop corporate governance in line with best practice. The Board of Directors also took account of Thierry Morin's objectivity, consistent independence of judgment and freedom of expression.

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 of the committee also regularly discusses all governance-related issues with the senior independent director.

The Chairman and Chief Executive Officer attends the committee's meetings and is closely involved in its discussions on nominations, governance issues and the compensation policy for Executive Committee members. However, 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 four times in 2019, with an attendance rate of 92%.

As part of its duties, the Nominating, Compensation and Corporate Governance Committee is more specifically in charge of the following.

Duties	Activity of the Nominating, Compensation and Corporate Governance Committee
Nominations	**Recurring topics** • submission to the Board of Directors of recommendations on the composition of the Board of Directors and its committees • annual review of the appointment process and succession plan for Executive Committee members and more particularly the Chairman and Chief Executive Officer and the progress of the Group's managers and submission of recommendations in this regard; preparation of the succession planning for the Chairman and Chief Executive Officer, notably in crisis situations • annual review and submission to the Board of Directors of the list of directors who can be considered independent **Specific topics in 2019** • review of the candidates for director positions in view of the expiration of certain terms of office at the close of the annual general meeting of 21 May 2019, and proposal to appoint Ian Hudson as director and member of the Audit and Accounts Committee, and to reappoint Hélène Moreau-Leroy, Victoire de Margerie and Laurent Mignon as directors • proposal to appoint Hélène Moreau-Leroy as senior independent director
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
	Specific topics in 2019 • at the Board of Directors' request, analysis and proposal of indicators with a view to introducing a non-financial criterion in the 2019 performance share plan • review of the proposed 2020 capital increase reserved for employees • analysis of the new Say on Pay mechanism in light of the entry into force of Order no. 2019-1234 concerning executive compensation in listed companies and Decree no. 2019-1235 concerning the transposition of EU directive 2017/828 of 17 May 2017
Corporate governance	**Recurring topics** • review and analysis of the main changes to corporate governance principles and review of best practices • preparation of the annual assessment of the Board of Directors' work • 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 2019** • review of the changes in the voting policies of investors and proxy advisors in view of the reappointment of the Chairman and Chief Executive Officer and preparation of the governance road show

Since the beginning of 2020, the Nominating, Compensation and Corporate Governance Committee has met twice, with an attendance rate of 100%.

In addition to the recurring topics mentioned above, these meetings focused in particular on:

- reviewing the feedback arising from discussions with investors' and proxy advisors' governance teams in the context of the governance road shows;
- reviewing the Company's governance structure and the proposal to reappoint Thierry Le Hénaff, Chairman and Executive Officer of the Company, as director, as well as the continued combination of the positions of Chairman and Chief Executive Officer;
- the proposed amendments to the Articles of Association and the Internal Rules, notably as regards legislative and regulatory changes (among others, entry into force of Order no. 2019-1234 relating to executive compensation in listed companies and the *Loi Pacte*) and changes to the AFEP-MEDEF Code;
- the proposed additions to the prerogatives of the senior independent director;
- reviewing directors' compensation (excluding the Chairman and Chief Executive Officer) and, on the basis of a benchmark established by an independent firm and the changing nature of their roles, the setting out of the compensation policy applicable in 2020 and submitted to the vote of the shareholders at the annual general meeting of 19 May 2020;
- reviewing the compensation of the Chairman and Chief Executive Officer for 2019, and, on the basis of a benchmark established by an independent firm, his achievements during his term of office and the objectives of his new term, setting the compensation policy that will be applicable in 2020 as from the renewal of his term of office, and submitted to the vote of the annual general meeting;
- changes in the Executive Committee.

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. The assessment for 2019, which was carried out by means of a self-assessment questionnaire, shows 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, see section 3.3.2.4 of this chapter.

3.4 COMPENSATION AND BENEFITS AWARDED TO EXECUTIVES AND DIRECTORS

The following information is disclosed in application of articles L. 225-37-2 and L. 225-37-3 of the French Commercial Code, as amended by Law no. 2019-486 of 22 May 2019 relating to the growth and transformation of companies (known as the "Pacte" law), Order no. 2019-1234 of 27 November 2019 relating to the compensation of directors of listed companies and Decree no. 2019-1235 of 27 November 2019 transposing European directive 2017/828/EU of 17 May 2017, amending European directive 2007/36/EC with a view to promoting long-term shareholder engagement, the recommendations of the AFEP-MEDEF Code, the recommendations of the *Haut Comité de Gouvernement d'Entreprise* in its activity report of December 2019, 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, including the 2019 report, as also published in December 2019.

The compensation policy as described in this section – for non-executive directors (*i.e.*, excluding the Chairman and Chief Executive Officer) in section 3.4.1 below, and for executive directors in section 3.4.2 below – will be submitted to the shareholders' vote at the annual general meeting of 19 May 2020, under the 6th and 7th resolutions, respectively, in accordance with article L. 225-98 of the French Commercial Code. For further details on the corresponding resolutions, see section 7.2.2 of this document, which will be published along with the results of the vote of the annual general meeting of 19 May 2020 on the Company's website at www.arkema.com.

Moreover, in accordance with the provisions of article L. 225-100, II and III of the French Commercial Code, the information disclosed both in sections 3.4.1.2 and 3.4.2.2, and in section 3.4.2.2 of this chapter, will be submitted to the shareholders' vote at the annual general meeting of 19 May 2020, under the 8th and 9th resolutions, respectively, in compliance with the conditions set out in article L. 225-98 of the French Commercial Code. For further details on the corresponding resolutions, see section 7.2.2 of this chapter.

The principles and rules for determining the compensation and benefits awarded to directors and executive officers, 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 annual general meeting of 18 May 2018 set the maximum annual amount of compensation that the Board of Directors may allocate between its members and those of the specialized committees at €650,000.

The compensation payable to directors was determined by the Board of Directors at its meeting on 24 January 2018 as follows:

- 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:
  - €3,000 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 €1,500 per director present, and
  - €2,000 per member present at a meeting of one of the specialized committees, except for the Chairman of each committee who receives €4,000. When exceptional meetings are held by conference call and are of a shorter duration, the variable portion is set at €1,000 per member in attendance and €2,000 for the Chairman.

The senior independent director receives additional annual fixed compensation of €10,000.

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. Rules are 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 these duties.

The compensation of non-executive directors is reviewed every four years, at the end of the Chairman's term of office as a director.

At its meeting of 26 February 2020, and on a proposal of the Nominating, Compensation and Corporate Governance Committee, and in compliance with Group policy on preventing potential conflicts of interest between the directors and the Company, the Board of Directors decided to propose to the annual general meeting that the maximum amount of compensation it may allocate between its members be increased from €650,000 to €800,000. The proposed increase is based on a survey of the compensation of corporate officers of Next 20 companies of comparable size and is justified by the increase in the duties and responsibilities of the Board and its committees, as well as the need to attract candidates with the required skills and expertise in the future. The increase will also provide flexibility in the event that additional meetings need to be held.

The Board of Directors also proposes the following changes to the rules for allocating directors' compensation from 2020, for a period of four years:

- an annual fixed amount of €25,000 per director paid on a *pro rata* basis in the event of a change during the year (unchanged); and
- a more predominant variable amount based on directors' attendance in accordance with the AFEP-MEDEF Code, 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 per director present, and
  - €2,500 per member present at a meeting of one of the specialized committees, except for the Chairman of each committee who receives €5,000. When exceptional meetings are held by conference call and are of a shorter duration, the variable portion is set at €1,250 per member in attendance and €2,500 for the Chairman.

These new compensation arrangements for directors (apart from the Chairman and Chief Executive Officer) take into account the best interests of the Company, as well as its commercial strategy and sustainability and that of the Group, by allocating a predominant variable portion that is contingent on directors' attendance at meetings of the Board of Directors or its committees, to ensure that they are fully committed to their duties.

The senior independent director will continue to receive additional annual fixed compensation of €10,000.

The Chairman and Chief Executive Officer and directors exercising functions within a Group company do not receive any compensation for these duties.

Pursuant to articles L. 225-18 and L. 225-23 of the French Commercial Code, the term of office of directors appointed by the ordinary 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 Works Council meeting held after the ordinary general shareholders 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.

3.4.1.2 IMPLEMENTATION OF COMPENSATION POLICY FOR 2019

In accordance with the compensation policy set out above, compensation awarded to non-executive directors for 2019 amounted to €549,250 (compared to €500,000 for 2018), allocated as follows based on the attendance rates provided in section 3.3.2.3 of this chapter:

TABLE OF COMPENSATION RECEIVED BY NON-EXECUTIVE DIRECTORS (TABLE 3 OF AMF RECOMMENDATIONS)

	2019		2018	
(In euros)	Amounts awarded	Amounts paid	Amounts awarded	Amounts paid
Yannick Assouad, director Compensation	46,000	46,000	43,000	43,000
Jean-Marc Bertrand, director representing shareholder employees Compensation	None	None (1)	None	None (1)
Isabelle Boccon-Gibod, permanent representative of the FSP, director Compensation	58,000	58,000	55,000	55,000
Marie-Ange Debon, director Compensation	70,000	70,000	43,750 (2)	43,750 (2)
François Enaud, director Compensation	26,000 (3)	26,000 (3)	59,000	59,000
Ian Hudson, director Compensation	37,250 (4)	37,250 (4)	None	None
Alexandre de Juniac, director Compensation	53,000	53,000	29,750 (2)	29,750 (2)
Victoire de Margerie, director Compensation	46,500	46,500	47,000	47,000
Laurent Mignon, director Compensation	41,500	41,500	43,000	43,000
Hélène Moreau-Leroy, director Compensation	68,000	68,000	57,000	57,000
Thierry Morin, director Compensation	60,000	60,000	52,000	52,000
Nathalie Muracciole, director representing employees Compensation	None	None (5)	None	None (5)
Marc Pandraud, director Compensation	43,000 (6)	43,000 (6)	43,000 (6)	43,000 (6)
TOTAL	**549,250**	**549,250**	**500,000** (7)	**500,000** (7)

(1) Jean-Marc Bertrand is on the payroll of Arkema France and does not receive any compensation as a director representing shareholder employees.
(2) Marie-Ange Debon and Alexandre de Juniac have been directors of the Company since 18 May 2018.
(3) François Enaud's term of office as director expired at the annual general meeting held on 21 May 2019.
(4) Ian Hudson has been a director of the Company since 21 May 2019.
(5) Nathalie Muracciole is on the payroll of Arkema France and does not receive any compensation as a director representing shareholder employees.
(6) Marc Pandraud declines all amounts due to him in return for his work as a director of Arkema and requests that the Company donate his compensation to charity.
(7) This amount includes compensation paid to directors, whose terms of office expired in 2018.

With the exception of Jean-Marc Bertrand, director representing shareholder employees, and Nathalie Muracciole, director representing employees, who are each paid a salary by Arkema France, the non-executive directors received no other compensation or benefits in 2019 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.

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 commercial strategy and sustainability of the Company and the Group, by allocating a 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, including the Group's 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.

As the term of office of the Chairman and Chief Executive Officer expires at the close of the annual general meeting of 19 May 2020, the Board of Directors' meeting held on 26 February 2020 – after deciding to propose the renewal of his term of office as a director, and deciding to renew his term of office as Chairman and Chief Executive Officer – set the following new conditions for his compensation, in accordance with the provisions of articles L. 225-37-2 and R. 225-29-1° of the French Commercial Code. These conditions will be applicable, subject to the renewal of his term of office as director and approval of the 7th resolution at the annual general meeting, as from the date of said meeting, *i.e.*, 19 May 2020. For further details on the corresponding resolution, see section 7.2.2 of this document.

Consequently, the Board of Directors, on the proposal of the Nominating, Compensation and Corporate Governance Committee and with the assistance of an international firm specialized in executives compensation, decided to maintain a similar compensation structure to that adopted during the previous term of office, and unchanged since 7 June 2016. This will therefore continue to comprise (i) annual fixed compensation, (ii) annual variable compensation linked to the achievement of specific objectives reflecting the Group's performance for the year, and (iii) long-term compensation in the form of an annual award of performance shares, entirely subject to performance criteria. A component enabling the Chairman and Chief Executive Officer to constitute a retirement fund completes this package since the termination of the supplementary defined benefit pension scheme from which he benefited up until 7 June 2016. These components are divided in a balanced manner between short- and long-term components, in line with the compensation of the Group's other executives and managerial staff. They are mostly linked to the achievement of specific, quantified targets that reflect the Group's performance and are therefore supportive of the Company's development and value creation over the long-term, thus ensuring that the interests of the executive officer are aligned with those of the shareholders and all stakeholders.

In addition, the Chairman and Chief Executive Officer benefits from a severance package in the event of forced departure, which was already part of the compensation policy applicable for the current term of office. For the new term of office, he also benefits from a non-compete clause. These benefits are described below.

However, within this compensation structure, the Board of Directors has decided upon the following changes.

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.

It should be noted that the Chairman and Chief Executive Officer is appointed for four years, that he may be dismissed as director at any time by an ordinary general meeting, and that he may be dismissed as Chairman and Chief Executive Officer at any time by the Board of Directors.

Should the aforementioned compensation policy not be approved by the annual general meeting, the compensation policy approved by the annual general meeting of 21 May 2019 (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 2018 Reference 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 7 June 2016.

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 decided that Thierry Le Hénaff's annual gross fixed compensation would be increased to €1,000,000 (one million) from its renewal date and for the duration of his new term of office, corresponding to an annual increase of 2.67% over four years. This increase takes account of:

- cumulative annual salary increases (both general and individual increases) between 2015 and 2019 at Arkema France, which represents 77% of the Group's French workforce, corresponding to an increase of 11% during that period;
- changes in the Group's profile and profitability over the current term of office. The key figures in this regard are presented in section 3.4.2.2 of this chapter; and
- a comparison with the fixed compensation paid to senior executives of companies included in the following two peer groups:
  - 18 French industrial companies listed on the CAC 40 and Next 20 indexes: Peugeot, Schneider Electric, Air Liquide, Solvay, EssilorLuxottica, Bureau Veritas, Michelin, Valeo, Eiffage, Compagnie de Saint-Gobain, Faurecia, Veolia Environnement, Suez, Alstom, Bouygues, Ingenico, Legrand and Thales, and
  - 8 companies from the sector at an international level: AkzoNobel, Clariant, DSM, Evonik, Lanxess, Lonza, Solvay and Wacker.

Feedback from the main shareholders during governance roadshows or following annual general meetings has also been taken into account.

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 based on a proposal of the Nominating, Compensation and Corporate Governance Committee. The amount of variable compensation is determined by the Board of Directors, based 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.

Since the Chairman and Chief Executive Officer's term of office as director was renewed by the annual general meeting of 7 June 2016, this compensation may represent up to 150% of the annual fixed compensation.

The criteria adopted are as follows:

- three quantitative criteria representing a maximum of 110% of annual fixed compensation (and 73.5% of the criteria used to determine the variable compensation):
  - EBITDA, for a maximum of 55% 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 a maximum of 27.5% of annual fixed compensation, which rewards the Group's ability to generate the cash necessary 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, for a maximum of 27.5% 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 representing a maximum of 40% of annual fixed compensation (and 26.5% of the criteria used to determine the variable compensation). These criteria are defined precisely each year and are mainly linked to the implementation of the Group's long-term strategy by the Chairman and Chief Executive Officer, including the Group's CSR focuses and day-to-day management. Around one third of these criteria are based on quantifiable components.

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 decided to increase the Chairman and Chief Executive Officer's target bonus from 110% to 120%, and the maximum bonus from 150% to 180% of his annual fixed compensation, if performance is exceptional in relation to the targets set, with effect from the date of the annual general meeting.

Again, this increase takes account of cumulative annual salary increases (both general and individual increases) between 2015 and 2019 at Arkema France, changes in the Group's profile and profitability over the current term of office, as well a comparison with the fixed compensation paid to senior executives of companies included in the two peer groups referred to previously, and will also provide a more effective means of rewarding outperformance.

The performance criteria will be the same as those that apply to the current term of office with the following weightings:

- three quantitative criteria for a maximum overall weighting of 135% of annual fixed compensation (representing 75% of the criteria used to determine variable compensation), with each of the criteria (*i.e.*, EBITDA, free cash flow and contribution of new developments) weighted from 30% (target) to a maximum of 45%;
- qualitative criteria representing from 30% (target) to an overall maximum of 45% of annual fixed compensation (and 25% of the criteria used to determine the variable compensation).

  These qualitative criteria will continue to be based on the Group's priority areas, which involve the implementation of the Group's long-term strategy and its key 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 elements. Non-financial performance and policy are part of these qualitative criteria.

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 2020, the Board will pay particular attention to:

- in terms of long-term strategy, the definition of the 2024 strategy and communication with the markets as part of its strategic update, the continued roll-out of the Group's transformation strategy with a focus on innovation, industrial projects and M&A, the ongoing organic and external growth of Bostik, the integration of ArrMaz and the execution of synergies, progress with major industrial projects such as the PA11 one in Singapore and ramping up of innovation in materials and coatings, especially around major themes such as lightweight materials, 3D printing, batteries, durable goods and waterproofing, etc.; and
- tracking operational management aspects such as the consolidation of workstation safety performance (with a particular focus on sensitive sites and hand accidents), continued roll-out of the CSR roadmap (particularly on climate, the circular economy and non-financial evaluation), environmental performance, continued ramp-up of cross-functional initiatives (operational and commercial excellence, cybersecurity, digitization and data management), cost control and working capital management in a volatile economic environment, the reorganization of the Executive Committee, the continued improvement of Bostik's operational efficiency and of talent management with a focus on appointing more women to senior management positions.

In accordance with the provisions of article L. 225-37-2 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 article L. 225-100 of said code.

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 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, 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. By maintaining a fixed number of shares each year, the deadweight effect related to stock volatility can be avoided and sustainable value creation rewarded.

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 in respect of 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 that would have been awarded at the date of termination of his duties and which had 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 vesting of the said shares.

The performance criteria for the vesting of the performance shares awarded to the Chairman and Chief Executive Officer are aligned with the Group's long-term objectives. They should continue to be underpinned by the following criteria, which since 2019, include a non-financial criterion and each criterion has a weighting of 20% of the final award:

- REBIT margin, which reflects the Group's transformation and, in particular, its ambition to strongly develop the share of adhesives in its business mix, and helps monitor the progress made by the Group in reducing its capital intensity and enhancing its resilience;
- 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, which helps assess the profitability of investments made and therefore the Group's discipline in selecting its investments and using its resources and its ability to create value over the long term; and
- CSR performance, which confirms the Group's commitment to its social responsibilities, particularly in terms of safety (TRIR), reducing its environmental footprint (climate) and diversity (percentage of women in senior management and executive positions).

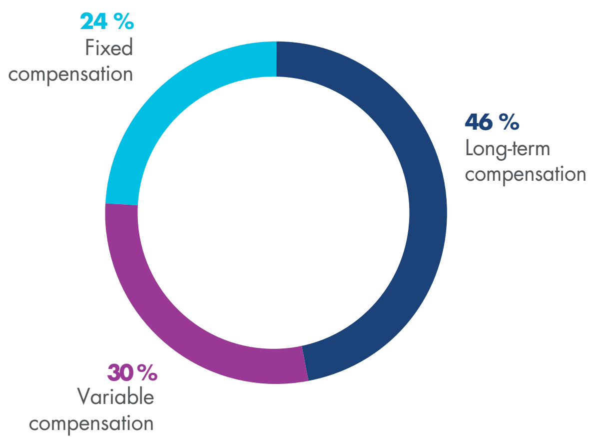
Taking into account all five criteria and the reward for outperformance if the Group significantly exceeds its targets, the overall vesting rate may represent up to a maximum of 120% of the initial award in order to reward outperformance more effectively.

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 2019 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.

By way of illustration, subject to the approval of the Chairman and Chief Executive Officer's compensation by the Company's shareholders in accordance with the conditions provided for under article L. 225-100 of the French Commercial Code, thereby enabling payment of his annual variable compensation, and based on the valuation of the performance shares awarded in October 2019, the breakdown of the three components of the Chairman and Chief Executive Officer's compensation for 2019 was as follows:



Pension benefits

Since the Chairman and Chief Executive Officer's term of office was renewed in 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 he has benefited since 2006 was terminated, the Chairman and Chief Executive Officer receives 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 investment vehicles dedicated to the financing of his supplementary retirement benefits.

The Board of Directors as may be necessary confirmed that this payment would be maintained.

Severance pay

Until 19 May 2020, the Chairman and Chief Executive Officer is entitled to compensation for termination of office in the event of forced departure, regardless of the form of the departure, including dismissal before the end of the term of office or non-renewal of such term of office on expiry, linked to a change in control or strategy, subject to the conditions approved by the annual general meeting of 7 June 2016. No compensation for termination of office will be paid in the event of serious or gross misconduct. The compensation amount would be calculated by reference to the achievement of five quantitative criteria (total recordable injury rate, annual variable compensation, comparative EBITDA margin, working capital and return on capital employed) and cannot 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 the forced departure occurs and the average of the last two years of variable compensation paid prior to the departure.

The maximum severance payment that would be payable is reduced to 18 months of total annual gross compensation (fixed and variable) beyond the age of 60, and to 12 months beyond the age of 62 years and six months. No compensation would be paid in the event of departure beyond the age of 65.

Effective from 19 May 2020, in the context of the renewal of his term of office as a director, the Chairman and Chief Executive Officer will continue to be entitled to a severance payment in the event of a 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 will not be 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 would 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, which have been simplified and modified as follows in order to further increase the level of requirements compared to the previous term of office. Each condition accounts for one-third of the amount of the payment:

- TRIR: average TRIR (total recorded 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 investments 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.

Unchanged from his previous term of office and 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

The Board of Directors also considers that it is 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, whereby, 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 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 severance pay 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 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.

3.4.2.2 IMPLEMENTATION OF COMPENSATION POLICY

Components of compensation due or awarded to Thierry Le Hénaff for 2019 are disclosed in the tables presented in this section.

The total compensation of the Chairman and Chief Executive Officer for 2019 was determined in accordance with the compensation policy approved by the Company's shareholders at the annual general meeting of 21 May 2019 (9th resolution), and a significant portion is subject to the achievement of quantitative 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 26 February 2020. The performance criteria are applied in accordance with the methodology described in section 3.4.2.1 of this chapter.

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 published by AFEP on 28 January 2020, and 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 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;

- the scope of comparison comprises:
  - the Company, Arkema France and Bostik – which together accounted for 90% of the Group's French workforce at end-2019 – for 2017 to 2019,
  - the Company and Arkema France only – which together accounted for almost 80% of the Group's French workforce – for 2015 and 2016.

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 entity covered by the legal obligation.

SUMMARY TABLE

Scope of comparison*	2019	2018	2017	2016**	2015
Median	64	66	64	53	40
Average	54	56	54	45	34

Arkema (legal obligation)	2019	2018	2017	2016	2015
Median	3	3	3	3	2
Average	4	4	3	3	3

** 2019, 2018, 2017: Arkema, Arkema France and Bostik – 2016 and 2015: Arkema and Arkema France.*
*** These values do not include the exceptional compensation paid in 2016, as decided by the Board of Directors, to compensate the Chief Executive Officer for the termination of the supplementary defined benefit pension scheme from which he previously benefited. Including these exceptional items would give a multiple of 111 vis-à-vis the median, and 94 vis-à-vis the average.*

Performance shares – which only vest subject to the 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, would result in multiples of 42 (median) and 37 (average) for 2019.

ANNUAL CHANGE IN COMPENSATION, COMPANY PERFORMANCE, AVERAGE COMPENSATION OF THE COMPANY'S EMPLOYEES (OTHER THAN EXECUTIVES) AND THE ABOVE-MENTIONED RATIOS OVER THE LAST FIVE YEARS

Between 2014 and 2019, the compensation of the Chairman and Chief Executive Officer, comprising the fixed portion, the variable portion and performance shares, increased by 10% a year.

Over the same period, the Group's main performance indicators grew as follows each year:

- free cash-flow: +100%;
- net income – Group share: +27%; and
- dividend per share: +8% (average compound rate).

Again, over the same period, at Arkema France – which represents 77% of the Group's French workforce – cumulative annual salary increases (both general and individual increases) corresponded to an increase of 11%. Factoring in unbudgeted increases granted as part of organizational changes or training programs, average salaries increased by 15%.

In accordance with articles L. 225-100, II and L. 225-37-3 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 2020 (8th resolution). For further details on the corresponding resolution, see section 7.2.2 of this document.

COMPONENTS OF COMPENSATION DUE OR AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR 2019 SUBMITTED TO A SHAREHOLDER VOTE

In accordance with the provisions of article L. 225-100, III 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 2019, is submitted to the shareholders' vote at the annual general meeting of 19 May 2020 (9th resolution).

Components of compensation submitted to a shareholder vote	Amounts paid during 2019	Amounts awarded for the 2019 financial year or accounting valuation	Presentation
Fixed compensation	€900,000	N/A	In the context of the renewal of Thierry Le Hénaff's term of office as a director, approved at the annual general meeting of 7 June 2016, his annual fixed compensation was set at €900,000 per year, from this date and for the duration of his term as a director.
Annual variable compensation	€1,350,000	€ 1,143,000	The amount of the variable portion due for 2019, which could represent up to 150% of the annual fixed compensation, was set by the Board of Directors on 26 February 2020, on the basis of the quantitative and qualitative criteria set by the Board of Directors in 2019 and the fulfillment of these criteria noted on 31 December 2019, as follows: • **concerning the three quantitative criteria linked** to the Group's financial performance, the achievement rates by criterion were as follows: ◦ 58.2 % for EBITDA, whose maximum weighting represents 55%, and which reached €1,430 million in 2019 (excluding the M&A impact), close to the record level reached in 2018, despite an increasingly challenging economic environment marked by persistent geopolitical tensions and uncertainty that weighed on demand in certain end-markets; ◦ 100 % for recurring cash flow, whose maximum weighting represents 27.5 %. Recurring cash flow reached an excellent level in 2019, totaling €713 million. The EBITDA to cash conversion rate exceeded 50% and reached its highest ever level. This performance reflects the Group's very solid operational performance and notably includes a cash inflow linked to working capital, which reflects tight management of inventories, lower raw material costs and the ability to adapt to weaker demand at the end of the year. This strong cash flow, which was achieved while keeping recurring capital expenditure within budget, in line with the organic growth strategy, enabled the Group to maintain its net debt at around €1.6 billion, representing 1.1 times annual EBITDA (or 1.6 times including the hybrid bonds); and ◦ 100 % for the contribution of new developments, whose maximum weighting represents 27.5%. The Board of Directors took into account the commercial success from its 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 2019, the Board noted in particular the following examples with significant evolution: 3D printing, materials for batteries, lighter materials, and high-performance adhesives such as hot-melt encapsulation adhesives in the automotive industry, adhesives for flexible packaging and thin diapers, and specialty sealants. It also stressed the contribution of new developments in downstream acrylics and PMMA in high value-added products. The variable compensation due in respect of the quantitative criteria thus amounted to 87% of the annual fixed compensation; and

Components of compensation submitted to a shareholder vote	Amounts paid during 2019	Amounts awarded for the 2019 financial year or accounting valuation	Presentation
			• **concerning the qualitative criteria**, 50% of which involved the implementation of the Group's strategy and main operational priorities, and the other 50% operational management issues, the notable achievements include: • Regarding the implementation of the Group's strategy and main operational priorities: 2019 was marked by a high density of M&A projects and an increase in the share of specialties within the portfolio, with the signing of the divestment of the Functional Polyolefins business, and the acquisitions of ArrMaz, Prochimir, Lambson and LIP. The acquisition of Taixing Jurong Chemicals' stake in the Sunke joint-venture is also noteworthy. In terms of capital expenditure, the Board of Directors further acknowledged the completion or progress achieved in several industrial projects that are significant and key for the Group's long-term positioning, such as the extension of the thiochemicals plant in Malaysia, and the finalization of the amino 11 monomer and Rilsan® polyamide 11 world-scale manufacturing plant layout in Singapore. The Board of Directors also acknowledged Bostik's continued progression, with high-teens EBITDA growth and an EBITDA margin close to 13%, together with confirmation – and strong growth in – the Group's long-term strategic focus areas driven by innovation priorities (batteries, MS polymers, lightweight materials, 3D printing, etc.). The inauguration of the 3D printing center of excellence in Serquigny (France) and the opening of the joint R&D center in composites with Hexcel were also taken into account; • Regarding operational management aspects, one-third of which were quantifiable: the consolidation of workstation safety performance with a TRIR of 1.4 accidents per million hours worked, with a record low level of accidents for external companies (TRIR of 1 compared to 2.3 in 2018), the completion on time and on budget of key industrial projects, notably the polyamide powders plant in Mont (France), the expansion of Sartomer in China and of the acrylic acid production unit at Clear Lake (United States), as well as the benefits of the pricing and product mix policy for downstream activities. The major efforts with respect to competitiveness, in particular in the second half of the year with a range of savings on fixed and variable costs, which largely offset inflation, were also highlighted. The Board also acknowledged the ramp-up of several major cross-functional projects launched or stepped up in 2019, such as CSR with an update of the materiality assessment used to redefine priorities and the roll-out of the Portfolio Sustainability Assessment and the CSR culture, the commercial excellence with the creation of the Sales Academy, the deployment of customer relationship management software and the sales and margin reporting tool, as well as the ramp-up of cyber security and digital initiatives, notably more widespread use of "Travailler Malin" local smart work applications and of supply chain management, with over 40% of managers trained in 2019 following the creation of the Sales Academy in 2018. Finally, it noted the proactive management of the Company's managers and talents, in particular the replacement of the Chief Human Resources Officer, the strengthening of Bostik's organizational structure, the increase in the percentage of women in senior management and executive positions to over 23% (versus 21% in 2018) and the accelerated development of the Group's digital culture. In light of all of these achievements, and in particular those achieved in particularly volatile circumstances and remarkably well handled by Thierry Le Hénaff, the achievement rate of these qualitative criteria was set at 100%. Consequently, the variable compensation due in respect of qualitative criteria was set at 40% of the annual fixed compensation. In total, the 2019 variable compensation amounts to 1,143,000 euros, 15.3% less than in 2018. It reflects the high-level performance over the year and the continued transformation of the Group's profile, in a context of tougher market conditions. It represents 127% of the 2019 annual fixed compensation and an overall achievement rate of 84.66% of the maximum. The payment of this annual variable compensation is subject to shareholders' approval at the annual general meeting to be held on 19 May 2020 of the Chairman and Chief Executive Officer's compensation components in accordance with the conditions provided for under article L. 225-100 III of the French Commercial Code (Code de commerce). This compensation would only be paid after this date.

Components of compensation submitted to a shareholder vote	Amounts paid during 2019	Amounts awarded for the 2019 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	€1,731,900	Making use of the authorization granted by the annual general meeting of 21 May 2019 (13th resolution), at its meeting of 29 October 2019, the Board of Directors awarded 30,000 performance shares (representing 0.04% of share capital) to Thierry Le Hénaff (out of a total of 368,980 shares granted to around 1,600 grantees, representing 8% of the performance share grant). The shares will vest at the end of a three-year period subject to a presence condition and if five performance targets are met: REBIT margin, EBITDA to cash conversion rate, comparative Total Shareholder Return, return on average capital employed and Arkema's CSR performance (comprising three indicators: TRIR (7%), Climate (6%) and percentage of women in senior management (7%). 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	€450,000	€408,600	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 investment vehicles dedicated to the financing of his supplementary retirement benefits.
Benefits in kind	N/A	€6,720	Thierry Le Hénaff has the use of a company car.
COMPONENTS OF COMPENSATION DUE OR AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR 2019 ALREADY SUBMITTED AND APPROVED BY THE SHAREHOLDERS			
Severance pay	*No payment* [(1)]		*Thierry Le Hénaff benefits, as part of his term of office, from a severance package in an amount not exceeding two years' gross fixed and variable compensation, calculated based on the achievement of five quantitative criteria set by the Board of Directors and approved by the annual general meeting (total recordable injury rate [TRIR], annual variable compensation, comparative EBITDA margin, working capital and return on capital employed).*

(1) Estimate of the amounts payable at 31 December 2019, in a theoretical case of forced departure, in accordance with the provisions of article L. 225-37-3, I, 4° of the French Commercial Code: €4,500,000.

Components of compensation submitted to a shareholder vote	Amounts paid during 2019	Amounts awarded for the 2019 financial year or accounting valuation	Presentation
			The amount of this package will be calculated on the basis of the fulfillment of the following five demanding performance conditions: • *TRIR: the total recordable injury rate (TRIR) would have to have decreased by at least 5% per year (average compound rate) between 31 December 2010 and the date at which the performance condition is assessed;* • annual variable compensation: on average, the annual variable compensation paid during the three years preceding departure would have to be at least 50% of the maximum amount payable; • *return on capital employed: the average of net operating income over capital employed (recurring operating income – actual income tax[1])/(capital employed – provisions) for the last three years prior to the termination date would have to exceed the Group's cost of capital for the year preceding his reappointment, i.e., 7% in 2015. Capital employed and provisions are those at year-end, and recurring operating income of companies acquired during the year would be included on a full year basis and that of divested companies would be excluded;* • *working capital: the year-end working capital over annual sales ratio would have to have decreased by at least 2.5% per year (average compound rate) between 31 December 2005 and the date at which the performance condition is assessed; and* • comparative EBITDA margin: this financial performance indicator will continue to be measured against that of competitors in the chemicals industry comparable to the Arkema Group. The growth in the Group's EBITDA margin would have to be at least equal to the average growth in the EBITDA margin of the companies in the peer group between 31 December 2005 and the date at which the performance condition is assessed. The value of the end-of-period index to be taken into account for the computation of the above criteria would be the average of the indices calculated at Group level over the three years for which financial statements have been published prior to the termination date. • *The severance package allocation scale is determined as follows:* • *if 5 conditions were met, Thierry Le Hénaff would receive 100% of the maximum of the severance package;* • *if 4 out of 5 conditions were met, Thierry Le Hénaff would receive 90% of the maximum of the severance package;* • *if 3 out of 5 conditions were met, Thierry Le Hénaff would receive 70% of the maximum of the severance package;* • *if 2 out of 5 conditions were met, Thierry Le Hénaff would receive 40% of the maximum of the severance package;* • *if fewer than 2 conditions were met, no severance pay would be payable.* *In addition, the Board of Directors has decided to gradually reduce the maximum severance pay that would be payable to 18 months of total annual gross compensation (fixed and variable) beyond the age of 60, and 12 months of total annual gross compensation (fixed and variable) beyond the age of 62 years and six months. No compensation would be paid in the event of departure beyond the age of 65.* In accordance with the related-party agreements and commitments procedure, this commitment was authorized by the Board of Directors' meeting of 2 March 2016, and approved by the annual general meeting of 7 June 2016 (5th resolution).
Non-compete compensation	N/A		*Thierry Le Hénaff is not entitled to any non-compete compensation.*

(1) On recurring income (in particular excluding the impact of M&A, restructuring operations).

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)

	2019		2018	
(Gross amounts in euros)	Amounts awarded	Paid during the year	Amounts awarded	Paid during the year
Fixed compensation	900,000	900,000	900,000	900,000
Annual variable compensation (1)	1,143,000	1,350,000	1,350,000	1,350,000
Exceptional compensation	None	None	None	None
Compensation for serving as a director	None	None	None	None
TOTAL	**2,043,000**	**2,250,000**	**2,250,000**	**2,250,000**
Pension (2)	408,600	450,000	450,000	450,000
Benefits in kind – car	6,720	6,720	6,720	6,720
Executive officer unemployment insurance		17,757		17,189
Stock options	None	None	None	None
Performance shares (3)	1,731,900		1,879,200	
Other long-term compensation	None	None	None	None
TOTAL	**4,190,220**	**2,724,477**	**4,603,109**	**2,723,909**

(1) 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 chapter and subject to shareholder approval of the components of compensation paid or awarded for the year, in accordance with the provisions of article L. 225-100 of the French Commercial Code.

(2) 20% of the annual compensation (fixed and variable) since 7 June 2016.

(3) Value of performance shares awarded during the year calculated according to the method used in the consolidated financial statements, detailed in note 29.2 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

PERFORMANCE SHARES GRANTED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER IN 2019 (TABLE 6 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	No. and date of plan	Number of shares granted in 2019	Vesting date/ End of holding period	Value of shares according to the method used in the consolidated financial statements
Thierry Le Hénaff	2019 plan of 29 October 2019 (three-year vesting period + two-year holding period)	30,000 (1) (2)	28 October 2022 and 28 October 2024	€1,731,900

(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.

PERFORMANCE SHARES AWARDED TO THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER FOR WHICH THE HOLDING PERIOD EXPIRED IN 2019 (TABLE 7 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	No. and date of plan	Number of shares for which the holding period expired in 2019	Vesting conditions
Thierry Le Hénaff	2015 plan of 9 November 2015	26,000 [(1)]	Presence and performance conditions: EBITDA growth by 2018 (35%), EBITDA to cash conversion rate in 2017 and 2018 (30%), comparative TSR over the period from 2016 to 2018 (30%)
	2016 plan of 9 November 2016	33,000 [(2)]	REBIT margin over the period from 2016 to 2018 (25%), EBITDA to cash conversion rate in 2017 to 2018 (25%), and comparative TSR over the period from 2016 to 2018 (25%), return on average capital employed over the period from 2016 to 2018 (25%)

(1) Or 100% (plan achievement rate) of the 26,000 shares granted in 2015.
(2) Or 110% (plan achievement rate) of the 30,000 shares granted in 2016.

STOCK OPTIONS EXERCISED DURING 2019 BY THE CHAIRMAN AND CHIEF EXECUTIVE OFFICER (TABLE 5 OF AMF RECOMMENDATIONS)

	No. and date of plan	Number of options exercised	Exercise price
Thierry Le Hénaff	2011 plan of 4 May 2011	10,000	€65.92

In accordance with the AFEP-MEDEF Code and AMF recommendations, the history of stock options and performance share awards, for the plans in place, is set out in the tables presented in section 3.5 of this chapter.

SUMMARY OF EMPLOYMENT CONTRACT, PENSION BENEFITS AND OTHER BENEFITS IN 2019 (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 resulting from 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, UP TO 19 MAY 2020[1]

	Dismissal for serious or gross misconduct	Resignation	Forced departure	Retirement
Severance pay	None	None	Compensation entirely contingent on fulfillment of five performance criteria [2]: • before 60 years: maximum of 24 months of total annual gross compensation (fixed and variable) [3] • after 60 years: maximum of 18 months of total annual gross compensation (fixed and variable) [3] • after 62 years and six months: maximum of 12 months of total annual gross compensation (fixed and variable) [3] • after 65 years: none	None
Non-compete compensation	None			
Supplementary defined benefit pension scheme	None			
Unvested performance shares	Null and void	Null and void	Entitlement to unvested shares subject to a decision of the Board of Directors in accordance with best practice and fulfillment of the performance conditions set out in the plans	Continuing entitlement

(1) See the proposed amendments to be submitted to the annual general meeting on 19 May 2020 in section 3.4.2.1 of this chapter.
(2) TRIR – total recorded injury rate, annual variable compensation, comparative EBITDA margin, working capital and return on capital employed.
(3) Fixed annual compensation for the year in which the Chairman and Chief Executive Officer is forced to step down. Variable compensation corresponds to the average of the last 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, which may represent up to 85% of the annual fixed compensation, 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.

In the past, Executive Committee members also received stock options (see section 3.5 and note 29 to the consolidated financial statements for the year ended 31 December 2019 in section 5.3.3 of this chapter).

Since 2010, Executive Committee members have been required to retain at least 20% of their vested shares in registered form for as long as they remain in office, as well as a number of shares obtained upon the exercise of stock options corresponding to at least 40% of the net capital gain on acquisition. 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 [1] for 2019 amounted to €2,617,066.

The total variable compensation paid by the Company to Executive Committee members in 2019 in respect of 2018 amounted to €1,950,215 [2].

Based on the targets approved by the Board of Directors at its meeting of 26 February 2019, 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 quantitative and qualitative targets for each member, the Board of Directors' meeting of 26 February 2020, based on a proposal of the Nominating, Compensation and Corporate Governance Committee, approved the Executive Committee members' variable compensation for 2019, which could amount to up to 85% of the fixed compensation for each member. The total annual variable compensation awarded to Executive Committee members for 2019 stood at €1,987,903.

In addition, based on a proposal of the Nominating, Compensation and Corporate Governance Committee, the Board of Directors set the compensation for 2020 for members of the Executive Committee – as constituted at the date of the Board of Directors' meeting – as follows:

- total gross fixed compensation has been set at €2,642,050, in line with market practices and with the changes to the Group's compensation policy for the 2020 financial year;
- 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. Variable compensation may represent between 85% and 100% of fixed compensation for the different members.

Consequently, compensation due and paid to Executive Committee members, excluding the Chairman and Chief Executive Officer, for 2019 and 2018 was as follows:

	2019		2018	
(Gross amounts in euros)	**Due for the year**	**Paid during the year**	**Due for the year**	**Paid during the year**
Fixed compensation	2,616,928	2,617,066	2,523,600	2,523,600
Variable compensation	1,987,903	1,950,215	1,950,215	1,857,720
TOTAL	**4,604,831**	**4,567,281**	**4,473,815**	**4,381,320**

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.

(1) NB: Thierry Parmentier was appointed to Arkema's Executive Committee on 1 July 2019. Consequently, himself and Michel Delaborde had a three-month integration period.

(2) NB: Marie-José Donsion was appointed to Arkema's Executive Committee on 1 July 2018. Consequently, herself and Thierry Lemonnier had a four-month integration period.

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 29 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

STOCK-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 2019, there were around 1,500 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 include 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. In 2018, the maximum achievement rate for each criterion was set at 120% and the maximum global award was capped at 110%. In 2019, it was raised to 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

From 2016 to 2018, the performance share plans were subject to four demanding performance criteria, aligned with the Group's long-term ambitions and strategic priorities, each applying to 25% of the total award:

- REBIT margin;
- EBITDA to cash conversion rate;
- comparative Total Shareholder Return; and
- return on average capital employed.

In 2019, the Board of Directors decided to introduce a fifth criterion, linked to Arkema's CSR performance, confirming the Group's commitment to its social responsibilities, particularly in terms of safety, reducing its environmental footprint and diversity, all of which are crucial for Arkema's growth and performance.

Therefore, since 2019, the performance share plans are subject to five demanding performance criteria, each applying to 20% of the total award:

All the targets set for these criteria are fully consistent with the medium- and long-term targets – particularly the 2023 targets – announced 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
2014	2018	89.5%
2015	2019	100%
2016	2019	110%

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 the Executive Committee and 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;
- 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

2019 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 29 October 2019, to award a maximum of 370,000 performance shares to some 1,500 beneficiaries, 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. 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. 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.

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.

As explained at the beginning of section 3.5 of this document, the Board of Directors decided to make certain amendments to the 2019 plan and, in particular, it introduced a new criterion relating to Arkema's CSR performance that has an equal weighting to the other four criteria. This criterion comprises three key CSR indicators: (i) TRIR (a key indicator reflecting the Group's safety performance), (ii) greenhouse gas emissions (a major environmental challenge to which Arkema has been committed for several years), and (iii) the percentage of women in senior management and executive positions (diversity reflecting the dual challenge of equal opportunities and Arkema's performance).

Therefore, there are now five performance criteria, each applying to 20% of the total award. They relate to the REBIT margin, the EBITDA to cash conversion rate, the comparative Total Shareholder Return (TSR), return on average capital employed and Arkema's CSR performance. For each of these criteria, performance will be assessed over a three-year period, from 2019 to 2021, 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. They will be audited by the Group's statutory auditors.

Moreover, in the interests of simplicity and coherence between the five criteria, and with a view to rewarding outperformance more effectively, the maximum global award rate for each of these criteria has been set at 120%. The overall award rate for all four criteria may not exceed 120%. Hence, the maximum number of shares that may be awarded is 436,531, *i.e.*, 29% 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.

For the 2019 plan, the five performance criteria, each applying to 20% of the total award, are as follows:

- ***REBIT margin***

Performance in respect of this criterion will be evaluated using the average REBIT margins for 2019, 2020 and 2021 ("average margin").

REBIT Margin is defined as recurring EBIT as a percentage of sales. Unlike the EBITDA margin, the REBIT margin includes recurring depreciation and amortization charges. It measures the resilience of the Group's performance and its efforts to reduce capital intensity.

The targets for this criterion have been increased so that it continues to measure the Company's progress in line with the 2023 objectives. As a result, the vesting scale is now as follows:

Average margin	Vesting rate
<9.5%	0%
9.5%	25%
10%	50%
11.25%	100%
11.75%	120%

Between these different values, the vesting rate will be determined based on a linear scale.

- ***EBITDA to cash conversion rate***

The achievement rate will be determined using the average conversion rate for 2019, 2020 and 2021.

Defined as free cash flow excluding exceptional capital expenditure as a percentage of EBITDA, the EBITDA to cash conversion rate measures the Group's ability to generate cash flow after recurring capital expenditure, financial interests and tax.

The vesting scale is as follows:

Conversion rate	Vesting rate
<27.5%	0%
35%	100%
40%	120%

Between these different values, the vesting rate will be determined based on a linear scale.

To calculate this indicator, free cash flow will be restated to offset the impact of the raw materials environment on changes in working capital.

- ***Comparative Total Shareholder Return (TSR)***

TSR would be determined over a three-year period, from 2019 to 2021.

The Total Shareholder Return measures the share's performance over a given period of time, taking into account the evolution of the share price and dividends paid. The aim is to outperform a panel of peers, as well as two different indices.

At the end of the period, in the event of a significant change in the portfolio of a peer which would lead this peer to become notably less comparable or where one of the peers is subject to a non-finalized takeover bid, the Board of Directors may modify the peer group upon recommendation by the Nominating, Compensation and Corporate Governance Committee.

The peer group comprises BASF, Clariant, HB Fuller, Lanxess, Sika, Solvay, Evonik, the MSCI Europe Chemicals index and the CAC 40 index.

The vesting scale will be as follows:

Arkema's ranking by descending order of TSR	Vesting rate
1st	120%
2nd	110%
3rd	100%
4th	75%
5th	50%
6th to 10th	0%

The TSR continues to be calculated as follows:

TSR = (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.

To minimize the effects of market volatility on stock prices, the share price used to determine prices at beginning and end of the period will be a six-month average. The share price at the beginning of the period will therefore be the average of the opening prices for the first six months of 2019, and the share price at the end of the period will be the average of the opening prices for the first six months of 2022.

- ***Return on average capital employed***

The indicator used ("return on average capital employed") will be the average of return on average capital employed for 2019, 2020 and 2021.

Defined as REBIT as a percentage of average capital employed, ROACE allows the measurement of profitability of investments over time. It is a value creation indicator.

The vesting scale will be as follows:

Return on average capital employed	Vesting rate
<10%	0%
11.5%	100%
12.5%	120%

Between these different values, the vesting rate will be determined based on a linear scale.

To determine the return on average capital employed in the context of performance share plans, recurring operating income and capital employed will be restated, in the event of a major acquisition, to exclude the impact of such acquisition in the year of acquisition and the following two years, and in the event of exceptional investments in progress, for the impact of such investment in the year in which it is commissioned and the following two years.

- *Arkema's CSR performance*

CSR performance is measured using the following three indicators weighted as follows:

- 7% for TRIR;
- 6% for Climate: greenhouse gas emissions (Scope 1 and Scope 2 + Montreal Protocol);
- 7% for percentage of women in senior management and executive positions.

The value used for each indicator is the target value in 2021.

The following tables show values corresponding to achievement rates of 0%, 100% and 120%, defined in line with long-term target values. Between these different values, performance shares will vest based on a linear scale.

TRIR 2021	Vesting rate in respect of the indicator
>1.6	0%
=1.25	100%
≤ 1.2	120%

The target values for 100% and 120% would place Arkema on a more demanding path than the 2025 target of a rate below 1.2.

Climate: Scope 1 and Scope 2 GHG emissions + Montreal Protocol – 2021 in kt eq. CO_2)	Vesting rate in respect of the indicator
>4,150	0%
=3,850	100%
≤ 3,750	120%

The target values for 100% and 120% correspond to a decrease in line with the Paris Agreement and the 'Well below 2°C' target according to the *Science-Based Target* methodology.

Percentage of women in senior management and executive positions end-2021	Vesting rate in respect of the indicator
<21%	0%
=22.5%	100%
≥ 23.5%	120%

The target values for 100% and 120% would place Arkema within the 2025 target range of 23% to 25%.

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 2019 PERFORMANCE SHARE PLANS

	Plan for employees in France	Plan for employees outside France
Date of annual general meeting	21 May 2019	21 May 2019
Authorized performance share awards as a % of the Company's share capital	1.96%	
Date of the Board of Directors' meeting	29 October 2019	29 October 2019
Number of rights awarded	237,945	131,035
of which to the Chairman and CEO	30,000	-
Total by authorization	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]	-	180
Number of vested shares [3]	-	-
Number of rights still to vest at 31 December 2019	237,945	130,855
Vesting period	3 years	4 years
Holding period	2 years	None

Performance conditions	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) 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 2014 have all expired.

2018 PERFORMANCE SHARE PLANS

	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	5 November 2018	5 November 2018
Number of rights awarded	231,820	127,665
of which to the Chairman and CEO	30,000	-
Total by authorization	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	-	-
Number of canceled rights [2]	980	3,680
Number of vested shares [3]	-	-
Number of rights still to vest at 31 December 2019	230,840	123,985
Vesting period	3 years	4 years
Holding period	2 years	None
Performance conditions	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	-	

(1) 2016, 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).

2016 AND 2017 PERFORMANCE SHARE PLANS

	2016		2017	
	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	9 November 2016		8 November 2017	
Number of rights awarded	235,835	122,080	230,695	129,405
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]			
Origin of shares to be awarded when the rights vest	-	-	-	-
Number of canceled rights [2]	6,800	8,505	1,050	6,985
Number of vested shares [3]	250,937	400	-	200
Number of rights still to vest at 31 December 2019	-	113,175	229,645	122,220
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 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%)		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%)	
Vesting rate	REBIT margin (2016 to 2018): 125% EBITDA to cash conversion rate (2017 and 2018): 118.7% Comparative TSR (2016 to 2018): 85% Return on average capital employed (2016 to 2018): 125% Overall achievement rate: 110%		-	

(1) 2016 and 2017 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).

2015 PERFORMANCE SHARE PLANS

	2015
Date of annual general meeting	4 June 2013
Authorized performance share awards as a % of the Company's share capital	887,238 shares, i.e., 1.41% of the share capital at the date of the annual general meeting [1]
Date of the Board of Directors' meeting	9 November 2015
Number of rights awarded	345,120
of which to the Chairman and CEO	26,000
Total by authorization	887,238 shares, i.e., 1.41% 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]	20,665
Number of vested shares [3]	324,455
Number of rights still to vest at 31 December 2019	0
Vesting period	4 years
Holding period	None
Performance conditions	EBITDA growth by 2018 (35%) EBITDA to cash conversion rate over the period from 2017 to 2018 (30%) Comparative TSR over the period from 2016 to 2018: 35%
Vesting rate	EBITDA growth: 120% EBITDA to cash conversion rate: 118.7% Comparative TSR over the period from 2016 to 2018: 100% Overall achievement rate: 100%

(1) 2013, 2014 and 2015 plans.
(2) Performance share rights canceled because the holders left the Group or because the performance conditions were not met.
(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.

Under the terms and conditions of the plan decided in 2011, which is the only plan still in place and expired on 4 May 2019, and in accordance with the AFEP-MEDEF Code and stakeholder requirements in this regard:

- stock options were made subject to performance criteria chosen to align medium-term share-based compensation with the Group's strategy; and
- the exercise price was set by taking the average opening price of the shares during the twenty trading days prior to the date of the Board of Directors' meeting, with no discount applied.

As part of these plans, the Board of Directors authorized the grant of a number of options representing 1% of the Company's share capital at the date of the annual general meeting that authorized the plans.

At 31 December 2019, no stock options from the 2011 plan nor from any other plan were outstanding.

In accordance with the law, and in order to preserve the beneficiaries' rights, an adjustment was made to the number of outstanding options and their exercise price as a result of the capital increase with preferential subscription rights carried out on 15 December 2014.

HISTORY OF STOCK OPTION PLANS (TABLE 8 OF AMF RECOMMENDATIONS AND AFEP-MEDEF CODE)

	2011	
Date of annual general meeting	15 June 2009	
Maximum authorized stock option grants as a % of the Company's share capital	5%	
Date of the Board of Directors' meeting	4 May 2011	4 May 2011
Number of stock options granted	105,000	105,000
of which to the Chairman and CEO	29,250	29,250
Number of options granted following adjustments	109,082	109,082
of which to the Chairman and CEO following adjustments	30,386	30,386
Number of outstanding options at 31 December 2019	0	0
Total by authorization	660,000, i.e., 1% of the share capital at the date of the annual general meeting	
Vesting period (1)	2 years	4 years
Holding period (2)	2 years	-
Expiry date	4 May 2019	4 May 2019
Exercise price *(in euros)*	68.48	68.48
Exercise price *(in euros)* following adjustments	65.92	65.92
Performance conditions (other than the exercise price)	2011 ROCE	2011/2014 average EBITDA margin
Vesting rate	100%	100%

(1) Provided that the grantee is still employed by the Group when the options are exercised.
(2) From end of vesting period.

CORPORATE SOCIAL RESPONSIBILITY

4

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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.

To facilitate the understanding of its CSR approach among all stakeholders, Arkema published a Social Commitment Charter in 2018, which was approved by the Executive Committee. It has since 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 activities as a responsible manufacturer; and
- cultivate an open dialogue and close relations with stakeholders.

3 CSR COMMITMENTS

Deliver **sustainable solutions** driven by **innovation**

- **Solutions that address societal challenges**
- **Innovation at the heart of the activities**
- **Product stewardship**

Manage our activity as a **responsible manufacturer**

- **Safety of people and processes**
- **Health**
- **Environmental footprint reduction**

Cultivate an **open dialogue** and **close relations** with our **stakeholders**

- **Ethics**
- **Human Rights**
- **Diversity and 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, an energy policy, a water 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 and policies are applied across the Group and all of its subsidiaries. Communication and events to support the Social Commitment Charter and its policies were organized at each Group site in 2019, highlighting the management's commitment to these issues and its willingness to involve all employees.

These charters, codes and policies are all available in the CSR section on the Company's website (www.arkema.com).

4.1.2 Description of 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.

Arkema has therefore been engaged for many years in a continuous process of reducing the main risks associated with its activities, particularly those relating to safety and the environment (described in section 2.1 of this document). 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 (for additional detail, see section 1.1.2 of this document).

The Sustainable Development Goals (SDGs) defined by the United Nations set out the economic, social and environmental challenges facing our world today. Arkema's sustainable development initiatives are underpinned by these SDGs. 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].

(1) "Integrating the SDGs into Corporate Reporting: A Practical Guide".

TABLE OF THE GROUP'S CONTRIBUTION TO THE UNITED NATIONS SDGS

SDG	Sustainable solutions	Responsible manufacturer	Open dialogue
1 No poverty			1.5
2 Zero hunger	2.1 2.3 2.4		
3 Good health and well-being	3.8	3.5 3.6 3.9	3.5 3.6 3.9
4 Quality education		4.3 4.4 4.5	4.3 4.4 4.5 4.7
5 Gender equality			5.5
6 Clean water and sanitation	6.1 6.2 6.3 6.4	6.3 6.4	
7 Affordable and clean energy	7.2 7.3	7.2 7.3	
8 Decent work and economic growth			8.4 8.5 8.7 8.8
9 Industry, innovation and infrastructure	9.1 9.4 9.5	9.4	
10 Reduced inequalities			10.4
11 Sustainable cities and communities	11.1 11.2		
12 Responsible consumption and production	12.2 12.3 12.4 12.5	12.4 12.5	12.6
13 Climate action	13.1	13.1 13.3	
14 Life below water	14.1	14.1 14.2	
15 Life on land	15.1 15.5	15.5	
16 Peace, justice and strong institutions			16.5
17 Partnerships for the goals	17.17	17.14	17.14

Strategic contribution (through strategic objectives or programs)
Direct contribution (resulting from volontary initiatives)
Indirect contribution (resulting from the Group's activities)

The strategic contribution to the SDGs that relate to Arkema's sustainable solutions commitment is demonstrated by the Group's choice of the six 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.

Consistent 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 was stepped up in 2019. This process is described in section 4.2 of this document, which focuses on the Group's sustainable solutions.

4.1.3 Consolidated non-financial information statement

In compliance with article L. 225-102-1 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 4.1.2 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 risk map 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 accident 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, and the risk of poor social and environmental performances by suppliers or subcontractors.

The Group's governance of CSR issues is described in section 4.1.5 of this chapter.

The non-financial information statement for the year ended 31 December 2019, 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 4.5 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/en/social-responsibility.

CROSS-REFERENCE TABLE FOR THE NON-FINANCIAL INFORMATION STATEMENT

Articles L. 225-102-1 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	2.2 (non-financial risks are tagged "CSR")
Social impact of the Company's activities	4.4.1
Environmental impact of the Company's activities	4.3.3
Impact of the Company's activities on Human Rights	4.1.4 and 4.4.3
Impact of the Company's activities on avoidance of corruption and tax evasion	4.4.2
Impact of the Company's activities and of the use of goods it produces and services it provides on climate change	4.3.3.2

Articles L. 225-102-1 and R. 225-105 of the French Commercial Code (*Code de commerce*)	Sections in this document
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 4.4.4
Social commitments to the circular economy	4.3.3.3.4
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	4.4.1.7
Actions to counter discrimination and promote diversity	4.4.1.6
Measures to promote the recruitment of people with disabilities	4.4.1.6

4.1.4 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. 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 – at least once a year. The review is led by the Sustainable Development department and involves representatives 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 to the CSR Steering Committee and then 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 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 2018 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. For further details, see section 4.4.3 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 4.3.1 and 4.3.2 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). In 2019, the TRIR, including accidents involving Group and subcontractor employees, was 1.4, much in line with previous years' figures, which were already indicative of very good performance. The PSER, an indicator introduced in 2018, is improving, with a reading of 3.7. For further details, see section 4.3.2 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 4.3.1 and 4.3.2 of this chapter, includes risk prevention measures, as well as measures for mitigating impacts in the event of an incident or accident. In addition, product stewardship, including the transparency and availability of product information, is presented in sections 4.2.4 and 4.3.2 of this chapter.

    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 2019, 35 cases of occupational illness were reported Group-wide. The frequency rate of 1.0 per million hours worked is an improvement on previous years. Details on occupational illnesses are given in section 4.3.2.2.4 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 4.3.1 and 4.3.3 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 2019, the VOC EFPI was 0.60, below the 2018 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 2019, the COD EFPI was 0.50, well below the 2018 figure and in line with the 0.40 target set for 2030. For further details, see section 4.3.3 of this chapter. The results confirm the validity of the Group's programs and initiatives on reducing pollution risks.

  Arkema is also attentive to the issue of climate change, one of the major challenges facing society today. The Group's climate policy and its management are described in section 4.3.3.2 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 consistent 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 2019, absolute GHG emissions compared with 2015 were 0.87, down on the 2018 figure and consistent with the 0.62 target set for 2030. For further details, see section 4.3.3.2.1 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 2019, the Energy EFPI was 0.91, up on the 2018 figure due to unfavorable energy efficiency conditions at certain sites. However, the decline does not call into question the 0.80 target set for 2030. For further details, see section 4.3.3.2.2 of this chapter. The improvement in the GHG indicator in 2019 confirms Arkema's contribution to reducing greenhouse gas emissions.

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 4.4.4 of this chapter.

The effectiveness of the measures undertaken is monitored in terms of the number of suppliers assessed and the scores obtained. In 2019, more than 1,600 suppliers were assessed, up from around 1,400 in 2018. The suppliers assessed account for more than 50% of the Group's purchases. In 2019, CSR scores had risen for 57% of suppliers whose assessments had been updated.

Some of the Group's products use raw materials of vegetable origin. Where 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 socially responsible sourcing, as described in section 4.4.4.3 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 4.3.2.3 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 4.3.3.4 of this chapter.

REPORT ON THE IMPLEMENTATION OF THE DUTY OF CARE PLAN

For risks liable to be entailed by 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 2025 in terms of total recordable injury rate (TRIR < 1.2) and process safety event rate (PSER < 3),
  - 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 - 60% and Energy - 20% compared with 2012);
- no risks were identified of serious violations to human rights or fundamental freedoms, or in labor or business relations. Initiatives are nevertheless under way in this area. Information was provided, along with the Social Commitment Charter, and events were organized at each Group site in 2019 to support the Human Rights Policy, highlighting the management's commitment to these issues by encouraging the involvement of all employees.

Concerning risks relating to the activities of suppliers and subcontractors, the programs under way meet duty of care expectations. The following initiatives helped step up these programs in 2019:

- extended reach for the Together for Sustainability program, with special focus on sensitive suppliers and subcontractors;
- decision to continue the Pragati project for responsible castor farming for a further period of three years and to create an independent secretariat to promote good agricultural practices more widely (see details in section 4.4.4.3 of this document).

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 4.4.2.5 of this chapter.

4.1.5 CSR governance

Arkema's governance of the CSR process is integrated into the Group's corporate governance. Arkema's CSR ambition, the main 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.

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 *via* its annual Communication on Progress, and in 2019, this commitment reached the GC Advanced level. 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 Executive Vice-President, who is a member of the Executive Committee.

In addition, a CSR Steering Committee guides and supports the Group's progress in the area of CSR. It is chaired by the Industry Executive Vice-President. Its members include the Human Resources and Communication Executive Vice-President and around ten corporate Vice-Presidents, all of whom are actively involved in the CSR process. It meets at least twice a year.

In 2019, a network of CSR correspondents was formalized. It comprises approximately 40 members, including representatives from each Business Line, corporate department and the main countries in which the Group operates. These correspondents work with the Sustainable Development department to implement the CSR policy within their organization.

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.

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.

Stakeholder	Context and purpose of dialogue	Form of dialogue
Customers	Business relationship and collaboration aimed at meeting the current and future needs of customers and end users	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, including lifecycle analysis if required; • development of new digital solutions that increase value added for customers and partners. For further details, see the section on Commercial excellence in Profile, ambition and strategy.

Stakeholder	Context and purpose of dialogue	Form of dialogue
Suppliers	Business relationship and collaboration aimed at meeting the current and future needs of the Group and its customers	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. For further details, see section 4.4.4 of this chapter.
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	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). 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	• Results presentations; • Meetings with 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	• 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 4.4.1.4 and 4.4.1.7 of this chapter.
Neighboring communities	Neighbors and communities that interact locally with Group sites	The Common Ground® initiative described in section 4.4.6.2 of this chapter promotes local dialogue at each of the Group's sites.
Civil society and NGOs	Proactive and reactive dialogue	• 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 4.4.6 of this chapter.
Public authorities	Regular and occasional contact aimed at ensuring the responsible development of our activities	• 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 4.4.5 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	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 4.4.5 of this chapter.

MATERIALITY ASSESSMENT

In the first half of 2019, the Group conducted its second materiality assessment, a formal process of listening and consultation of stakeholders on CSR topics. Three years since the first analysis was conducted, this new exercise in stakeholder engagement has been extended to include the Group's three key regions – the Americas, Asia and Europe – and consultation of a broader range of stakeholders.

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,
   - 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	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 the 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, led through 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:

   - maturity matrix: the 14 historical issues as perceived to reflect Arkema's maturity,
   - 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/export/shared/.content/media/downloads/socialresponsability/arkema-materiality-assessment-2019-en.pdf

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 and 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 MATTERS

Maintain excellence	Seize opportunities
Product stewardship	Sustainable solutions driven by innovation
Occupational health and safetyl	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 managemen
Diversity and equal opportunities	Greenhouse gas emissions reduction and energy management
	Training and individual development
	Well-being at work and work-life balance

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: "Develop, as a responsible industrial company, innovative solutions adapted to our customers' main challenges and support them in their quest for sustainable performance."

The action plans for the five priority areas are outlined in the table below. The indicators and targets referred to are explained in further detail in section 4.1.7 below.

Priority areas	Corresponding priority issues	Objectives and action plans
Sustainable solutions	Sustainable solutions driven by innovation Collaborative innovation Product stewardship	Develop the range of solutions: • continue and reinforce collaborative innovation and partnership initiatives in different formats; • implement the sales portfolio assessment program in 2019–2020 in light of sustainability: ◦ program deployment in 2019–2020, ◦ new indicator introduced in 2019: Percentage of sales that contribute significantly to Sustainable Development Goals.
Circular economy	Circular economy, including water and waste management Collaborative innovation	Intensify the circular economy approach across the entire value chain: • build on existing practices to contribute to resource preservation and environmental footprint reduction; • create a specific global task force: ◦ study in progress to choose a strategic indicator. The growing challenge of the circular economy applies to both the Group's solutions and its industrial operations.
Climate	Greenhouse gas emissions reduction and energy management	Develop a climate plan in line with the Paris Agreement: • update climate goals to surpass greenhouse gas emission targets achieved and in doing so better meet climate change challenges: ◦ new target introduced in 2019: absolute reduction in greenhouse gas emissions based on a scientific approach.
Industrial risks	Prevention and management of industrial risks	Continue the actions taken while still aiming for the same level of excellence in process safety: ◦ reduction target for the process safety event rate (PSER).
Well-being and health	Well-being at work and work-life balance Occupational health and safety	Define a Group-wide, in-depth approach to work-life balance: continue the actions taken while still aiming for the same level of excellence in personal safety: ◦ reduction target for the total recordable injury rate (TRIR).

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 4.4.6.2 of this document) and internationally through formal discussions with a panel of stakeholders.

4.1.7 CSR key performance indicators

The following table summarizes Arkema's *key CSR performance indicators*. Tracking and analyzing these KPIs enables the Group to validate, year after year, the performance of its CSR process and upgrade it as required.

Arkema's long-term objectives, which are set out in the table below, reflect commitments in terms of CSR in line with the Group's ambition, as described in the "Profile, ambition and strategy" section of this document, and the materiality analysis presented above. In 2019, the percentage of sales that contribute significantly to the United Nations' Sustainable Development Goals was added to the strategic indicators, strengthening the Group's commitment to sustainable solutions.

Environmental targets were also updated to account for the fact that three of them were met in 2018. The GHG emissions target is now expressed in absolute terms, compared with 2015, in line with the expectations of the Paris Agreement. Targets for emissions of volatile organic compounds and chemical oxygen demand, as well as net energy purchases continue to be expressed in intensive value. More ambitious targets have been set for 2030 for all of these environmental indicators.

	Target year	Target	2019	2018	2017
SUSTAINABLE SOLUTIONS					
Percentage of sales that contribute significantly to Sustainable Development Goals (1)			46%	43%	nd
Number of patent applications filed during the year relating to sustainable development			149	154	150
Percentage of sales from products made from renewable raw materials			9%	9%	9%
RESPONSIBLE MANUFACTURER					
Percentage of AIMS audited sites	2025	100%	80%	74%	69%
Safety					
Total recordable injury rate (TRIR) (2)	2025	<1.2	1.4	1.3	1.6
Process safety event rate (PSER) (3)	2025	<3	3.7	4.4	3.9 (4)
Percentage of sites having implemented peer observation in the last three years	2025	100%	62%	64%	59%
Environmental footprint					
Greenhouse gas (GHG) emissions (5) *(in absolute terms compared with 2015)*	2030	0.62	0.87	0.90	0.96
Volatile organic compound (VOC) emissions *(in EFPI terms compared with 2012)*	2030	0.35	0.60	0.62	0.66
Chemical oxygen demand (COD) *(in EFPI terms compared with 2012)*	2030	0.40	0.50	0.59	0.70
Net energy purchases *(in EFPI terms compared with 2012)*	2030	0.80	0.91	0.88	0.89
OPEN DIALOGUE					
Employee development and diversity					
Percentage of women in senior management and executive positions	2025	23% to 25%	23%	21%	19%
Percentage of non-French nationals in senior management and executive positions	2025	42% to 45%	40%	39%	37%
Average number of training hours per employee			25	25	25
Corporate citizenship					
Percentage of plants taking part in the Common Ground® program			78%	84%	78%

(1) The percentage of sales contributing significantly to the United Nations SDGs was calculated on the basis of an assessment of 44% of the Group's third-party sales in 2019.

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

(3) 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).

(4) The method for calculating PSER was reviewed in 2018 (see section 4.3.2.3 of this chapter).

(5) Greenhouse gas emissions cover direct Scope 1 emissions and those of ozone-depleting substances, and indirect Scope 2 emissions.

IMPROVEMENT PROCESS AND RECOGNITION

For several years now, Arkema has been strongly engaged in a process to improve its CSR performance, with the aim of being included in the Dow Jones Sustainability Index (DJSI). The Group's CSR approach is regularly assessed by external stakeholders, particularly extra financial rating agencies and customers. As requested by Group customers, site audits may also be performed by independent auditing firms to supplement this assessment.

Ratings generally improved in 2019, confirming the appropriateness of the CSR approach and providing the Group with areas for improvement that will enable it to rank among the best performing companies in the industry.

SAM Now a Part of S&P Global

Participation since 2015, with a significantly improved assessment, in line with the Group's target of joining the DJSI

MSCI

"A" rating since 2017

CDP DRIVING SUSTAINABLE ECONOMIES

In 2019, a "B" rating was obtained for Climate Change and a "B-" rating for Water Security

EURONEXT vigeoeiris

4th globally in the sector.
Inclusion in the Europe 120 and Eurozone 120 indices since 2015

GOLD 2019 ecovadis CSR Rating

Gold level obtained since 2015.
Arkema ranks among the top 1% of companies in the sector

FTSE4Good

Renewed every year since its initial inclusion in 2015

4.2 SUSTAINABLE SOLUTIONS

DEVELOP INNOVATIVE SOLUTIONS ADAPTED TO OUR 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, 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 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 Committee was created in 2019 as an extension of the preexisting REACH Committee, in line with the Group's social commitment. The new committee comprises four members from the Executive Committee, which oversees business and industrial operations, and members from the Sustainable Development, Research and Development and Legal Affairs departments. It 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. Every year, the Sustainable Development Vice President presents the Executive Committee with an overview. The overall governance of sustainable development is presented in section 4.1.5 of this chapter.

To supplement its innovation and product stewardship processes, Arkema initiated a program in 2018 to systematically assess its portfolio of solutions in light of sustainability criteria. The program is presented in section 4.2.3 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.

The number of sustainability-related patents filed reflects the Group's dynamic in this field. In 2019, they accounted for 67% of the total number of patents filed.

	2019	2018	2017
Number of patent applications filed during the year relating to sustainable development	149	154	150

4.2.3 Management of the solutions portfolio

ASSESSMENT OF THE SOLUTIONS PORTFOLIO

To shift its product range more assertively toward sustainable solutions, Arkema has initiated a program to systematically assess its portfolio of solutions in light of sustainability criteria.

The methodology selected corresponds to that set out by the World Business Council for Sustainable Development (WBCSD) in its publication entitled "Chemical Industry Methodology for Portfolio Sustainability Assessments (PSA)". 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, (ii) the principles of ethics and respect for human rights, and (iii) profitability factors;
- medium- and long-term trends in the regulatory framework and market expectations in terms of sustainable solutions; 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.

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. Sales making a significant contribution to the SDGs are solutions 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.

Following a pilot phase in 2018 to test the method and its implementation, in early 2019 Arkema initiated the gradual deployment of the program across the product ranges of the various Business Lines. At the end of 2019, three quarters of them had started the assessment. Significant progress was noted, with 44% of sales to the Group's third-party customers assessed. The method is being fine-tuned as it is rolled out. The approach will continue in 2020.

The percentage of sales assessed that contribute significantly to the SDGs was 46% in 2019, compared with 43% in 2018 on the same scope of assessment.

	2019	2018
Percentage of sales that contribute significantly to Sustainable Development Goals(1)	46%	43%

(1) The scope assessed covered 44% of the Group's sales to third parties in 2019.

FOCUS

Oleris® Sebacate plasticizers: 100% bio-sourced for extreme performance

Sebacate plasticizers made from castor oil give polymers flexibility at low temperatures, which broadens their spectrum of technical applications and extends the lifespan of products that contain them. These plasticizers offer an effective alternative to long-chain phthalate plasticizers, which may be subject to regulations.

ECO-DESIGN

Reducing its environmental footprint is one of the Group's key commitments and an area in which stakeholder expectations are high. To meet those expectations, Arkema implements eco-design and circular economy techniques, as described in section 4.3.3.3.4 of this chapter.

In choosing raw materials, the Group favors renewable materials with a low carbon footprint that present the least possible hazard to human health and the environment.

Designing solutions and their implementation by customers and end-users maximizes the levers of circular economy principles. This means a design that provides a function with the least amount of material possible, facilitates reuse and extends product lifespan, while allowing for – depending on the materials used – either biodegradability, or mechanical or chemical recycling.

FOCUS

Thermogrip 43298: the compostable adhesive

Thermogrip 43298 is a compostable hot melt adhesive for paper and fiber board packaging. It is certified by the BPI (Biodegradable Products Institute) for paper coffee cups. The BPI is an American certifier of compostable products and packaging.

	2019	2018	2017
Percentage of sales from products made from renewable raw materials	9%	9%	9%
Percentage of sales volume covered by a full life-cycle assessment	22%	20%	20%

4.2.4 Product stewardship

4.2.4.1 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 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:

- actively contributing to advancing scientific knowledge to better take into account the hazards and risks relating to products and their use;
- aim to reduce health, safety and environmental risks while designing products;
- managing risks 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;
- communication and clear information for product users.

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) to manage HSE risks related to product modifications, particularly changes to product composition and manufacturing processes.

A training module on product stewardship has also been introduced internally and added to the training program for Business Line and Logistics 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, Authorisation 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, such as Canada and Russia.

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 Business Lines 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 approximately €65 million over the 2008–2020 period.

When the stages of registration 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, that it addressed citizens' concerns about chemical safety, and that it was not recommended to revise it for the time being. 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 150 companies from the chemical industry in signing up to the action plan. It fits perfectly with the Group's 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 40% of the Group's filings maintenance activity in 2019.

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, 375 substances have or will be evaluated under the plan. Thirty-one of the Group's substances have been listed in CoRAP and their state of advancement is as follows:

CoRAP	2012–2021	Evaluation completed	Additional information provided, awaiting conclusion	Additional data being constituted	Upcoming evaluation
Number of substances	31	8	6	11	6

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	13	12
SVHCs on the REACH candidate list	43	39

In addition to Europe, the table above includes data for Asia and the United States, as well as for Bostik.

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 2019, the industry candidate list contained 201 substances, including (i) hydrazine produced at the plant in Lannemezan, France, (ii) 2-imidazolidinethione (ETU) produced by MLPC, and (iii) nonylphenol ethoxylates (NPE) produced by the surfactants and additives business.

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.

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 and entered the phase of analysis by the Committees for Risk Assessment (RAC) and for Socio-Economic Assessment (SEAC). 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 February 10, 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.

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 is preparing to register the substances by the set deadline.

The Group is now preparing for upcoming pre-registration/registration deadlines in Turkey. It also prepared for a no-deal exit by the United Kingdom from the European Union, and will start compliance work ahead of the end of the transition period on the basis of the regulatory information available.

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 great majority of raw materials of vegetable origin 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 Business Lines 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 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 Classification, Labeling and Packaging (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 has taken the measures necessary to meet the upcoming deadlines, the first of which is 1 January 2021.

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 RESPONSIBLE MANUFACTURER

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. Its goal is to rank among the leading chemical producers in terms of safety performance and to reduce the environmental footprint of its activities.

4.3.1 Health, safety and environmental management

Safety and protecting health and the environment 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 Group's health, safety and environment policy is structured around three areas: prevention of risks (related to safety, the environment and pollution), 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 Policy and in a global standard, the Health, Safety and Environment (HSE) manual. This policy, which confirms the responsible manufacturer commitment expressed in the Group's Social Commitment Charter described in section 4.1.1 of this chapter, and this global standard form the basis of the HSE management systems for all Group entities.

The new materiality assessment performed in 2019 confirmed that occupational health and safety, prevention of industrial risks, consideration of circular economy challenges including water and waste management, and greenhouse gas emissions reduction and energy management were among the Group's priority issues and have been properly integrated as such into its CSR approach.

The management system 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 Executive Vice-President, who is an Executive Committee member, 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.

Implementation of the Health, Safety, Environment and Quality Policy is handled by the operating teams in each region and Business Line.

HSE assessment of acquisitions

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 to supplement this analysis.

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 4.3.1.2 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.*

4.3.1.1 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 4.3.2.2 and 4.3.2.3 of this chapter.

4.3.1.2 MANAGEMENT SYSTEM AND AUDITS

The effective implementation of the Group's health, safety and environmental policies 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 security, safety, environment and quality 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 (replacing OHSAS 18001) 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 safety, environment, energy and quality management initiatives. For the largest sites (46% of all Group sites), 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, simplified AIMS audits are conducted every three years by Arkema staff.

The 2025 target is for 100% of facilities to have undergone a complete or simplified AIMS audit within the past three years.

	2019	2018	2017
% of facilities AIMS-audited over the past three years	80	74	69

The steady increase in the percentage of AIMS-audited facilities over the last five years illustrates the continued deployment of this program, including at sites coming from acquisitions.

Furthermore, under the AIMS standard, field audits are led by plant employees to assess the safety culture and installation compliance on a continuous, sustainable basis. These assessments include task or process audits, short flash audits, scheduled general inspections and safety tours by management. They concern everyone working on the site, including subcontractor employees, and are performed in every aspect of the site's operations, including production, logistics, maintenance, offices, construction or turnaround sites, and production unit shutdowns.

Facilities are also 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 and attests in 2019, as for previous years, to the Group's ongoing efforts in these areas:

Number of sites certified according to each standard	2019	2018	2017
ISO 45001 or OHSAS 18001 (health and safety)	86	85	74
ISO 14001 (environment)	81	77	70
ISO 50001 (energy)	33	30	29
ISO 9001 (quality)	156	154	150

The migration from OHSAS 18001 to ISO 45001 was initiated in 2018 and will continue until early 2021. 59% of Group facilities have been ISO 45001/OHSAS 18001 certified in Europe, 47% in America and 65% in Asia, representing 47% of Arkema's workforce.

The ISO 14001 certification system requires each production facility 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.

	2019	2018	2017
% of ISO 14001-certified sites	53	48	43

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 s 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	2019	2018	2017
RCMS (United States only: health, safety, environment)	14	12	11

In addition, the Group performs a large number of 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.

In addition to audits, teams from the Group Safety and Environment department (DSEG) lead safety support initiatives at facilities whose performance has fallen short of Group standards or which have reported a specific issue. DSEG experts share their findings of the facility's accident record and HSE activities with plant management, then discuss how to prepare, implement and follow up on the remedial action plans. Since 2017, the DSEG has provided specific support to plants during their turnarounds and stepped up its participation in events organized by the Business Lines, plants (annual meetings with partner companies) and corporate departments (maintenance, R&D, etc.).

Another important tool in managing the deployment of the Group's HSE 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 HSE alert that enables other Group facilities that may encounter a similar incident to take corrective measures. The feedback process helps improve the Group's HSE expertise and ensure the effectiveness of the deployed measures.

To harmonize the identification, assessment and analysis of environmental risks, the Group is rolling out a methodology across the world, while the dedicated Starmap IT system was implemented in Europe, the United States and Asia in 2016, as explained in section 4.3.2.2. In 2019, 76% of the Group's industrial sites had installed the system, and around 71% had used it to update their environmental assessment.

4.3.1.3 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 health, safety and the environment for new hires;
- the "Safety in Action" and "Essentials" programs;
- field initiatives, such as peer observations, flash audits, scheduled general inspections, safety tours and field safety audits;
- dedicated training courses, such as SafeStart®, "Human and Organizational Safety Factors", "Safety Culture and Leadership", "Transporting Hazardous Substances" and "Crisis Management"; and
- the Arkema Safety Academy, which enables every employee to share the Group's safety challenges, policies and tools.

In addition, since 2017, the Group has been progressively integrating the lessons learned from neuroscience to improve accident prevention. These programs and initiatives are detailed in this chapter.

In 2019, safety training (excluding e-learning)[1] totaled 183,545 hours (i.e., 13 hours per year per employee trained), and the number of employees who attended at least one safety training session totaled 14,142 (76% of the Group headcount).

In addition, 6,684 people (36% of the Group headcount) took e-learning courses on safety in 2019[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.

In line with the new long-term environmental objectives that Arkema has set itself, a communication campaign aimed specifically at

(1) In entities at least 50%-owned and employing more than 60 people.

fostering an environmental culture is being prepared with a view to being rolled out throughout the Group.

Details on employee training and the new-hire induction process may be found in section 4.4.1.3.2 of this chapter. Environmental training totaled 10,210 hours in 2019[1], or an average of 2 hours per employee. The number of employees to have attended at least one environmental training course during the year (excluding e-learning) increased significantly to 4,686, compared with 3,919 in 2018. This means that 25% of the Group's employees[1] attended environment-related training in 2019 (excluding e-learning).

In addition, 4,863 people (26% of the Group headcount) took environment-related e-learning courses in 2019[1].

4.3.2 Health and safety information

BEING A TOP QUARTILE PERFORMER IN SAFETY IN THE CHEMICAL INDUSTRY

4.3.2.1 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 three targets for 2025, which reflect the Group's willingness to continuously improve its performance in this area.

2025 TARGETS

3 GOOD HEALTH AND WELL-BEING

Reduce the total recordable injury rate (TRIR) to less than 1.2.

Reduce the process safety event rate (PSER) to less than 3.

Extend the peer observation program to every Group site*.

* *For newly acquired companies' sites, the roll-out of this program takes place over a period of around three years.*

By setting this strategic TRIR objective for 2025, Arkema is contributing to UN Sustainable Development Goal 3: "Good health and well-being".

4.3.2.2 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 several years ago 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 more details, see section 4.4.1.4 of this chapter).

4.3.2.2.1 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

(1) *In entities at least 50%-owned and employing more than 60 people.*

"Essentials" program defines a set of rules that must be applied without compromise in every situation.

FOCUS

Time for Safety: a time exclusively dedicated to Safety

To ensure that everyone plays their part in initiatives taken to improve safety, the Group launched the Time for Safety program worldwide. Under this program, each site sets aside a time every week when all employees come together to carry out a safety measure (incident analysis, field audit, safety improvement review, etc.).

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 2019, 62% of all Group sites had put in place peer observation practices to improve safety, *versus* 64% in 2018. The slight decline is attributable to an increase in the number of sites included in the scope. Moreover, practices on the Bostik sites that already have a system are being converged with the Group's cross-observation approach applied to tasks. The 2025 target is 100% of the Group's sites.

As an adjunct to cross-observation, Arkema has put in place special programs, such as Smart Zone and SafeStart®:

- **Smart Zone: identifying and rectifying shortfalls**

  Bostik has developed a monitoring system to identify in-field non-compliance or shortfalls against best safety practices. Employees detecting such an incident can report it in a Smart Zone table. After immediate corrective action is taken, further measures can be discussed between the employee and the Smart Zone table manager. Implementation of the corrective solution is displayed in the Smart Zone through to completion, for fast, effective incident follow-up.

- **SafeStart® to make safety everyone's business**

  To encourage the shift from a compliance to a commitment-based safety culture, the Group has rolled out the SafeStart® initiative, which is based on observing oneself and other people to identify critical states, such as rushing, frustration, fatigue and complacency, that can lead to critical errors (eyes not on task, line of fire, mind not on task, loss of balance, traction or grip), which in turn transform minor risks into major ones. Techniques to reduce the incidence of critical errors in turn help to drive a continuous improvement in the prevention of accidents. All employees will be trained in the fundamentals of this approach by 2025.

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).

Program rollout has begun, furthering an understanding of behavioral approaches, and facilitating the adoption of safety tools and equipment by highlighting their utility.

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 2019, 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, such as the use of virtual reality and connected tools in France, tablets for safety inspections in the United States, and drones for maintenance inspections in China and France.

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.

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:

- in China, the Employee Engagement Survey, which includes a safety section, is conducted every two years, and the findings are integrated into site improvement plans. In 2019, 93% of respondents said they understood their role and responsibilities in creating a safe work environment;

- in the Americas, the Safety culture & engagement survey conducted in 2019, which also included a safety section, received positive responses in the proportion of 97% to the affirmation "I fully understand the expectations and requirements in terms of safety in my job";
- in Europe, the latest survey including a safety section was carried out among all employees in 2018: 97% of respondents said that "safety was on their 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 4.4.6 "Corporate citizenship and philanthropy" 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 deep involvement of every employee.

2025 TARGET

To further improve, the Group has set a target to achieve a total recordable injury rate per million hours worked (TRIR) of less than 1.2 by 2025.

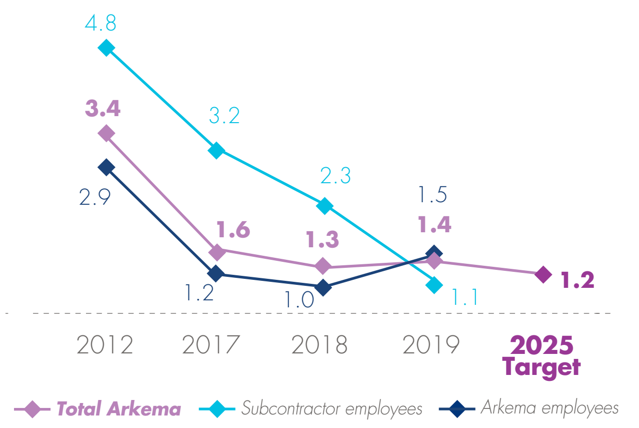
3 GOOD HEALTH AND WELL-BEING

The Group continued to consolidate its safety performance at a very good level in 2019, with a TRIR of 1.4, virtually unchanged from the very good result achieved in 2018, namely a TRIR of 1.3. This performance stemmed from excellent results for subcontractor employees, with a significant drop in the TRIR to 1.1 in 2019, compared with 2.3 in 2018, offsetting the increase in the TRIR from 1.0 to 1.5 for Group employees. An intensification of targeted actions is planned for this population in 2020 and beyond. The marked improvement in the TRIR for subcontractor employees stems from actions taken to strengthen their integration into the Group's various safety procedures.

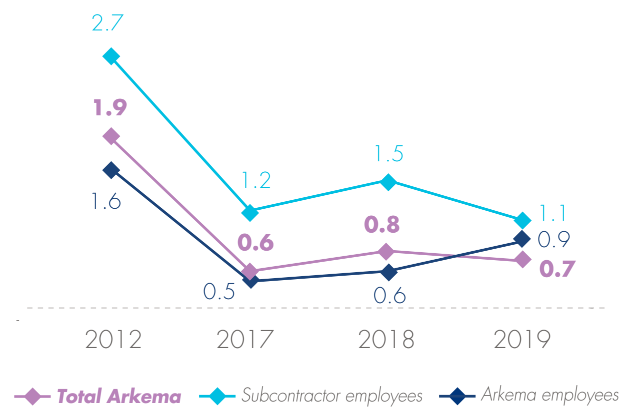
The Group also made progress in its drive to reduce the number of lost-time injuries, thanks to the implementation of prevention initiatives. As a result, the lost-time incident rate (LTIR) declined to 0.7 in 2019 from 0.8 in 2018. An average of 48 days were lost per injury in 2019 across all Group and subcontractor employees, a slight improvement on the 52 days reported in 2018. No fatal accidents have been recorded since 2013.

The following charts show consolidated injury rates for the 2017 to 2019 period, in number of injuries per million hours worked, calculated according to the methodology described in section 4.5.2 of this chapter. They also show data for 2012, the baseline year used to set the strategic safety targets in the Group's CSR policy.

TOTAL RECORDABLE INJURY RATE (TRIR)(1)



LOST-TIME INJURY RATE (LTIR)(2)



(1) 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.

(2) 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.

In 2019, a total of 54 Group employees were victims of reported injuries recorded in the TRIR for the year, of which 31 resulted in lost time, out of a total worldwide workforce of 20,507 people. The rate also reflected the 13 incidents involving subcontractor employees reported during the year, of which 5 were lost-time injuries. The rate of potentially serious incidents, which has been running at around 30% in recent years, dropped to 22.4% in 2019, reflecting a significant drop in the potential severity of reported incidents. 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.

4.3.2.2.2 Health at work

Arkema has also 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, known as STARMAP, to prevent health and safety risks more effectively by capitalizing on globally managed data libraries and best practices. The application is being rolled out worldwide. At 31 December 2019, 41% of the Group's sites worldwide had entered their workplace risk assessment data into the STARMAP tool.

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 on the prevention of arduous working conditions and the integration of ergonomics was signed in 2016 by all of the trade unions, following on from the previous one. In this context, numerous initiatives have contributed to improving working conditions, including the development of internal expertise through the implementation of a network of ergonomics correspondents and the integration of ergonomics into the industrial design of projects.

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 have launched a program to improve workstation ergonomics, primarily in packaging operations.

In China, targeted studies are being conducted to improve load handling.

Overall, numerous initiatives have been undertaken to improve ergonomics in various work situations, including load handling, packaging, unloading, equipment control, facility maintenance, and laboratory and office work.

Before implementing improvement initiatives, the Group organizes awareness sessions to improve understanding of ergonomics.

In 2019, the network of ergonomics correspondents continued to grow, particularly within Bostik. As it does every year, the network met to facilitate the exchange of best practices. In addition, medical staff were given the same training in ergonomics as the ergonomics correspondents.

Lastly, HSE project reviews systematically address the integration of ergonomic factors.

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. The Group has also 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 by 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 as of 2019; and
- protect health in the workplace.

4.3.2.2.3 Medical care

Regular medical check-ups were available in 94.3% of Group companies in 2019, covering 93.9% of employees.

In France, pursuant to the decree on the modernization of occupational medicine dated 27 December 2016, all employees now have access to individual exposure sheets to facilitate the monitoring of their health.

4.3.2.2.4 Occupational illnesses

Toxic or hazardous substances have been and continue to be used in the manufacture of the Group'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, the Group 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 2019, 35 occupational illnesses were reported Group-wide, of which 15 were related to exposure to asbestos and 11 to exposure to chemicals. These figures, which include diseases not listed to date in the tables of occupational illnesses, are down compared with 2018, implying a decline in the occupational illness frequency rate (OIFR) below.

The OIFR refers to the number of occupational illnesses reported per million hours worked.

Occupational illness frequency rate (OIFR)	2019	2018	2017
Number of occupational illnesses reported per million hours worked	1.0	1.9	1.6

In France, the Group also 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. Globally, the Group is working on digitizing its risk assessment data using the dedicated STARMAP tool (described in section 4.3.2.2.2 of this chapter), 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 20 to the 2019 consolidated financial statements in section 5.3.3 of this document.

4.3.2.3 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.

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 in Europe, the United States and Asia. 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 2019, Group capital expenditure allocated to safety, the environment and maintaining the production facilities to standard amounted to €279 million, *versus* €270 million in 2018.

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 2019, 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, 35 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 updating 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.

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 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 or 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.

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 new process safety indicator, the PSER (number of process safety events per million hours worked) based on ICCA and CEFIC criteria.

2025 TARGET

Driving further efforts on reducing industrial accident risks, the Group has set the strategic target of a PSER under 3 by 2025.

3 GOOD HEALTH AND WELL-BEING

In 2019, the PSER was 3.7, compared to 4.4 in 2018. This increase is the result of targeted actions carried out by the sites following analysis of incidents by type. The Group is contributing to industry-wide efforts on reporting reliability and harmonization for this enduringly complex indicator.

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.

Transportation-related events

Transportation-related events are events that occur during the transportation or handling of hazardous and nonhazardous goods at loading/offloading areas and 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.

Major events are communicated to the Executive Committee on a quarterly basis.

4.3.2.4 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:

- **cyber security**: heightened protection of the Group's corporate and industrial IT networks worldwide;
- **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**: additional measures to enhance transportation security;
- **intellectual property**: heightened security measures at research centers; and
- **travel**: increased employee protection during business travel.

To roll out this safety policy to all employees, the Group-wide "i-Safe" awareness program, launched in 2018, is based on best cybersecurity practices. Ten of these, known as "the Golden rules", are deployed gradually *via* team meetings that extend to all employees. The first topics covered in these meetings were prudent use of USB flash drives and email, data protection, vigilance in the face of potential attacks, safe business travel, and vigilance on social media.

FOCUS

Crisis management in cybersecurity

Cybersecurity was integrated into the crisis management process with the implementation of a cyber crisis alert and management plan, supported by an expert response team available 24 hours a day, 7 days a week.

4.3.3 Environmental information

REDUCING THE ENVIRONMENTAL FOOTPRINT OF THE GROUP'S OPERATIONS

4.3.3.1 ENVIRONMENTAL MANAGEMENT

Reducing its environmental footprint and combating climate change are part of Arkema's commitment to being a responsible manufacturer. To achieve these objectives, the Group continues to upgrade its manufacturing practices to reduce emissions, optimize its use of energy, water and non-renewable raw materials, and support the circular economy. The Group's plants stringently track their effluent releases, air emissions and waste production and implement appropriate measures to manage the risks associated with the environment and climate change, taking into account their potential impact not only for Arkema but also for the environment and other stakeholders.

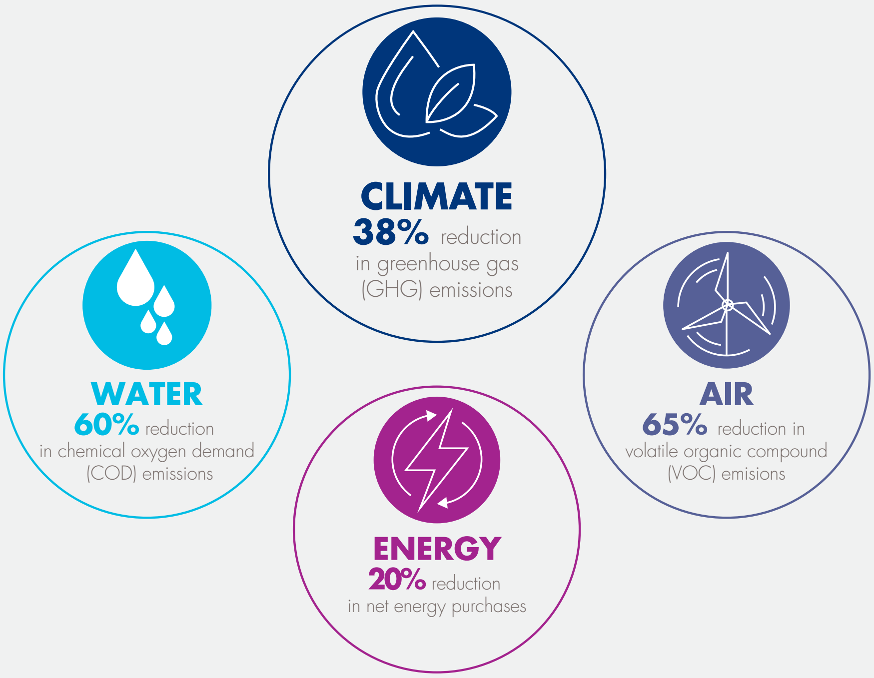
The main risks associated with the Group's activities relate to air, water and soil pollution, climate change and the use of resources. The due diligence procedures and policies implemented to prevent, identify and mitigate these risks and the outcomes of such policies in the form of performance indicators are presented in detail below and organized around the topics of climate change, resource management and impact on biodiversity.

In addition to these initiatives carried out at its industrial sites, Arkema also leverages its sustainable development-oriented innovation process to develop solutions for its customers that contribute to combating climate change, facilitate the management of water resources, support new energies and enhance energy efficiency, thereby providing new opportunities for growth. For further details, see section 1.1 of this document.

The new materiality assessment conducted in 2019 and set out in section 4.1.6 of this chapter confirms the importance that stakeholders attribute to environmental topics. Several years ago, the Group defined four objectives for 2025 that aim to reduce energy consumption and emissions into air (greenhouse gases and volatile organic compounds) and to water (chemical oxygen demand). With a baseline year of 2012, these objectives apply to intensive indicators, known as Environmental Footprint Performance Indicators (EFPIs), which are not impacted by changes in the scope of reporting, making them more effective in tracking the Group's industrial performance. Through the efforts undertaken, three of these targets were reached ahead of time in 2018.

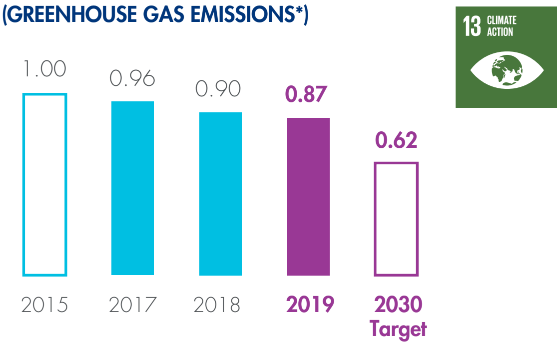
Through its commitment to reduce its environmental footprint and take into consideration climate change factors, the Group has decided to review these objectives with a new long-term target:

4 ambitious environmental targets for 2030*

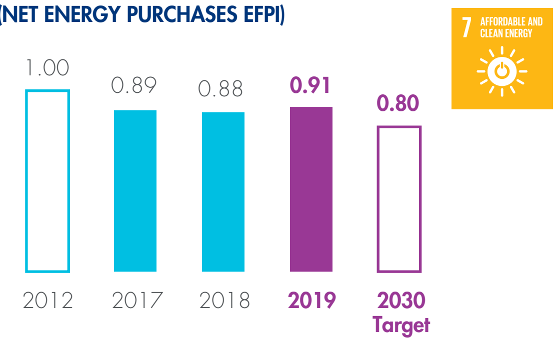


** In absolute terms compared with 2015 for climate, in EFPI terms compared with 2012 for water, air and energy*

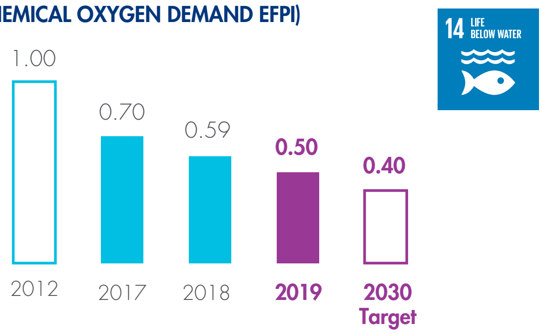
CLIMATE (GREENHOUSE GAS EMISSIONS*)



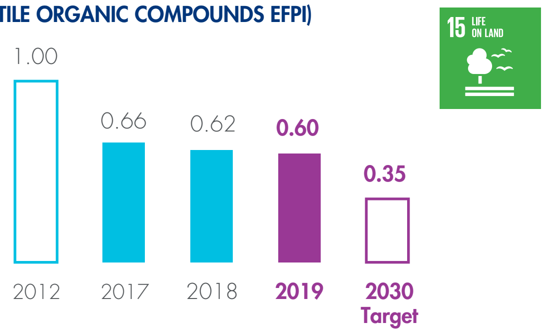
ENERGY (NET ENERGY PURCHASES EFPI)



WATER (CHEMICAL OXYGEN DEMAND EFPI)



AIR (VOLATILE ORGANIC COMPOUNDS EFPI)



NB: the change in the EFPIs is expressed in relation to an index base of 1 in 2012.

* *Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + ODS listed in the Montreal Protocol.*

These four strategic indicators and their trends are covered in more detail below.

Beyond the evolution of these four 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.

Regulatory and compliance monitoring

The Group ensures that its HSE network properly understands the applicable EU regulations, such as Phase III of 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. In 2019, Arkema started preparing for the EU-ETS phase IV study (European Union greenhouse gas emission allowance trading scheme), which will be implemented over the 2021–2030 period. The Group also performs regulatory compliance audits every three years at the US facilities. For China, a regulatory monitoring process has been set up with a specialized firm. European facilities can monitor their compliance with applicable regulations using specific IT applications dedicated to each country's legislation.

Management engagement

Initiatives underway to reduce the environmental footprint are extensively reviewed and discussed within the Group:

- each business's entire environmental footprint, including its energy footprint, is reviewed annually in individual meetings with the business's Managing Director and industrial Vice-President(s) and the Group Safety and 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;
- the Group's annual environmental and energy reports presenting results for the reporting and prior years, along with historical environmental footprint data (excluding energy) for the trailing six years, are issued to all the departments concerned. These reports track the initiatives that helped to improve the Group's environmental performance. A total of 188 initiatives were undertaken in 2019. They covered the full range of environmental related topics, including water withdrawals, the reduction in water effluent releases, GHG and COV emissions, soil contamination and waste production; and
- each year, the Group Safety and Environment Vice-President and the Sustainable Development Vice-President provide the Executive Committee with overviews of, respectively, the Group's environmental performance and the progress made in the key indicators towards the long-term targets. In 2019 the targets were redefined for the period until 2030.

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.

Environmental statement

The Group's statement concerning its environmental indicators is based on the principles of relevance, representativeness and consistency. The methodology applied is described in section 4.5 of this chapter.

4.3.3.2 CLIMATE CHANGE

A firm supporter of the fight against climate change, Arkema is committed to reducing its energy use and the greenhouse gas emissions (GHG) associated with its activities, mainly through its Arkenergy program.

At the *Rencontre des Entrepreneurs de France* (LaREF) meeting for French entrepreneurs held in August 2019, Arkema reaffirmed its 2015 and 2017 commitments to a low-carbon industry and economy by signing the French Business Climate Pledge 2019.

The Group is also determined to enhance its product range, notably by developing solutions that help reduce greenhouse gas emissions. This is illustrated by changes to its fluorogases offering and by the development of the four innovation platforms described in section 1.1.2 of this document: "Lightweight materials and design", "New energies", "Home efficiency and insulation" and "Bio-based products".

Arkema's climate policy and its management of climate-related issues are included in the Group's environmental policy, which is described in section 4.3.1 of this chapter, as part of its commitment to being a responsible manufacturer.

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 in line with the Montreal Protocol.

As it has met its GHG reduction target ahead of time and aims to bolster its contribution to climate issues, the Group has decided to set a new GHG emissions reduction target based on scientific knowledge. This new long-term Science-Based Target (SBT), is deemed consistent with the goal of keeping the rise in global temperatures to well below 2 °C above pre-industrial levels by the end of the century, in accordance with the Paris Agreement and recent reports from the Intergovernmental Panel on Climate Change (IPCC).

2030 TARGET

The Group's target is to reduce greenhouse gas emissions by 38%* compared with 2015.

13 CLIMATE ACTION

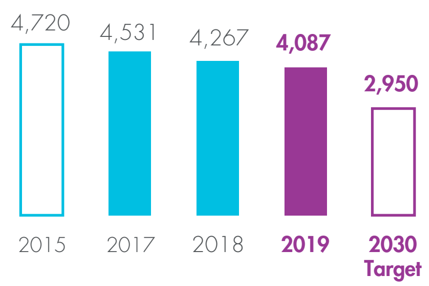
* *Absolute target for Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol.*

The methodology used to define this SBT is described in section 4.5 of this chapter. It covers Scope 1 and Scope 2 GHG emissions as defined in the Kyoto Protocol. As a responsible manufacturer, Arkema also includes GHG emissions of substances targeted by the Montreal Protocol to fully contribute to the climate change challenge.

Absolute indicator for greenhouse gas emissions SBT

The chart below details greenhouse gas emissions (1) (in kt CO_2 eq.) from the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

GHG EMISSIONS (2) *(in kt CO_2 eq. per year)*



In 2019, the Group's GHG emissions were down more than 4% compared with 2018. For each scope, they are set out below.

4.3.3.2.1 Scope 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
- processes that generate carbon dioxide (CO_2), nitrous oxide (N_2O) or methane (CH_4) as a product, by-product, coproduct or waste, and gas discharges from processes such as thermal oxidation, which converts VOCs into CO_2.

To reduce its impact on global warming, the Group has undertaken a number of actions and deployed effective measures to minimize direct GHG emissions, such as:

- installing emissions scrubbers, notably at the plants in Calvert City (United States), Pierre-Bénite (France) and Changshu (China);
- introducing systematic leak detection programs at the fluorogas production facilities, so as to minimize fugitive emissions; and
- replacing boilers with more efficient installations as part of the Arkenergy program (see section 4.3.3.2.2 on energy below).

Absolute indicator for direct greenhouse gas emissions

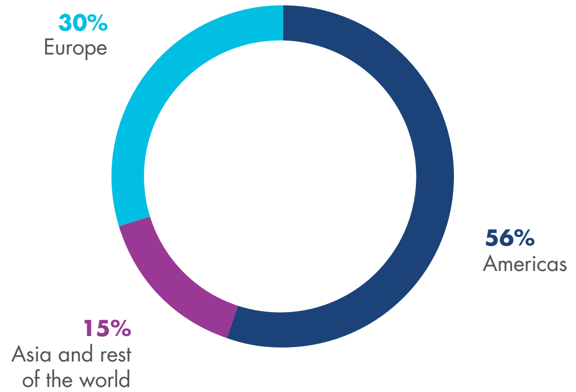
The chart below details direct greenhouse gas emissions (in kt CO_2 eq.) from the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

DIRECT GHG EMISSIONS *(in kt CO_2 eq. per year)*

Scope 1 GHG emissions *(kt CO_2 eq.)*	2019	2018 (2)	2017 (2)
Total	2,698	2,807	3,085
Of which CO_2	1,490	1,567	1,515
Of which HFC	1,174	1,210	1,530
Others	34	30	40

In 2019, the slight decrease in emissions is attributable chiefly to the continued improvement of the treatment of vents on the Calvert City site (United States).

DIRECT GHG EMISSIONS BY REGION *(in kt CO_2 eq. per year)*



The geographical breakdown of emissions was stable compared with 2018.

(1) *Scope 1 and Scope 2 emissions as defined in the Kyoto Protocol + substances listed in the Montreal Protocol.*

(2) *In 2019, GHG emissions include those of American Acryl's Bayport facility. Emissions from previous years have been recalculated to take account of this consolidation (see section 4.5.2.1 of this chapter).*

Other direct emissions

The Group emits GHGs involved in producing HCFCs, substances that deplete the ozone layer (Montreal Protocol).

Montreal Protocol	2019	2018	2017
Greenhouse gas emissions (kt eq.CO_2)	247	277	340

The main factor in the decline in emissions is a reduction in production volumes at the Pierre-Bénite site (France).

Scope 2 indirect emissions

The Group analyzes the following indirect GHG emissions:

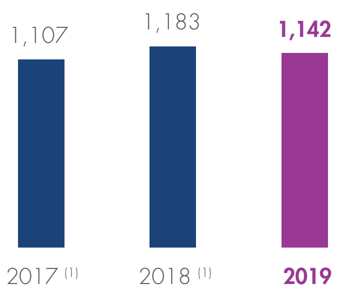
- Scope 2 CO_2 emissions from the suppliers of the electricity and steam purchased by the Group; and
- Scope 3 CO_2 emissions, categories 1, 2, 3, 4, 5, 6, 7, 8, 9, 12 and 15. See section 4.3.3.2.3 below.

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 4.3.3.2.2 on energy.

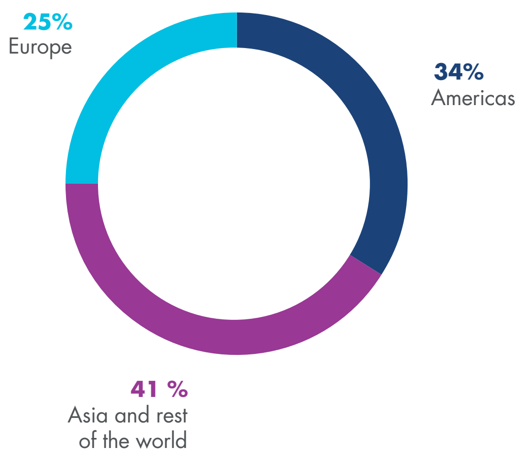
The chart below presents the Scope 2 emissions from the Group's operations in 2019, 2018 and 2017, as defined above and calculated according to the methodology described in section 4.5 of this chapter.

Scope 2 CO_2 emissions break down as follows

INDIRECT GHG EMISSIONS (SCOPE 2) *(in kt CO_2 eq.)*



INDIRECT GHG EMISSIONS BY REGION *(in kt CO_2 eq. per year)*



Scope 2 CO_2 emissions were down 3.5% in 2019 compared with 2018, under the combined impact of the Arkenergy improvement plan and lower production volumes.

Internal carbon price

In 2016, 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.

The Executive Committee reviews the use of the internal carbon price, checks its relevance and, if necessary, adjusts the value. In 2019, it was raised to €50 per tonne of CO_2.

4.3.3.2.2 Energy

The Group deploys a wide range of actions to reduce Scope 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 in this document).

Energy consumption

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 Group is rolling out the Arkenergy program in every subsidiary through a global network of Energy Leaders in the Business Lines, factories 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 in Europe and Asia. To date, a total of 33 sites are ISO 50001-certified, which corresponds to 60% of Arkema's total energy use;
- allocating a dedicated capital expenditure budget specifically for Arkenergy initiatives. In 2019, 51 capital projects were funded out of the budget, including 28 in Europe, 12 in the Americas and 11 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. Three new sites joined this program in 2019: Houston (USA), Changshu (China) and Jarrie (France).

FOCUS

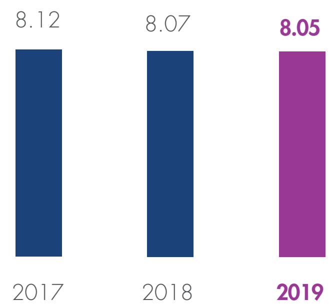
Optimized steam trap management

In 2019, Arkema signed an agreement with Armstrong covering the European scope to optimize its steam systems. Steam traps can cause significant energy losses if the trap system fails, especially if the plant must be shut down entirely to replace them. Arkema wanted to cut this failure rate by 75% over three years by changing the installation position and inspecting the traps regularly. A digital solution was selected to enable qualified experts to monitor steam trap systems and consolidate results at Group level.

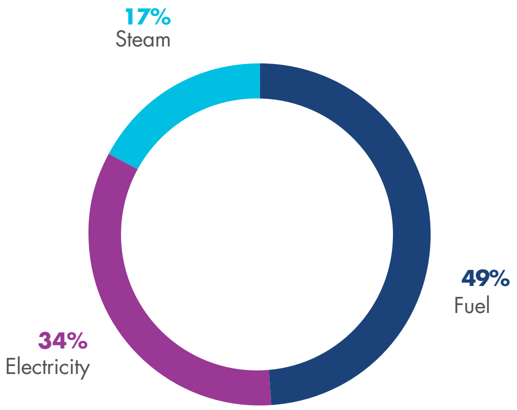
Absolute indicator for energy purchases

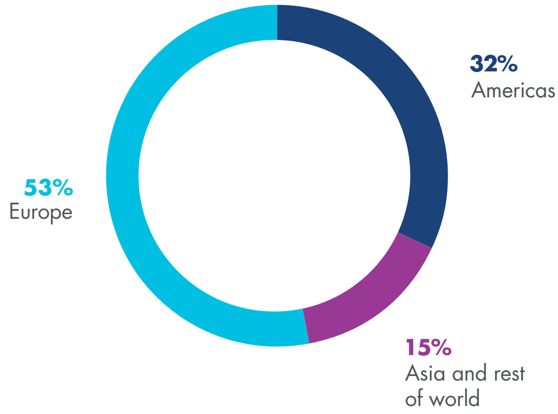
The chart hereafter presents consolidated net energy purchases in 2019, 2018 and 2017, calculated in terawatt-hours according to the methodology described in section 4.5 of this document.

NET ENERGY PURCHASES *(in TWh)*



The net energy purchases by type of energy and geographical region break down as follow:





In 2019:

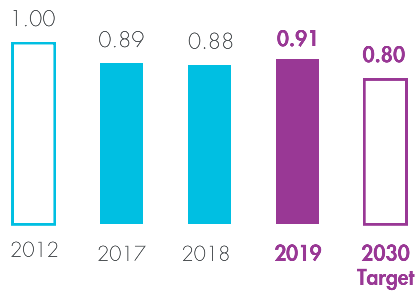
- 98% of the TWh generated by fuel were natural gas-fired, up from 97% in 2018;
- 22% of the net TWh purchased by the Group, regardless of source, were from low-carbon electricity, as was the case in 2018;

As part of its mobilization in favor of the climate and its strategic objective of reducing GHGs, Arkema is working to shift its energy mix in favor of low-carbon energy sources.

Intensive indicator for energy purchases

The chart below presents the net energy purchases EFPI for the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 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



In 2019, there was a significant increase in this indicator owing to the drop in production volumes in certain plants, social unrest threatening the stability of activity in France and the installation of thermal oxidizers to reduce VOC emissions.

4.3.3.2.3 Scope 3 emissions inventory

Following an initial inventory of its indirect Scope 3 emissions in 2016, the Group calculates 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 ten significant categories, three non-significant categories and two non-relevant categories. The emissions calculated for the Group in 2019 are presented by category in the table below. The calculation methods are described in the methodology presented in section 4.5.2.4 of this chapter.

Category number	Category name	Emissions *(kt eq.CO_2)*	Comments
1	Purchased goods and services	6,749	Very significant. As is often the case in the chemicals industry, this category is material for Arkema. The increase reflects more precise accounting for this category, including industrial gases.
2	Capital goods	365	Significant. The marked decline in this category results from a methodological change providing for greater precision, as described in the methodological note in 4.5.2.4.
3	Fuel- and energy-related activities not included in Scope 1 or 2	682	Significant
4	Upstream transportation and distribution	314	Significant
5	Waste generated	436	Significant
6	Business travel	26	Non-significant
7	Employee commuting	33	Non-significant
8	Upstream leased assets	9	Non-significant. The marked decline in this category results from a methodological change providing for greater precision, as described in the methodological note in 4.5.2.4.
9	Downstream transportation and distribution	370	Significant. The increase of 74 kt eq.CO_2 between 2018 and 2019 results from more precise methodology and better reporting by the subsidiaries, as described in the methodological note in 4.5.2.4.
10	Processing of sold products	Data not available	Significant. Given the diversity of applications for the products sold by the Group, the indirect emissions relating to the processing of said products cannot be assessed reliably.
11	Use of sold products	Data not available	Very significant. As is often the case in the chemicals industry, this category is the most material for Arkema. Current knowledge of product use data makes it impossible to estimate this category reliably. However, 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).
12	End-of-life treatment of products sold	2,473	Very significant. The estimate for this category has increased following the extension of the scope, and does not take into account the Fluorogases Business Line.
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	1,104	Significant. This category corresponds to acquisitions made in 2019.
TOTAL		**12,561**	

In 2019, indirect Scope 3 GHG emissions, which were estimated for 11 categories, represented 12,561 kt eq.CO_2. and were higher than Scope 1 and 2 emissions combined.

In 2019, the Group continued the data collection process, particularly for categories identified as significant for which the data are incomplete or unavailable. The process gave rise to estimates for two new categories and made the estimate for two other categories more reliable. The goal is to be able to prepare effective action plans to reduce the Group's material Scope 3 emissions.

4.3.3.3 RESOURCE MANAGEMENT AND THE CIRCULAR ECONOMY

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 this issue a priority area based on its materiality assessment conducted in 2019, which is described in section 4.1.6 of this document. This growing challenge of the circular economy applies to both the Group's solutions and its industrial operations.

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.

Arkema also supports integrating circular economy practices across the value chain by developing a recycling policy in both its upstream and downstream operations, using raw materials from renewable sources and limiting waste.

4.3.3.3.1 Energy use

Arkema has developed a climate policy, which is presented in section 4.3.3.2 of this chapter. Energy use has an impact on both resources and greenhouse gas emissions. Energy-related data are therefore presented under the heading "Energy", in section 4.3.3.2 of this chapter.

4.3.3.3.2 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, the Group 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 boiler 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 represent less than 2% of the Group's consolidated water use.

Drawing on these observations, the Optim'O project gives rise to numerous initiatives, particularly at the 35 sites that account for most of the Group's water use and/or generate the most wastewater. The work carried out on the water network at the Feuchy site (France), for example, has reduced the use of drinking water by 10%.

FOCUS

Mapping water use

In 2019, the Saint-Auban site (France) reduced its groundwater withdrawals by approximately 20% thanks to better pumping regulation and adaptation to the site's water needs.

The table below presents consolidated water withdrawals in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

Water use	2019	2018	2017
Total water withdrawn (in millions of cu.m)	113	119	118

In 2019, water withdrawals were down significantly compared with 2018 thanks to various improvement measures, such as better regulation of groundwater withdrawal at the Saint-Auban site (France), water recycling operations at the Casda site (China) and optimization of water use on cooling cycles at the Serquigny site (France).

4.3.3.3.3 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. These initiatives are described in more detail in the "Profile, ambition and strategy" section of this document.

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 the circular economy initiatives described below.

Lastly, the Group uses renewable and especially Bio-based raw materials in its products. The Group products in question are presented in section 1.1.2 of this document. This ongoing commitment was demonstrated in 2019 by the fact that products at least 20% made from renewable raw materials accounted for around 9% of Group sales.

4.3.3.3.4 Circular economy

The Group strives to limit waste and recovers by-products generated by its industrial processes. Thanks to eco-design, it extends the lifespan of customer products and facilitates recycling. It develops the use of recycled packaging and helps its customers assess the environmental performance of their products.

Life-cycle assessments

To assess the environmental performance of certain products and in response to customer requests, life-cycle assessments (LCAs) are used 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 LCA 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. This particularly concerns the Rilsan®, Rilsamid®, Pebax®, Kynar® and Forane® ranges, as well as Bostik adhesives and synthetic intermediates. Assessments are also performed, through trade associations, for acrylic monomers, PMMA and resin dispersions for coating applications. A full life-cycle assessment was carried out on 22% of the sales generated in 2019.

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.

Extending the lifespan of customer products

Arkema aims to constantly improve the lifespan of both its own and its customers' products.

For example, Kynar® PVDF offers a coating with a particularly long lifespan. 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.

Arkema has also developed a line of organic peroxides for crosslinking rubber, which is then used to manufacture automotive and other parts that last longer than their conventional counterparts.

Recycling customer products

Arkema is developing a number of solutions that are making 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 them 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 beer and other bottles can be reused.

The adsorption business has developed a solution that increases the recycling rate of roadwork scrap. Using Cecabase RT® additives in the 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.

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.

In 2019, Arkema introduced its new Virtucycle™ recycling program for high performance polymers in partnership with Agiplast, which is specialized in the manufacturing and regeneration of engineering plastic compounds. The program enables customers to partner with Arkema in post-industrial and post-consumer recycling projects for its specialty polymers. In implementing this program, the Group encourages its customers to get involved in recycling its end-of-life products or providing sourcing opportunities for recycled raw materials.

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.

The Group also stresses the use of 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 various Business Lines work to integrate into their product lines packaging made from Post Consumer Recycled, or PCR, content, as the offering 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.

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.

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, HSE, R&D, sustainable development – to step up these efforts and increase coordination with partners.

In 2019, 14% of hazardous waste produced worldwide was recycled on- or off-site to recover useful materials.

For example, the Mont facility in France has long 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 Hengshui site in China, the flow of residual sulfuric acid generated by the manufacturing process for sebacic acid is neutralized to obtain a sodium sulfate solution, which is then concentrated and crystallized. Instead of discharging the residual acid as waste, the plant is now able to sell 50,000 tonnes a year of solid sodium sulfate.

On 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 cement works. In 2019, 13,500 metric tons of desulfogypsum were recycled in this way, thereby avoiding their being sent to landfill.

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/or 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;

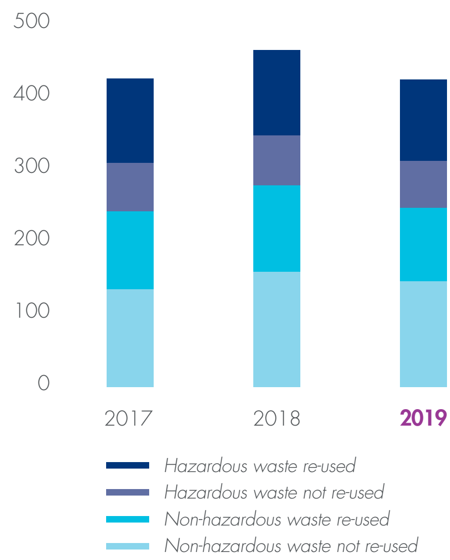
- recycling waste in the product value chain, in compliance with the REACH regulation; and
- recovering the energy potential of by-products and waste, wherever possible, by burning them as fuel.

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 hazardous and non-hazardous waste generated by the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

HAZARDOUS AND NON-HAZARDOUS WASTE *(in kt per year)*



In 2019, tonnages of non-hazardous waste fell back to their 2017 level owing to a lesser number of exceptional operations than in 2018 and reduced production.

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 table shows the amounts of hazardous waste that were either recycled or burned as fuel in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

Hazardous waste *(in kt per year)*	**2019**	**2018**	**2017**
Waste recycled into materials	25	28	27
Waste burned as fuel	88	90	90
Non-recycled hazardous waste	65	69	67
• Of which landfilled	3.8	4.0	3.4
TOTAL HAZARDOUS WASTE	**178**	**187**	**184**

Waste recovery for reuse as fuel continues across the Group. In 2019, 14% of hazardous waste produced by the Group worldwide was recycled at the production site or off-site to recover useful materials and 49% was burned as fuel.

The Group treated non-hazardous waste, also recovered, in a similar fashion. In 2019, 8,000 metric tons of sludge from a wastewater treatment plant was re-used in cement plants by industrial sites in France.

Non-hazardous waste *(in kt per year)*	**2019**	**2018**	**2017**
Recycled non-hazardous waste	101	119	107
Non-recycled non-hazardous waste	146	159	135
• Of which landfilled	26	37	27
TOTAL NON-HAZARDOUS WASTE	**247**	**278**	**242**

4.3.3.4 PROTECTING BIODIVERSITY

Arkema cares about preserving biodiversity and contributes to protecting the world's fauna and flora by reducing each site's emissions into air, water and soil.

The following paragraphs describe the Group's commitments in this area, its prevention and mitigation programs and the indicators for measuring their effectiveness, particularly in terms of the volatile organic compounds (VOCs) released into the air and the chemical oxygen demand (COD) of water discharges.

4.3.3.4.1 Measures to protect flora, fauna and biodiversity in general

Preserving biodiversity primarily means protecting all of the flora and fauna species liable to be impacted by emissions from the Group's operations.

The initiatives carried out are therefore designed to reduce releases into air and water and their impact on the surrounding soil and sub-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.

In this way, the compliance and other initiatives being led by the Group 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, as described below;
- a reduction in the amount of volatile organic compounds (VOCs) released into the air, thereby limiting the formation of ground-level ozone, a super-oxidant harmful to flora and fauna, as described below;
- a reduction in greenhouse gas (GHG) emissions, thereby contributing to the fight against global warming, as described below;
- 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
- Arkema to continue soil remediation projects at sites with long-standing industrial operations, as described in section 4.3.3.4.3 of this chapter, in order to protect the species that depend on the land, preserve the quality of local groundwater and control the impact of legacy pollution.

4.3.3.4.2 Emissions into air, water and soil

The Group pursues an active policy of managing and reducing the impact of its operations on emissions into air, water and soil.

As part of this process, emitted substances are identified and their amounts calculated by category, so that appropriate measures can be taken to manage each one, in compliance with applicable host country legislation.

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, as tracked by the EFPIs, production units are also being constantly improved with process upgrades and the installation of effluent treatment facilities.

Air emissions

The Group's objective is to minimize its emissions of the most harmful compounds, particularly greenhouse gases (GHG), as described above, 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, particularly with thermal oxidizers 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.

In 2019, major work to update the solvent management plan for the Genay site (France) resulted in a better assessment of VOC emissions, explaining the near 50% drop in its emissions.

ABSOLUTE INDICATORS FOR AIR EMISSIONS

The indicators in the table below present air emissions from the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

Air emissions	2019	2018	2017
Acidifying substances *(t SO_2 eq.)*	2,620	3,040	3,380
• SOx *(t)*	1,590	1,960	2,254
• NOx *(t)*	1,200	1,230	1,350
Carbon monoxide (CO) *(t)*	950	940	860
Volatile organic compounds (VOCs) *(t)*	3,810	4,150	4,280
Dust *(t)*	203	235	230

The steady decline in acidifying substances since 2016 attests to the success of the initiatives undertaken by several production plants to significantly reduce their emissions. Several investments were made to upgrade the boilers, either to run on natural gas instead of fuel oil or to equip them with vented emission treatment systems, so that these emissions were significantly reduced. In 2019, the drop in SO_2 emissions resulted from an improvement in the operation of the Lacq treatment unit (France), the reduction in the use of flares at the Beaumont and Houston sites (United States) and improved reporting on the Marseille site (France).

For volatile organic compounds, the decline resulted from an improvement in the treatment of vents on the Mont and Marseille sites (France) and an update of the solvent management plan for Genay (France). The drop was observed despite the reassessment of emissions from certain vents at the Hengshui-Casda site (China).

Carbon monoxide emissions were virtually stable in 2019.

For dust, the decline resulted mainly from improved reporting and lower production volumes at certain sites. Specific work was carried out at the Honfleur site (France), where the filtration treatment system was replaced and improved.

FOCUS

VOC reduction at the Mont site (France)

In 2019, a VOC working group improved the reliability of the treatment of vents and allowed new outlets to be connected. These actions resulted in a 10% reduction in the site's VOC emissions.

INTENSIVE INDICATOR FOR AIR EMISSIONS

The chart below presents the volatile organic compound emissions EFPI from the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter. Emissions are calculated using the Group's biggest VOC emitters, which account for more than 80% of the consolidated total.

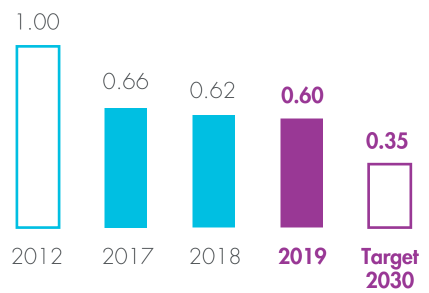
As the VOC target for 2025 was reached early in 2018, the Group has set a new goal for 2030, now the target year for the four strategic environmental indicators.

2030 TARGET

Reduce VOC emissions, expressed in EFPI terms, 65% compared with 2012.

15 LIFE ON LAND

VOLATILE ORGANIC COMPOUND (VOC) EFPI



As with emissions in absolute terms, the improvement in this indicator reflects progress in treatments on certain sites, in particular in France. New action plans will be rolled out to achieve this ambitious new goal.

Effluent releases

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.

The Optim'O project, presented above in relation to its water consumption aspects, also aims to reduce the amount of effluent discharged by the Group. It is contributing to:

- continuously optimize water use and the efficiency of the water treatment process, from the initial design of the installations to their daily operation, through the use of advanced technologies and the development of innovative solutions, thanks in particular to the "Water management" innovation platform;

- ensure compliance with applicable legislation and regulatory developments, such as the European Union's Best Available Techniques reference document (BREF) for Common Waste Water (CWW), which sets out the best available techniques for wastewater treatment and the associated threshold emission levels; 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 carried out in 2017 under the Optim'O project, 39 priority sites were identified as having the greatest impact on the Group's COD EFPI. An action plan was deployed in 2018 and monitored under a dedicated audit program. Thirteen sites were audited in 2019, and the program will be continued at a further 18 sites in 2020.

ABSOLUTE INDICATORS FOR EFFLUENT RELEASES

The environmental indicators in the table below present effluent released from the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter.

Effluent releases	2019	2018	2017
Chemical oxygen demand (COD) *(t O_2)*	1,950	2,170	2,440
Suspended solids (t)	571	535	920

In recent years, several initiatives have helped to reduce COD emissions from certain plants. Since 2016, the Optim'O project has helped to strengthen this process through better reporting, targeted investments and better facilities management.

FOCUS

Improved operational control and technical improvements to the water treatment plant brought a 40% reduction in COD discharge at the Spinetta Marengo site (Italy).

In addition, weather events at the Calvert City site (United States) triggered a slight increase in suspended solid releases in 2019.

INTENSIVE INDICATOR FOR EFFLUENT RELEASES

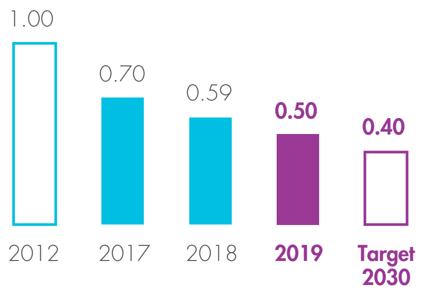
The chart below presents the COD effluent EFPI from the Group's operations in 2019, 2018 and 2017, calculated according to the methodology described in section 4.5 of this chapter. Emissions are calculated using the Group's biggest COD effluent emitters, which account for more than 80% of the consolidated total.

2030 TARGET

Reduce COD emissions, expressed in EFPI terms, by 60% compared with 2012.

14 LIFE BELOW WATER

CHEMICAL OXYGEN DEMAND (COD) EFPI



The significant improvement stems from the various advances in wastewater treatment plants, in particular at the Spinetta Marengo site (Italy).

Other emissions

Another major focus of the Group's environmental policies is to ease the impact of nuisances 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 SO_2 facilities;
- 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 nuisances 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. In Italy, for example, some 150 olive trees are being tended on the grounds of the Gissi facility, helping to safeguard the surrounding plant and animal ecosystem.

4.3.3.4.3 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 2019 may be found in note 21.3 to the consolidated financial statements, in section 5.3.3 of this document.

4.4 OPEN DIALOGUE AND CLOSE RELATIONS WITH STAKEHOLDERS

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.

4.4.1 Employee information

PROMOTE THE INDIVIDUAL DEVELOPMENT AND COLLECTIVE COMMITMENT OF ALL THE COMPANY'S MEN AND WOMEN

4.4.1.1 TALENT MANAGEMENT

Arkema considers each of its 20,507 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.

Two quantitative indicators with set target values have been defined to measure progress towards these objectives between now and 2025:

2025 TARGETS

5 GENDER EQUALITY

Percentage of women in senior management and executive positions: 23% to 25%.

Percentage of non-French nationals in senior management and executive positions: 42% to 45%

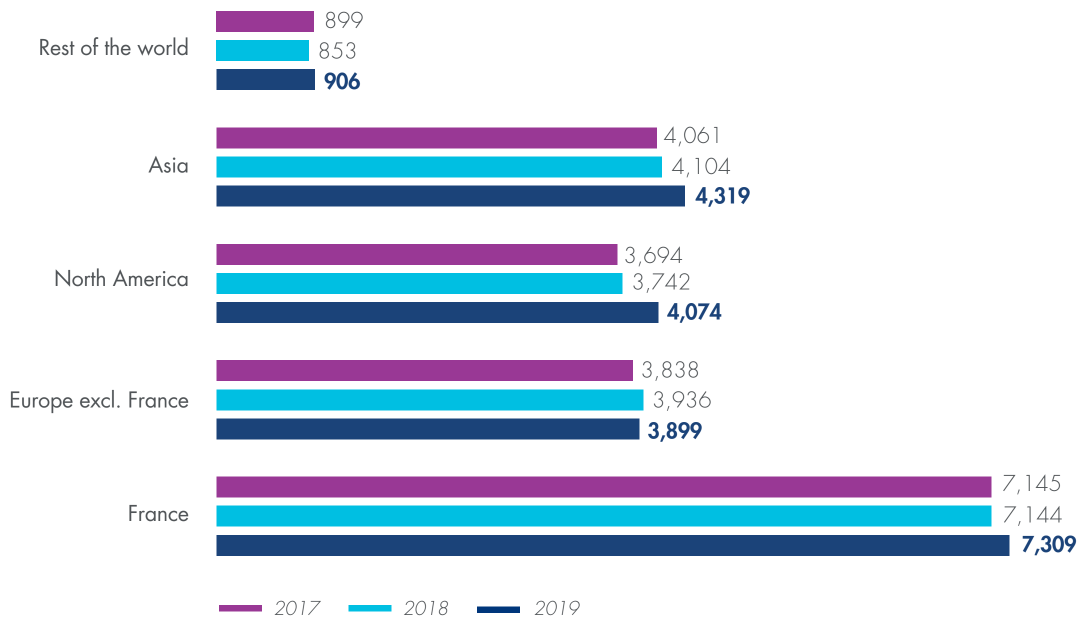
Talent management is based on the principles of workplace equality and non-discrimination. It is exercised in keeping with the Group's core values of simplicity, solidarity, performance and accountability, while moving towards the UN's Sustainable Development Goals, as indicated in section 4.1.2 of this chapter.

This policy is supported on a global level by the Human Resources Development, Internal Communication, Labor Relations and Remuneration Systems departments, as well as by the subsidiary management teams in different countries. All these department heads and management teams 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 4.4.2 of this chapter.

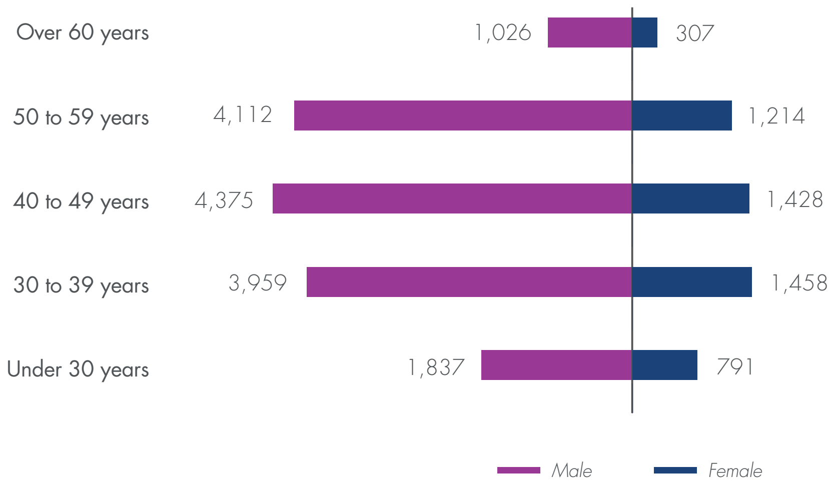
TOTAL HEADCOUNT BY REGION OVER THE PAST 3 YEARS



Total headcount stood at 20,507 at 31 December 2019, compared with 20,010 at 31 December 2018 and 19,779 at 31 December 2017.

The change is attributable primarily to the acquisitions of ArrMaz, Lambson and Prochimir, which represent an increase of 504 employees in the workforce, in the second half of 2019.

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 coming ten years. The training and individual development programs implemented and described in section 4.4.1.3 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.

4.4.1.2 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 3.7% of the total workforce at 31 December 2019. 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. As a result, the percentage of employees who could benefit from teleworking almost doubled in one year, now at nearly 6% of the total headcount in France. This is a high proportion given Arkema's business.

In all, nearly 14% of employees telework, either regularly or occasionally.

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. The Smart initiative was launched in 2017 and was rolled out further in 2018 and 2019. Approximately 40 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.

A Human Resources Information System (HRIS) was implemented worldwide in 13 countries in 2019 to standardize and share processes and data. This system facilitates access to organizational data or monitoring of personal information in cases of internal mobility.

Arkema News, the Group's intranet translated into 8 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.

In 2019, the IT Systems department (I-Team) launched campaigns at all Group entities, which were taken up by regional organizations to teach employees about data protection and introduce them to digital technology.

GLOBAL OUTCOMES OF THE 2019 I-TEAM CAMPAIGNS

Number of participants	Number of sessions	Number of countries	Number of sites	Satisfaction score
5,500	500	25	120	4.5 out of 5

In Europe, this vast set of campaigns was transposed as the Work smart program, consisting of short in-house training sessions in various formats to concretely address employee needs.

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 2019, more than 370 groups bringing together more than 7,000 employees met to discuss such cross-cutting questions as safety, mutual aid on new digital tools, communication on major projects and even sport.

FOCUS

GoTo Webinar

The Group's results are presented every quarter by Executive Committee members on the day they are released *via* a webinar. Employees from any location have direct access to the information and can ask questions in real time.

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 project managers take initiatives to bring these opportunities to the next level. They are supported by a network of about 30 "digital champions" at the various Business Lines or 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 various examples illustrate the measures Arkema has taken to enhance collaborative work methods and encourage its teams to embrace digital technology.

FOCUS

Optimizing production processes and improving product quality at Bostik's Roosendaal site

The decision to industrialize the use of handheld barcode scanners to check raw materials used in the composition of glues produced in Roosendaal (Netherlands) was made based on a POC. Employees were very much involved in the project, testing the scanner at different stages in the design phase. Additionally, this digital tool reduces the arduousness of work and lets employees focus on more value-added tasks.

The scanners will be introduced at other Group sites with support from Roosendaal teams.

4.4.1.3 PERSONAL DEVELOPMENT AND TRAINING

Arkema emphasizes the three fundamental areas of recruitment, training and career management to ensure employee development and the Group's sustainable growth.

4.4.1.3.1 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 core values of simplicity, solidarity, performance and accountability, 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

	2019	2019	2018	2017
France	23%	366	393	364
Europe (excluding France)	16%	260	252	254
North America	27%	437	528	463
Asia	25%	403	533	438
Rest of the world	8%	127	127	97
GROUP TOTAL	**100%**	**1,593**	**1,833**	**1,616**

In 2019, Arkema hired 1,593 people under permanent contracts, compared with 1,833 in 2018 and 1,616 in 2017.

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) Gain 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. In 2019, Arkema led a vast campaign to build relations with schools in France and Asia, particularly in China. In France, China and the United States, Arkema's teams participated in 81 forums, organized 166 visits to industrial sites, research and development centers or showrooms, and maintained partnerships with 33 schools or universities. The purpose of special events such as these is to forge close ties between Group employees and students. In 2019, some 500 apprenticeship participants or interns and 18 IVB participants joined the Group. They also provide the opportunity for Arkema to present its products to students and young graduates, regardless of their area of expertise or background, to attract and retain them for the long term.

In 2019, Arkema, in its capacity as sponsor of the FIFA Women's World Cup in France, gave students from partner schools the opportunity to attend matches. About 100 students, mostly women, benefited from the initiative. This offered Arkema a way to develop its reputation, resulting in an increase in its visibility in the media. The FIFA Women's World Cup was also an opportunity to raise the company's profile among young people and to show the importance attached to the development of women in both sport and industry.

In 2019, Universum, an employer branding leader, published its survey of engineering students in France, who ranked Arkema an "attractive employer", where they would love to work.

2) Attracting the best talent through employer branding

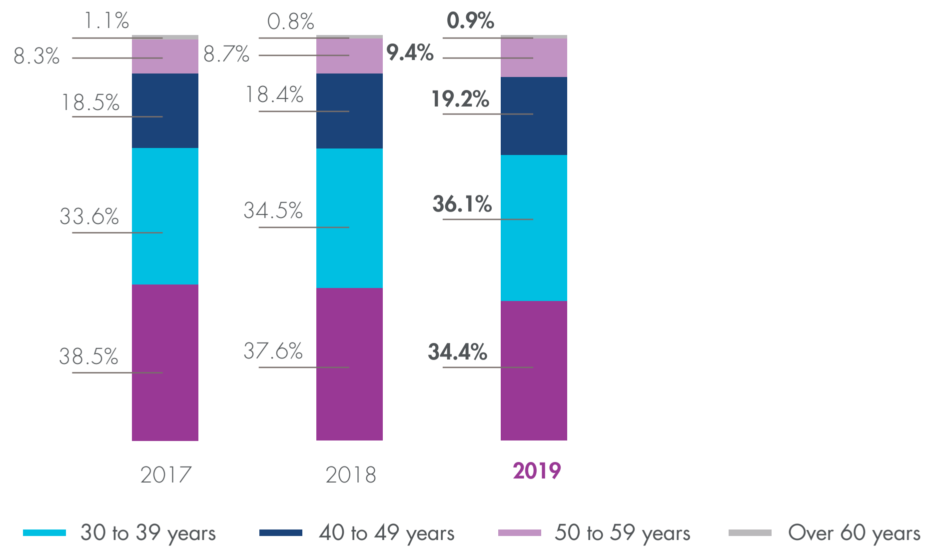
To support its growth, Arkema takes a proactive approach, in line with its diversity policy, to attract talent from a variety of backgrounds, and promote gender diversity. The Group uses various channels, including social media, to communicate externally about the Group, its products and its wide range of jobs.

In 2019, Arkema developed new visuals to support its employer branding campaign at 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 boasted an attractive international rating of 3.7 out of 5 at the end of 2019.

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 2019

	Male	Female
Under 30	392	156
30 to 39 years	419	156
40 to 49 years	209	97
50 to 59 years	111	39
Over 60 years	12	2
GROUP TOTAL	**1,143**	**450**

The high proportion of women under 30 out of the 450 women hired at the Group reflects its employer branding policy to promote awareness and appeal among young female graduates.

3) Welcoming and integrating new employees

Arkema guides its new employees, which account for nearly 10% of the Group's headcount, through the integration progress so that they can rapidly become operational.

In 2019, onboarding procedures, including the orientation process adapted to each type of position, was reviewed based on best practices and will be rolled out at Group level in 2020.

Managers are highly involved in integrating new members of their team. They work with the employee's direct manager upstream to make sure the new hire is given time to gain an understanding of the Company and the local site.

The integration toolkit contains a welcome pack and valuable information about the global integration process and timeline.

The entire program is outlined and set out in the Integration Passport, which is then given to the new hire.

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 4.4.1.3.2 and 4.4.1.3.3 of this chapter in the areas of training and career management round out the recruitment policy.

The breakdown of Group employees by age group in section 4.4.1.1 of this chapter shows that a significant number of Arkema employees will retire over the next few years.

CHANGE IN THE NUMBER OF RECRUITMENTS BY REASON

	2019	2018	2017
Resignations	945	1,004	862
Retirement	285	330	321
Dismissals	342	322	332
Other reasons	169	196	190

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.

A third of dismissals in 2019 were on economic grounds. They were the result of workshop reorganizations, which mainly affected the Bostik activity (United States, China, United Kingdom and Turkey). The employees concerned received support measures.

Dismissals for personal reasons represented 1% of the total workforce.

CHANGE IN EMPLOYEE TURNOVER

(as a %)	2019	2018	2017
Turnover	4.8%	5.2%	4.6%

Employee turnover, defined as resignations as a percentage of employees under permanent contracts, stood at 4.8% in 2019, close to the 2017 level and down slightly compared with 2018. The decline is attributable to a drop in the number of resignations. This trend is especially positive insofar as the Group is currently broadening its footprint in geographies (Asia and the United States) and specialty business sectors where turnover is generally higher. These figures fall within the industry average.

Note that resignations concern the managerial and non-managerial categories in proportions close to their respective weighting in the workforce as a whole.

4.4.1.3.2 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. In 2019, safety, health, environment and quality (SHEQ) training and business training accounted for 42% and 44% of the training hours provided in the Group, respectively. Management-related training allowing employees to progress to managerial responsibilities represents nearly 10% of the total.

CHANGE IN TRAINING HOURS (EXCLUDING E-LEARNING)

	2019	2018	2017
Percentage of employees having attended at least one training course during the year	86.1%	92.7%	85.0%
Average number of training hours per employee per year	25	25	25
Average number of training hours per manager	24	nd	nd
Average number of training hours per non-manager	25	nd	nd

The Group's total number of training hours was 462,769, a slight increase compared with 2018 (+1.3%). 86% of the workforce attended at least one training course. The decline compared with 2018 can be ascribed to the establishment of institutes (Business institute and Management institute) with more specialized educational content intended for specific target populations.

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.

In France, the quality of training modules is assessed *via* questionnaires that are completed by participants at the end of each session, which are then used to generate feedback reports.

In addition to these quality assessments, certain training modules include checks to ensure that participants are able to put their new skills into practice on their own. 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 ensures a real ramp-up of skills and performance, allowing employees to access promotions and internal mobility opportunities, and enabling the Group to develop employee loyalty and heighten performance. This approach also meets the standards required by the Arkema management system.

Training programs can culminate in job progression or rises in grade or coefficient that are conducive to career advancement.

Global Group-wide programs are delivered through two training institutes. In addition to these courses, each entity defines its own training programs based on local needs.

Business institute

These business "academies" are development programs focused on meeting strategic business objectives. Training sessions are led by internal and external instructors to share experience and best practices, standardize processes, enhance professionalization and build skills. The academies already deployed include:

- the Sales Academy, which was set up in early 2018 to support sales teams worldwide. It supports the development of the Group's sales strategy, as well as the implementation of a CRM (Customer Relationship Management) application. In 2019, 26 sessions held on three continents resulted in nearly 80% of the target workforce being trained;
- the Supply Chain Academy, created in 2018, held its first sessions for managers in Europe and Asia. In 2019, three sessions resulted in nearly 40% of the managers concerned being trained;
- the Safety Academy created nearly 10 years ago to educate all employees about the importance of occupational safety.

A Procurement Academy was set up in 2019 and prepared for rollout in 2020.

An IT Academy is currently being developed to help professionals from this technical field keep up with the technological and digital transformation.

Management institute

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. The program is led by HEC in Europe and Asia, and by Cornell university in the United States;
- 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;

- the Top Executive Academy was created for around 100 executives and is based on internal and external master classes on negotiation, internal control, international business, career management, innovation, legal affairs, digital technologies, CSR, leadership, and finance. At the end of 2019, all managers had begun this training course.

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Management training to drive internal promotions

These programs have provided Company managers with the skills they need to take positions of responsibility, thereby promoting their development. In 2019, 75% of vacancies for senior management positions were filled internally.

Internally developed training programs

The Group encourages employees who are experts in their field to become an in-house authority and instructor. Subsidiaries in the United States and China have implemented about 15 training modules in diverse areas that are perfectly adapted to employees' needs. These initiatives promote the transfer of skills and highlight the value of instructors' expertise. In this area, nearly 300 training sessions were conducted internally, attracting some 3,500 trainees.

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

Community for Marketing Excellence

The Community for Marketing Excellence was created by Arkema's US teams to enhance the knowledge and develop the skills of the Group's marketing employees. The modules were designed and led in-house. About 15 modules are currently available and focus on a range of areas. New modules were added in 2019 to cover digital technology applications in marketing. The entire program can be accessed *via* the HRIS tool. Each marketing employee is recommended to take at least three sessions a year.

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 corporate subjects. The expanding curriculum currently consists of around 20 modules in French and English and sometimes in Chinese, German or Italian, depending on the course. 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 for ease of enrollment.

E-learning is used to provide employees with a basic set of behaviors and practices to adopt worldwide in fundamental areas such as business conduct and safety. Three modules were added in 2019 on facility maintenance.

	2019	2018	2017
Number of employees having taken an e-learning course	9,517	9,403 (1)	10,496
Percentage of employees having taken at least one elearning course during the year	51%	51%	55%

Numbers in safety-related e-learning courses have edged down in favor of courses related to the environment.

4.4.1.3.3 Career management

Career management, a cornerstone of the Group's human resources development policy, aims to diversify the experience that employees acquire along their career paths and thereby cultivate new skills, this being an essential factor in the Group's development.

This process therefore focuses on both:

- ensuring that the Group has the expertise it needs to secure its successful development, today and over the medium term; and
- helping employees build their careers thereby enabling them to increase their skills and realize their career goals based on the potential and opportunities available within the Group.

(1) This amount corrects the figure indicated in the 2018 reference document following the detection of double counting of participants in certain e-learning modules.

The employee career management process is handled:

- at the Group level for managers in France and grade 15 jobs and higher internationally; and
- by the career managers network in each country or facility for operational, administrative, technical and supervisory employees.

The career management 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.

Career management tools

To conduct its business activities with the expected level of performance and prepare for the future while helping its employees meet their goals, Arkema uses a range of career management tools and processes.

ANNUAL PERFORMANCE REVIEWS

All of the Group's employees have the opportunity to discuss their situation with their direct manager in an annual performance review.

The Human Resources Information System (HRIS) tool implemented worldwide at Arkema in 2019 is used to perform these reviews using an electronic format, meaning that information can more easily be shared within human resources and internal mobility can be monitored.

The tool is based on the feedback given to participants after their self-assessment has been compared with those of their manager and their manager's manager. This system provides input for preparing personalized action and improvement plans involving specific guidance or training.

In addition, meetings with career managers provide an opportunity to review the employee's career path, their expectations and how they could advance their career in other Group professions. In France, several assessment points mark out the course of an employee's career. For example, the Carrefour 35 meeting is organized mainly for employees around the age of 35 to encourage them to consider where they would like their career path to lead them, particularly within the Group. The individual experience assessment addresses employees around the ages of 50 to 55, to help them enhance their skills while actively passing on their knowledge to others.

Employees working in matrix organizations receive a review from both their direct and their cross-cutting supervisors. The HRIS application is used to structure this practice.

JOB EVALUATION

Arkema has been using the Hay job evaluation method and applies uniform criteria to measure job demands and assess challenges. This system is used by organizations to classify and rank positions within its structure using a common language across different countries. By applying uniform criteria, the Hay method promotes equal opportunity in an objective manner.

In addition to being used as an instrument for horizontal and vertical career development within the Group, these evaluations enable comparisons with other organizations in the industry.

Together with the Hay method, the Matrix assessment is used by career managers to measure expertise (skills, reach, innovation capability).

CAREER COMMITTEES

Various people within the organization are involved in employee performance appraisals to ensure the collective efficiency of teams and a clear, objective and fair basis for internal promotion.

Each site sets up its own career committee, which brings together management committee members, career managers and the human resources manager every two months to cover all employees regardless of job category.

Career committees are also organized by type of job to plan intersite mobility and assess Company requirements, then map out career paths and renew the talent pool accordingly in order to meet those needs.

PEOPLE REVIEWS

As the Company and its businesses continuously evolve, the organization must identify the right talent and support them. Career managers and operational managers conduct people reviews to boost employee development and loyalty in such a way that also works towards meeting the Group's future needs.

These annual collaborative reviews are used to examine career path scenarios for employees likely to move on to positions of responsibility and/or develop professionally.

Every year, key people within each level in the Group's organizational hierarchy draw up a list of high-potential employees within their teams. Based on an in-depth assessment and overview, heads of corporate departments and Business Lines, career managers and operational managers work together to select a pool of high-potential talent.

Following the people reviews, career managers set forth an individual career development plan, which is rigorously monitored and adjusted if and when necessary.

On a global scale, operational managers and career managers regularly review geographic mobility options for employees looking for this type of opportunity.

SUCCESSION PLANNING

Given Arkema's industry and the technical nature of its businesses, succession planning covers all levels and professions within the organization to ensure that key roles can be filled while maintaining the same level of expertise. The list of different positions in the Group is matched with a selection of potential candidates, who engage in a career development plan supported by various internal processes.

International experience

Arkema, which mainly operates in Europe, North America and Asia, is actively pursuing an international job mobility policy designed to ensure that it has the skills and capabilities it needs at all its sites, and to broaden employee skills by offering them opportunities to work in different environments.

The number of Group employees working as expatriates, for an average of three years each, is around 100, reflecting the Group's priority focus on promoting or hiring locally whenever possible, including for executive or high responsibility positions.

Four programs aligned with the different international mobility objectives are available:

EXPERTISE

This program enables employees who are contributing to implementing strategic Group projects in a country where the requisite skills are not yet available to gradually transfer those capabilities to local employees.

DEVELOPMENT

This program concerns employees who are going to take up a position in their area of expertise for a set period (on average three years) in a country where similar capabilities exist locally, with the goal of broadening their skills and returning home with their newly acquired experience.

INTERNATIONAL

This program is for employees whose career is exclusively international, with no further reference to their country of origin.

TALENT PROGRAM

Introduced in 2016, this program offers an international experience to talented junior employees identified after being hired for an initial position or completing an IVB contract with the Group.

4.4.1.4 EMPLOYEE ENGAGEMENT AND WELL-BEING

We believe that employee engagement and well-being at work are key factors to ensure the Group's long-term efficiency. 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 developing open dialogue with employees to continuously improve the quality and safety of the work environment, and the relationship employees have with their job, along with work atmosphere and organization.

Employee engagement and satisfaction

Europe

Arkema periodically carries out internal surveys in particular to assess employee satisfaction and engagement and to identify appropriate action plans.

In 2018, Arkema conducted an employee opinion survey among its teams in the main European countries, excluding Bostik. Covering 70% of the Group's workforce in Europe and 38% of all Group employees, the survey focused on three main themes: daily work life, support from Arkema, and relations between Arkema and the employee. The response rate was 60%, representing a very satisfactory level of coverage.

The results were very positive, as demonstrated by the Net Promoter Score (NPS). The most commonly used indicator in this area, the NPS measures on a scale of 1 to 10 how likely employees are to recommend their company to others. The very high score achieved by Arkema (20) reflects employees' attachment to the Company.

The findings were analyzed in detail for each entity and shared with employees. In 2019, they were used to prepare action plans on internal communication about professional opportunities within the Group.

In China

In 2019, a similar survey was conducted in China, which represents 14% of the Group's workforce. This survey covered broad themes, and employees responded expressing a high engagement rate and strong sense of pride and belonging. All Chinese subsidiaries participated in the exercise, involving 2,900 employees, of which 27% women. Management supported and promoted the survey to encourage employee involvement, resulting in a high response rate of 93%.

United States

In 2019, the Group conducted a survey of some 4,000 employees based in North America and Brazil. It focused on 15 different themes, with an emphasis on safety, corporate culture and employee engagement. The response rate was 86%.

In the past three years, no fewer than 71% of Group employees have been able to express their opinion and 80% of them are actively engaged.

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 4.4.1.2 of this chapter, almost 14% of the Group's employees telework, which is a high proportion in view of its industrial activity.

Another advantage offered to young parents to safeguard their work/life balance is paternity leave granted with 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 and behave with mobile technology:

- information brochure on the use of portable devices and email management;
- awareness weeks organized for all employees: self-assessment questionnaires on practices, expert insight and practical tips; and
- awareness training for managers.

Pleasant and friendly workspaces significantly contribute to employee well-being.

Following the redesign of the work environment at the head office of Arkema China Investment in Shanghai, the initiative was applied to the Bostik head office in Colombes, near Paris. The project not only consisted in designing an open space office for all employees, but also integrated new collaboration and work methods, such as a zero paper policy.

The initiative was led in cooperation with employees to garner their support for the project. Other actions were taken (workshops, group discussions, tours) under the Smart Move program to guide employees through this change.

Many factors were taken into account to enhance employee comfort: a selection of sound-absorbing flooring and ergonomic equipment for a pleasant and luminous workspace design.

A quiet room was set up on every floor. This room is to be used by employees who temporarily need a break from the open space area.

A few weeks after settling into the new offices, Bostik organized workshops where employees could express their opinion about the setup. Among the takeaways from these discussions, teams now feel closer to each other and have fast access to important information.

Actions taken to prevent psychosocial risks and to improve working conditions

Actions have been taken in stress prevention since 2010. Stress is measured on an individual basis, as part of the regular occupational medical checkups, and once a year statistically to support sectors with high levels of stress.

An ergonomics program was initiated in 2015 to improve different aspects of working conditions in both manufacturing and services. The program has been deployed in France and will be extended to other countries where the Group operates.

Arkema also actively raises employee awareness about excessive digital use. Its current campaign on hyperconnectivity is mainly being led in France, with a "digital etiquette week".

FOCUS

Campus

In 2019, a well-being space was created at the head office in Colombes. The Campus is an original hub for employees designed to facilitate collaboration between teams and stimulate creativity and innovation. The space includes both informal workspaces and areas for relaxation, providing employees with a pleasant environment that enhances their quality of work life.

The Social Club initiated 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.

This set of initiatives is a factor in the decline in turnover seen in 2019 (see details in section 4.4.1.3.1 of this chapter).

Absenteeism

Absenteeism, which includes sickness, accident and maternity leave, as well as strikes and unpaid leave, stood at 4.2% for 2019, up compared with 2018 (3.9%). This trend has various origins depending on the geographies where the Group operates. For instance, the number of hours of absence for maternity leave has increased in China (where 75% of female employees are under 40); in Germany, the counting of certain hours of absence authorized by the chemical collective agreement has been modified for certain establishments. The rate of absenteeism for medical reasons is stable at 2.8%.

For further details, see section 4.5.4 of this chapter.

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. 95% of Group employees accordingly receive supplementary life cover, 90% supplementary disability cover, and 80% health insurance cover.

4.4.1.5 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.

36% 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. 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 them on their geographic market, as against other industrial groups or within the chemical industry, and 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 2019 and previous years are presented in note 27 to the consolidated financial statements, in section 5.3.3 of this reference document.

Equal pay between men and women

With an average proportion of women on its payroll of 25.3%, 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 2019, the figures are respectively 88 and 83.

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.

The participation rate has increased over time, with the most recent offering in 2018, to an average of 41% (close to 70% in France and 25% in other countries), and the average amount invested by employees reached €6,950 in 2018.

The sums invested are frozen for five years, in return for a 20% discount on the subscription price in relation to the reference price. At 31 December 2019, almost 40% of employees shares were available.

These figures reflect the employees' engagement and their confidence in the Group's development. At 31 December 2019, 6.3% 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 2019, performance shares were granted to some 1,500 beneficiaries, representing 7.4% of the total headcount.

For more information, please refer to section 3.5, section 6.2.6 and note 29 to the consolidated financial statements at 31 December 2019 in section 5.3.3 of this document.

4.4.1.6 DIVERSITY, 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 put in place 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. gives training to people involved in the recruitment and hiring process, provides them with job descriptions and applicant profiles, and 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;
- certification training courses: certain training modules include checks to ensure that participants are able to put their new skills into practice on their own. 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 ensures a real ramp-up of skills and performance, allowing employees to access promotions and mobility; and
- an annual review of compensation to ensure equal pay.

The strategic objectives set by the Group for 2025, 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.

A Diversity Steering Committee made up of heads of Business Lines and corporate Vice-Presidents works to promote and implement initiatives that support diversity. Building on existing actions, a "Managing in diversity" training module was created in 2019 and will be rolled out further in 2020.

Measures to promote female employees' access to positions of responsibility

Although historically not many women have worked in the industry, the proportion of women in the Group's total headcount has steadily increased to 25.3% at 31 December 2019. Women accounted for 28.2% of new hires across all levels in the organization, but they remain under-represented in senior management.

2025 TARGET

23% to 25% of senior management and executive positions to be held by women.

5 GENDER EQUALITY

In 2019, women accounted for 23% of all senior managers and executives across the Group, compared with 21% in 2018. The change is primarily the result of the support program introduced in 2016 to promote equal opportunity and gender diversity.

Senior managers and executives are considered as high responsibility positions. They account for about 10% of Group managerial employees and 23% of them are women.

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 2025, 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.

Women hold 34% of lower management positions and about 30% of middle management positions. The action plan to reach the 2025 target involves:

- a mentoring program run by senior executives to help women move into positions of responsibility. This program has benefited around 50 women in France over nearly three years, and is now being expanded internationally. 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.

Measures to foster international diversity

Developing the percentage of non-French nationals in management positions is a key component of the Group's geographic growth strategy. The Group has therefore set the following target for 2025:

2025 TARGET

42% to 45% of senior management and executive positions to be held by non-French nationals.

In 2019, 40% of senior managers were non-French nationals, compared to 39% in 2018.

In every country where Arkema operates, local skills and capabilities are developed in every aspect of the business, including top management.

The action plan involves:

- expatriation programs (for further details, see section 4.4.1.3.3 of this chapter) and more specifically the "Talent Program" for the most junior employees;
- training for managers on "working in an intercultural environment";
- manage diversity; more than 200 employees were trained in France in 2019, and the program is to be rolled out in Europe in 2020.

Measures to promote the recruitment of people with disabilities

One of the flagship commitments of the Group's disability policy is to hire and maintain the employability of people with disabilities, through dedicated training programs and workstation modifications. In addition, 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.

At the end of 2019, disabled employees accounted for 4.3% of the Group's workforce in France.

A new, four-year agreement was signed by Arkema France in 2017 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.

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.

Measures 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 2019, 31 of the 366 people hired under permanent contracts in France were over 50 years old, representing 8.5% of the total.

4.4.1.7 ACTIVE SOCIAL DIALOGUE WITH EMPLOYEE REPRESENTATIVES

The Group respects the fundamental freedoms of its employees, such as the freedom of association and expression, protects their personal data and respects their privacy, as defined in its Business Conduct and Ethics Code.

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.

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.

Arkema pledges to enforce a non-discrimination policy with regard to employee representatives, and to respect and protect their rights.

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 24-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 2019, three plenary sessions were held at Arkema's head office.

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 2019, as shown in the following table.

PERCENTAGE OF EMPLOYEES REPRESENTED BY ELECTED BODIES AND/OR UNIONS, BY REGION

	2019*
GROUP TOTAL	**91%**
France	100%
Europe (excluding France)	93%
North America	78%
Asia	84%
Rest of the world	100%

* *Data corresponding to sites employing more than 60 people, which accounts for 90.6% of the Group's total workforce.*

Employee relations with regard to the Group's development

When a reorganization project is approved and implemented, in-depth discussions are held with the representatives as part of information and consultation procedures, both at corporate level and locally. Similarly, much attention is paid to responding responsibly to the social impact of these changes.

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.

In 2019, 83 agreements were signed worldwide, including 24 in France.

4.4.2 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.

4.4.2.1 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.

It may be downloaded from the corporate website and 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.

4.4.2.2 MEASURES FOR REDUCING THE RISKS OF ANTI-COMPETITIVE PRACTICES, CORRUPTION AND FRAUD

Arkema has put in place a business compliance and ethics program, which primarily covers antitrust, export control and anti-corruption laws. It defines and describes guidelines, procedures and risk management processes applicable throughout the Group.

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;
- e-learning modules on antitrust legislation and anti-corruption, which primarily address employees most exposed to these risks. As of December 31, 2019, 6,390 employees had completed the e-learning course on corruption; and
- a compliance statement signed by all employees potentially exposed to these risks, attesting that they will abide by the Code of Conduct and comply with the procedures associated with it.

4.4.2.3 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 2019.

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, as indicated in section 2.1.2 of this document, is updated regularly so that the third-party verification process can be adapted if necessary.

Disciplinary sanctions are provided for in the Code of Conduct and the Anti-Corruption Policy in the event of a breach of either document. The details are described in the Internal rules of each entity. In 2019, one incident resulted in disciplinary action against an employee.

4.4.2.4 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, is being formed 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.

Since the personal data protection email address was registered, five requests have been submitted to exercise access rights, all of which have been processed.

4.4.2.5 WHISTLEBLOWING SYSTEM

The Group's whistleblowing procedures have been translated into 12 languages. 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 Business Conduct and Ethics Code, 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.

Two reports were received in 2019. The first involved a human resources issue, more specifically relating to an employment contract. The second dealt with a business issue. Both reports were processed, but neither claim was substantiated. As a result, no disciplinary action was taken.

4.4.2.6 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. None of the Group's subsidiaries is located in tax havens included on the European Union "black list" dated 7 November 2019.

Arkema applies transfer pricing policies endorsed by the OECD to its inter-company flows, and believes its policies to be reasonable in view of the risks and functions of the entities making up the Group. 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. This approach to dialogue with tax administrations was materialized in France by Arkema's membership of the "tax partnership" in March 2019, allowing it to have real-time exchanges on identified topics with the French tax administration so as to secure its positions.

Tax risk reporting is integrated into the risk management process and is presented annually to the Group Audit Committee.

4.4.3 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 human rights violations against its employees, partners and other stakeholders and to remedy any violations that do occur.

A Human Rights Policy setting out the Group's commitment in this area was published in 2018 and deployed by all entities.

Arkema's commitment is reflected in its compliance with international standards and the applicable laws in the countries in which the Group operates, regular assessment of the risks that may be generated by the Group's activities, access to a whistleblowing system for both internal and external stakeholders, the implementation of corrective action when necessary, a policy of continuous improvement of the Company's practices through on-going 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.

The Group opposes all forms of forced labor, child labor, discrimination and harassment and upholds the fundamental rights of a decent minimum wage, health and safety, equal opportunities, respect for private life, freedom of association, the right to strike and the right to collective bargaining.

As a result, 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.

The Group's vigilance in the area of human rights also applies across its value chain and more particularly to its suppliers and subcontractors. Human rights compliance is an integral part of the commitments expected of the Group's partners, 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 4.4.4 of this chapter.

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.

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 Executive Committee is responsible for drawing up and disseminating the Group's Human Rights Policy, while the regional entities are tasked with its implementation, in compliance with the applicable laws and regulations. The CSR 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 heads 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 Human Rights Policy highlights four areas that are monitored particularly closely:

- health, safety and security: programs, initiatives and results are presented in section 4.3.2 of this chapter. The progress made over the past three years confirms the validity of the approach adopted by the Group;
- health and safety of customers and end users: programs and initiatives on responsible product management are presented in section 4.2.4 of this document;
- suppliers and subcontractors: programs, initiatives and results are presented in section 4.4.4 of this document. In 2019, the scope of supplier assessments increased significantly, and initiatives were undertaken with regard to the suppliers most at risk; and
- promotion of diversity and equal opportunity: programs and achievements are described in section 4.4.1.6 of this chapter.

4.4.4 Suppliers and subcontractors

Arkema is primarily involved in the transformation of raw materials and works with a large number of subcontractors and service providers. Poor performances by its suppliers 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.

A Sustainable Purchasing Steering Committee meets at least once every three months, bringing together representatives from the Procurement departments (Goods and Services/Logistics/Raw Materials) and the Sustainable Development department. It meets at least once each quarter The key items discussed during its meetings are reported to the CSR 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, the following resources have been deployed.

4.4.4.1 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 4.4.2 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. In 2019, it was updated to enforce stricter practices, particularly on issues involving human rights, labor laws, health and safety, the environment, and ethics and compliance.

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. New suppliers are systematically informed of the Code's provisions.

4.4.4.2 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 2019, sessions presenting the Group's corporate social responsibility approach were held with the procurement departments in each region. They were followed up with reminders and discussions about implementing the Together for Sustainability supplier assessment initiative.

4.4.4.3 ASSESSMENTS BY THE THREE PROCUREMENT DEPARTMENTS

The Goods and Services Procurement department has introduced a pre-approval questionnaire for suppliers that includes corporate social responsibility components. In addition, it regularly assesses the employee safety performance of the leading contractors working on Group sites. As explained in section 4.3.2 of this chapter, the safety of contractor employees is considered just as important as that of Group personnel, and their incidents are recorded in the consolidated indicator.

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. Inventory requirements were tightened for warehouse operators to obtain an itemized list of the Group's products in stock and their exact location in real time. Inspection processes and resources are currently being updated.

Raw materials suppliers are assessed based on pre-approval questionnaires used to assess their management system, compliance with the principles of the Responsible Care® program and certification to ISO-type standards.

FOCUS

Social performance as a factor in supplier selection

In 2017 and 2018, Arkema France assessed all of its suppliers based on Together for Sustainability criteria (see section 4.4.4.5 of this chapter) in the "electrical", "instrumentation", "fire detection and firefighting" and "weighing" categories to ensure that CSR performance was factored in when selecting the best suppliers. The average of the Ecovadis rating of the providers selected in this manner is 10 points above the overall average of ratings on the platform. In 2019, an audit plan was carried out for the selected suppliers, again in line with the Together for Sustainability initiative. It confirmed their very good performance in terms of social responsibility.

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 3,000 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 26 villages. This project was renewed in 2019 for three years. 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.

4.4.4.4 SUPPLIER AND PROCUREMENT PROCESS AUDITS

Under the Supplier Code of Conduct, suppliers agree to meet all of the Group's CSR expectations and to cooperate with its audits of their Code compliance.

Supply chain service providers, for example, are regularly audited through 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.

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.

4.4.4.5 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. It meets at least once each quarter and the issues discussed during its meetings are reported to the CSR Steering Committee and the Risk Review Committee.

At the end of 2019, more than 1,600 of the Group's suppliers and subcontractors had been assessed according to CSR criteria over the last three years, compared with around 1,400 in 2018. The suppliers assessed account for more than 50% of the Group's purchases. 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.

In 2019, CSR scores had risen for 57% of suppliers whose assessments had been updated.

At-risk suppliers

In 2018, 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 criteria relate to the supplier's area of activity and its country of origin. 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.

4.4.4.6 THE IMPACT OF SUBCONTRACTING

The Group subcontracts for two main purposes: for maintenance operations, and, to a very limited extent, for the production of certain finished products. Subcontracting therefore accounts for part of the €279 million in capital expenditure dedicated to safety, the environment and the maintenance of industrial units.

Under the Group's procurement policy, contractors are bound by the Supplier Code of Conduct and its general purchasing conditions.

4.4.5 Institutional initiatives

As a responsible chemicals producer, the Group interacts 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 is registered as a 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 chemical 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 around 50 specialized industry associations worldwide whose objectives are closely related to the activities of its Business Lines.

Employees in charge of institutional relations are responsible for monitoring public initiatives at the local, national or international level that may impact the Group and are tasked with defending or promoting the interests of the Group in this context. The priority issues addressed concern business competitiveness, both globally (i.e., at Group level, such issues as taxation, particularly on output, payroll taxes, employment law, regulation in general, etc.) and locally (i.e., at the plant level, such issues as health, safety and environmental legislation, and support for expansion projects and reorganizations), the energy and climate change transition, and the circular economy.

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. Two Arkema Inc. employees have been registered as lobbyists to Congress, particularly on the issue of refrigeration gases.

Worldwide, the Group paid €3 million out a total of €4.5 million in membership fees to general or specialized industry associations and €0.4 million in consultants' fees for similar reasons, and recorded €1.1 million in related in-house expenses in 2019.

4.4.6 Corporate citizenship and philanthropy

In the 54 countries where it operates, the Group positions itself as a force 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. In this way, more than 80% of the executives at the main operating facilities outside France were hired locally.

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 go 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.

4.4.6.1 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. Since 2015, Bostik has been in partnership with the university of Warwick in the United Kingdom to develop transdermal patches made with hot melt pressure sensitive adhesives. This partnership resulted in the creation of the spinoff Medherant.

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, new energies and 3D printing.

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 signed two separate partnerships with SMEs in the United States. The first was with Continuous Composites based in Idaho to combine the power of composite materials with a snap-curing printing process. The other partnership was signed with the California-based company Carbon® to support the next generation of fully integrated digital manufacturing platforms.

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. These partnerships, such as the ones in France with Compiègne Technology university for the Smart House by Arkema and with Hydro Québec in Lacq, are described 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 Malaysia, which is located just outside Kuala Lumpur. The aim is to enhance understanding of biocatalysis, a discipline that could lead to more efficient reaction processes than those achieved with traditional chemistry or the identification of alternatives to certain raw materials used in the production of sulfur products. The creation of this center for research into biocatalysis is in line with the Group's commitment to develop increasingly sustainable solutions.

4.4.6.2 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, integrating young people into active life, gender diversity and access to water. 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.

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.

It is based on three key principles, designed to improve the social acceptability of chemical plants and develop understanding about the Group's business:

- **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;
- **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; and
- **risk prevention and progressing**: in addition to continuously improving the health, safety and environmental performance of its production facilities, the Group is deploying a risk prevention culture in every host country. As part of this proactive approach, incident or accident drills are regularly organized to test emergency response resources and procedures, along with the systems for alerting, informing and protecting employees and the local community.

Operational implementation of the Common Ground® initiative is overseen by the Group's site managers, who are supported by human resources or communication managers.

Common Ground® actions around the world

In 2019, 990 Common Ground® initiatives were carried out worldwide, with 78% of production plants actively participating. These initiatives break down by region as follows over the past three years:

NUMBER OF COMMON GROUND® INITIATIVES BY REGION

	2019	2018	2017
GROUP TOTAL	**990**	**1,064**	**1,011**
Europe	480	421	359
North America	369	486	409
Asia	92	126	204
Rest of the world	49	31	39

In 2019, 76% of production plants took part in these initiatives in the United States, 78% in Europe, and 95% in Asia.

These initiatives are aimed primarily at local stakeholders (businesses, individuals, local authorities and elected officials), the world of education (schools and universities) and associations.

NUMBER OF COMMON GROUND® INITIATIVES BY STAKEHOLDER CATEGORY

	2019	2018	2017
Local communities	529	252	379
Education	295	294	293
Associations	287	376	339

The number of Common Ground® initiatives edged down from 1,064 in 2018 to 990 in 2019, but reached a larger number of stakeholders. These outcomes reflect initiatives more targeted towards local communities on the one hand and the implementation of measures intended for several types of stakeholders on the other hand. In Europe, and especially in France, the increase in initiatives targeting local residents in large part reflected the sponsorship of the FIFA Women's World Cup, which was the starting point for countless initiatives in the fields of education, integration and diversity.

The percentage of production plants participating in the Common Ground® program decreased in 2019 due to the recent integration of newly acquired sites. However, the program is expected to be phased in at the new sites over time.

Initiatives involving local communities and the public

As they do each year, Group facilities conducted public tours, in particular to explain how chemistry offers solutions that can benefit everyone in their daily lives.

In the United States and Asia, many plants also take part in information meetings organized by local resident associations.

In addition to its regular participation in student forums, in France the Group has in recent years partnered with:

- the *Fête de la Science*, an initiative of the French Ministry of Higher Education and Research to encourage interaction between research scientists and the general public; and
- the *Semaine de l'Industrie*, a week-long event that gives young people and career seekers insights into the world of industry and its job opportunities.

The Group also supports environmental initiatives. For example in 2019, 50 volunteers from the Bostik site in Tanay, Philippines participated in the *Let's MultiTreeply* program for the fifth year running. Group employees in India led initiatives to raise the awareness of the students and teachers of Poondiyankuppam primary school about plastic waste management and recycling.

The inauguration of the new Global Center of Excellence for 3D printing (additive manufacturing) in Serquigny, Normandy in the north of France, offered the opportunity to dialogue with various stakeholders: local and regional authorities and elected officials, journalists, research partners and manufacturers, as detailed in section 4.4.6.1 of this chapter.

Initiatives involving associations

The Group's values of solidarity and accountability show through in the initiatives undertaken in partnership with non-profit associations in its host regions. Many examples around the world attest to the dedication of Group employees to helping the neediest and to being actively involved in their local communities.

The Group runs or partners community-oriented actions on a regular basis, focusing on:

- jobs for people with a disability, with support for several associations that help people with a disability enter the workforce;
- health and community, with corporate and employee participation in a large number of charitable campaigns; and
- the environment, with programs to improve biodiversity (see section 4.3.3.4 of this chapter).

Lastly, in early 2018, Arkema introduced a "salary rounding" system. This participatory sponsorship program allows employees to donate the cents from their monthly salary to a pre-selected non-profit organization with Arkema donating the same amount as its employees. The non-profit organizations that benefit from this initiative are active in areas that relate to the Group's CSR policy, such as the issues of access to water or support for people with disabilities. Under this initiative, over 600 employees made donations to six associations in 2019.

Educational initiatives

Around the world, the Group gives priority attention to strengthening its ties with schools and universities.

Programs and events are regularly organized in cooperation with schools, to provide young people with information on careers in the chemicals industry and to promote the development of a scientific culture. Locally, the production facilities periodically organize tours for school groups, take part in educational initiatives, and speak at conferences at higher education venues.

In the United States, the Arkema Inc. Foundation, set up in 1996, runs a number of selfless initiatives focused on science and education at all levels. Since its creation, its yearly Science Teacher Program has reached countless researchers and teachers. In 2019, nearly 80 teachers from 41 schools benefited from the program.

In 2016, the Group began working with France's CGénial Foundation to support its programs designed to promote science and its different careers among college students in France. With the partnership, Arkema reaffirmed its commitment to attracting young people to science and developing bridges between business and academia by taking part in the Foundation's flagship programs. In 2019, almost 130 teachers were welcomed at the Group's plants and research centers, and over 800 middle and high school students benefited from the experience of Arkema's volunteer speakers in classroom presentations.

Driven by its commitment to corporate social responsibility, Arkema created a fund for education on its 10th anniversary. 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, 33 educational projects carried out by non-profit organizations have been selected for sponsorship in 14 countries. The employees sponsoring these projects come from nine of the Group's host countries.

Youth inclusion

The Group also offers opportunities for socially disadvantaged young people, and helps them to earn academic qualifications. To promote access to the prestigious ENSIC chemical engineering school, *Fondation de France* and the Group founded *Fondation ENSIC* to grant scholarships to students experiencing financial hardship. Since it opened, the foundation has provided support for around a hundred students.

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. Through this initiative to provide disadvantaged children aged 6 to 12 with greater access to music and opera is aligned with Arkema's focus on youth inclusion and with the values of solidarity and accountability championed by the Group.

Gender diversity

In keeping with its internal policy of promoting gender diversity and making all positions accessible to women, including at its plants, 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. The competition has been renamed *D1 Arkema*. This commitment is a natural extension of Arkema's sponsorship of the Women's World Cup France 2019™. 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. The partnership also gives the Group an opportunity to highlight that some of its products, such as Pebax® elastomers, are used in the production of soles for soccer shoes.

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.

Water

After supporting the Sail for Water association from 2015 to 2017, Arkema continued its efforts to promote universal access to drinking water through the distribution of filtration kits in 2018. In 2018, this was reflected in a mission to Nepal led by non-profit organization No Thirst Initiative, which distributed 300 filtration kits to villages, schools, hospitals and clinics, thereby providing access to drinking water to more than 3,000 people in isolated areas. In 2019, 100 kits were supplied to the organization Soleil d'or, partner to the NGO Secours Populaire Français to offer aid to populations in the Bahamas struck by Hurricane Dorian.

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 Multi50 trimaran and a Mini 6.50 monohull. Further high-performance solutions developed by Arkema will be applied in the construction of a next-generation Multi50 trimaran, which began in 2018. The vessel is set to launch in spring 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 advanced materials.

4.5 REPORTING METHODOLOGY

4.5.1 Reporting organization

The CSR reporting organization is designed to enable the Group to manage and measure the effectiveness of its social responsibility policy in favor of sustainable development.

REPORTING SCOPE AND PERIOD

The reporting scopes for employee and environmental 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, 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 article L. 225-102-1 of the French Commercial Code, as amended most recently by French Law no. 2018-938 of 30 October 2018, 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 article L. 225-102-1, 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 4.5.6 of this chapter.

The reporting process follows the GRI Guidelines. The GRI content index can be found in section 4.5.5 of this chapter.

4.5.2 Methodological note on environmental and safety indicators

4.5.2.1 ENVIRONMENTAL 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 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 environmental reporting covers all 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 2019. On this basis, the scope covered more than 99% of the Group's industrial operations in 2019. 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. Scope 1 and 2 emissions from previous years have been recalculated to take account of this integration.

The scope of consolidation for energy reporting covers all of the industrial sites operated by the Group or by majority-owned subsidiaries, head offices and research and development centers, corresponding to more than 91% of the total scope. It should be noted that this scope covers more specifically 98% of the industrial sites operated by the Group or by majority-owned subsidiaries.

Operations sold or discontinued in 2019 were removed from the scope of reporting for the year but remain in prior-year data.

Operations acquired in 2019 are included in 2019 reporting for all of their 2019 activities, except for the activities of ArrMaz, Lambson and Prochimir, which were acquired in 2019 but not covered in 2019 reporting.

Operations that started up in 2019 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 2018 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 2019 are not included in the scope of EFPI reporting for 2019, but are still included for previous years.

Operations started up in 2018 will be included in the EFPI reporting in 2020 compared with their 2019 performance.

Operations acquired in 2019 will be included in the 2021 scope of EFPI reporting for all of their 2021 activities, compared with their 2020 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.

4.5.2.2 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. ArrMaz, Prochimir and Lambson's sites are not included in accident safety reporting (see section 4.5.2.4 of this chapter), nor are they subject to peer observation.

4.5.2.3 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 so-called 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 GHG emissions

Targets adopted by companies to reduce greenhouse gas (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 pre-industrial 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.

4.5.2.4 CLARIFICATIONS CONCERNING THE ENVIRONMENTAL 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.

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, 2019 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 fuel 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 (KWh 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-2012 database 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.

For the purposes of this report, indirect Scope 3 CO_2 emissions were calculated 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 calculated for 11 categories. A detailed explanation of the calculation methodology is available to stakeholders upon request.

- Category 1 – Purchased goods and services: emissions are estimated based on raw material and industrial gas purchases in 2019, it being specified that the accounting of data relating to purchases of packaging does not currently allow their emissions to be estimated reliably. The calculation is first performed on the basis of purchases representing at least 80% of the total volume and by applying an emission factor specific to each chemical (in CO_2 equivalent per metric ton). The resulting emissions are then extrapolated in proportion to the total volume of raw materials purchased. The emission coefficients used are those in the EcoInvent base (version 3.4).
- 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 eq.CO_2/€k). This new methodology, through more precise mapping, offers greater precision in estimating emissions than the default WBCSD approach used in 2018. The WBCSD's default approach of splitting investment expenditure between 25% cement and 75% steel resulted in an overestimate of the GHG emissions of capital expenditure by a factor of more than 4. The very significant drop in GHG emissions in this category in 2019 is the result of this change in methodology.
- 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 coefficients 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].
- 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 1,000km by truck and a factor of average emissions for road transport (in kg of CO_2 per t.km). For the main raw material, the real mode of transportation was used, without modifying the average journey assumption of 1,000km. 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 3.4) 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 travel by plane (the type of transportation that emits the most GHGs) by Group employees representing 97% of the global scope. Total air travel distances come from travel agency data, and emissions are calculated applying emission factors given in the 2017 version of the DEFRA database.
- Category 7 – Employee commuting: emissions were estimated using the least favorable scenario, assuming that all 20,000 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 (2017 version).
- 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.

(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 9 – Downstream transportation and distribution: the emissions were estimated using Group company logistics data, which account for 99% of consolidated shipments. The Group defines a shipment as the transportation of products to customers, as well as any post-production logistics. Emissions are calculated by taking such logistics data as tonnes transported, number of shipments, and average kilometers for each type of transportation (road, rail, air, etc.) and applying the emission factors. In 2019, the calculation was 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 GHG 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 80% of transport. For each line that EcoTransit was unable to process, an average distance was applied for each mode of transportation, as well as an average emission factor for the quantity transported. The total was then added to the emissions previously estimated by EcoTransit. The reporting period runs from 1 October to 30 September of the following year. This new automatic calculation methodology allows for better use of the data available in the Group's various information systems, an extension of the reporting scope, and greater reliability in terms of distances declared and emission factors.
- Category 12 – End-of-life treatment of sold products: the products sold by the Group have been classified into 23 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, and packaging, for which the current recording of data does not permit reliable estimates of end-of-life emissions.
- Category 15 – Investments: the emissions recorded in this category are those related to purchases of companies by the Group in 2019. The total amount of these purchases has been multiplied by the appropriate emission factor available in the February 2019 version of the carbon base expressed in kg eq.CO_2/€k.

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. In 2019, accident rates do not include the ArrMaz, Prochimir or Lambson activities, acquired in 2019.

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 process safety 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 rate (PSER), 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. Depending on their specific features and size, some sites have had the option since 2016 of performing simplified self-assessments. This is the case for Bostik in particular.

4.5.3 Methodological note on employee, social and R&D information/indicators

4.5.3.1 SCOPE AND REPORTING TOOLS

Employee data are taken from several different reporting processes.

The workforce data presented in section 4.4 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, Altuglas International, ArrMaz, Bostik, Coatex, Den Braven 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 90.6% of the Group's total headcount.

Any changes or corrections to prior-year data are noted in section 4.4.1 of this chapter.

4.5.3.2 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 and safety performance 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 reference document does not include any information about combating food waste, ensuring food security or promoting the responsible, equitable and sustainable production of food.

4.5.3.3 DETAILS ON EMPLOYEE INFORMATION AND 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.

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.

New hires

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.

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. 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.

4.5.3.4 DETAILS ON R&D INFORMATION AND INDICATORS

Sustainable development patents

Number of original patent applications filed in the reporting year by the Group in response to sustainable development issues related to the UN Sustainable Development Goals, as described in section 4.2 of this chapter.

Percentage of sales from products made from renewable raw materials

Sales derived from renewable raw materials correspond to sales of products that use renewable raw materials in the proportion of more than 20%. Renewable content is calculated by ascertaining the proportion of raw materials (carbon and heteroatoms) of renewable origin. A renewable raw material is understood to be either bio-sourced (i.e., from biomass, plant or animal), or certified renewable by a mass balance approach. For a large number of product lines, the most penalizing data have been systematically used.

R&D expenditure

R&D expenditure is expressed as a percentage of consolidated revenue for the year.

Number of non-disclosure, cooperation and intellectual property agreements

The number of contracts corresponds to the non-disclosure, cooperation and intellectual property contracts signed by Arkema France during the year and recorded by the R&D department in its Athena database.

4.5.4 Indicators [1]

		2019	2018	2017
SUSTAINABLE SOLUTIONS				
Innovation				
Percentage of sales that contribute significantly to Sustainable Development Goals [2]	%	46	43	nd
Number of patent applications filed during the year relating to sustainable development		149	154	150
R&D expenditure as a percentage of consolidated revenues	%	2.7	2.7	2.8
Number of non-disclosure, cooperation and intellectual property agreements signed by Arkema France		437	476	415
Management of the solutions portfolio				
Percentage of sales from products made from renewable raw materials	%	9	9	9
Percentage of sales volume covered by a full life-cycle assessment	%	22	20	10
Product stewardship				
Number of substances with REACH registration		425	425	406
RESPONSIBLE MANUFACTURER				
Safety and environment				
Percentage of sites audited according to Arkema Integrated Management System (AIMS) standards	%	80	74	69
Safety, environment and maintenance expenditure	€M	279	270	242
Safety				
Percentage of ISO 45001 or OHSAS 18001 certified sites	%	57	47	46
Percentage of ISO 45001 or OHSAS 18001 certified sites in Europe	%	59	53	45
Percentage of ISO 45001 or OHSAS 18001 certified sites in the Americas	%	47	48	43
Percentage of ISO 45001 or OHSAS 18001 certified sites in Asia	%	65	58	49
Total recordable injury rate (TRIR)	per million hours worked	1.4	1.3	1.6
Lost-time injury rate (LTIR)	per million hours worked	0.7	0.8	0.6
Percentage of sites practicing peer observation	%	62	64	59
Process safety event rate (PSER)	per million hours worked	3.7	4.4	3.9
Environment				
MANAGEMENT SYSTEMS				
Percentage of ISO 14001-certified sites	%	53	48	43
Percentage of ISO 14001-certified sites in Europe	%	65	60	53
Percentage of ISO 14001-certified sites in Asia	%	76	63	54
Percentage of RCMS-certified sites in the Americas	%	18	17	17

		2019	2018	2017
GREENHOUSE GAS (GHG) EMISSIONS [3]				
Direct greenhouse gas emissions corresponding to the Kyoto Protocol	kt CO_2 eq.	2,698	2,807	3,085
• of which CO_2	kt CO_2 eq.	1,490	1,567	1,515
• of which HFC	kt CO_2 eq.	1,174	1,210	1,530
• of which other	kt CO_2 eq.	34	30	40
Direct greenhouse gas emissions corresponding to the Kyoto Protocol, by region				
• Europe	%	30	31	33
• Americas	%	56	55	54
• Rest of the world	%	15	14	13
Direct greenhouse gas emissions corresponding to the Montreal Protocol	kt CO_2	247	277	340
Scope 2 indirect greenhouse gas emissions of CO_2	kt	1,142	1,183	1,107
• of which in Europe	kt	290	291	302
• of which in the Americas	kt	401	401	405
• of which in the Rest of the world	kt	451	491	400
Climate indicator: Scope 1 and *Scope 2 GHG emissions as defined in the Kyoto Protocol* + substances listed in the Montreal Protocol	kt	4,087	4,267	4,531
Scope 3 indirect greenhouse gas emissions of CO_2 (to within 10%) [4]	Mt	12.56	9.56	3.56
ADAPTING TO THE CONSEQUENCES OF CLIMATE CHANGE				
Number of sites exposed to a severe risk of storms and/or flooding		25	22	22
AIR EMISSIONS				
Acidifying substances	t SO_2 eq.	2,620	3,040	3,380
Carbon monoxide	t	950	940	860
Volatile organic compounds (VOCs)	t	3,810	4,150	4,280
Volatile organic compound (VOCs) EFPI		0.60	0.62	0.66
Dust	t	203	235	230
EFFLUENT RELEASES				
Chemical oxygen demand (COD)	t O_2	1,950	2,170	2,440
Chemical oxygen demand (COD) EFPI		0.50	0.59	0.70
Suspended solids	t	571	535	920
WASTE				
Total hazardous waste	kt	178	187	184
Hazardous waste recycled into materials	%	14	15	15
Hazardous waste burned as fuel	%	49	48	49
Non-recycled hazardous waste	kt	65	69	67
• of which landfilled	kt	3.8	4.0	3.4
Total non-hazardous waste	kt	247	278	242
Recycled non-hazardous waste	kt	101	119	107
Non-recycled non-hazardous waste	kt	146	159	135
• of which landfilled	kt	26	37	27

		2019	2018	2017
RESOURCES				
Total water withdrawn	millions of cu.m	113	119	118
Net energy purchases	TWh	8.05	8.07	8.12
• of which in Europe	TWh	4.26	4.33	4.37
• of which in America	TWh	2.57	2.53	2.47
• of which in the Rest of the world	TWh	1.22	1.21	1.28
Energy EFPI		0.91	0.88	0.89
Net energy purchases by type				
• fuel	TWh	3.98	4.06	4.11
• electricity	TWh	2.71	2.72	2.76
• steam	TWh	1.36	1.29	1.25
Natural gas in net purchases of fuels	%	98	97	93
Low-carbon electricity in net energy purchases	%	22	22	18
Number of Arkenergy investments		51	50	60
• of which in Europe		28	26	41
• of which in America		12	14	11
• of which in the Rest of the world		11	10	8
Number of ISO 50001-certified sites		33	30	29
OPEN DIALOGUE				
Employment				
HEADCOUNT				
Total headcount at 31 December		20,507	20,010	19,779
• of which permanent employees		19,783	19,301	18,701
• of which fixed-term employees		724	709	1,078
Total headcount as at 31/12 by geographical area				
• France		7,309	7,193	7,144
• Europe (excluding France)		3,899	3,904	3,936
• North America		4,074	3,880	3,742
• Asia		4,319	4,195	4,104
• Rest of the world		906	838	853
Managers	%	27.9	27.3	26.9
DIVERSITY				
Women	%	25.3	25.3	25.0
Women by region				
• France	%	27.2	26.9	26.6
• Europe (excluding France)	%	25.7	25.2	24.8
• North America	%	22.7	22.9	22.3
• Asia	%	25.1	25.4	25.4
• Rest of the world	%	22.4	21.8	21.7
Percentage of women managers (all levels)	%	29.9	29.6	29.1
Women in senior management and executive positions (Hay grade 15 or higher)	%	23	21	19

		2019	2018	2017
Non-French nationals in senior management and executive positions (Hay grade 15 or higher)	%	40	39	37
RECRUITMENT				
Recruitments in 2019		1,593	1,833	1,616
• France		366	393	364
• Europe (excluding France)		260	252	254
• North America		437	528	463
• Asia		403	533	438
• Rest of the world		127	127	97
Manager recruitments		494	497	471
Non-manager recruitments		1,099	1,336	1,145
Women recruitments	%	28.2	28.2	28.5
New hires aged 50 and over	%	10.3	9.5	9.4
New hires aged under 30	%	34.4	37.6	38.5
DEPARTURES				
Departures during the year		1,741	1,852	1,705
• of which resignations		945	1,004	862
• of which dismissals		342	322	332
• of which retirement		285	330	321
• of which following a divestment/merger		27	0	0
• of which other reasons		142	196	190
WORK ORGANIZATION				
Full-time employees	%	96.3	96.3	96.3
Part-time employees	%	3.8	3.7	3.7
Employees who telework	%	13.8	nd	nd
ABSENTEEISM				
Overall absenteeism rate	%	4.2	3.9	3.9
Absenteeism rate on medical grounds	%	2.8	2.8	2.6
TRAINING				
Number of training hours	thousands	463	456	484
Average number of training hours per employee		25	25	25
Average number of training hours per manager		24	nd	nd
Average number of training hours per non-manager		25	nd	nd
Number of employees who received training, excluding e-learning		15,997	17,111	16,161
Number of employees who took an e-learning *course*		9,517	9,403 (5)	10,496
Number of safety training hours	thousands	182	193	207
Number of safety training hours per employee trained		13	14	15
Number of employees who received safety training (excluding e-learning)		14,142	13,588	13,556
Number of employees *who* took safety-related e-learning courses		6,684	6,863 (5)	6,276
Number of environment-related training hours		10,210	15,795	22,665
Number of environment-related training hours per employee trained		2	4	6.6

		2019	2018	2017
Number of employees who received environment-related training (excluding *e-learning)*		4,686	3,919	3,398
Breakdown of training hours by topic:				
• Technical expertise	thousands	203	nd	nd
• HSEQ	thousands	196	nd	nd
• IT/digital technology	thousands	19	nd	nd
• Management	thousands	45	nd	nd
Percentage of apprenticeships (Arkema France)	%	4.4	4.1	3.7
Proportion of Group employees benefiting from annual performance reviews	%	99	99	99
HEALTH AND WELFARE				
Percentage of employees benefiting from regular medical check-ups	%	94	93	94
Employees benefiting from supplementary disability cover	%	90	90	90
Employees benefiting from supplementary life cover	%	95	92	93
Employees covered by death benefits representing at least 18 months' salary	%	84	82	81
COMPENSATION				
Employees benefiting from minimum compensation guarantees	%	100	100	99.6
Employees benefiting from collective variable compensation components	%	73	68	67
Employees benefiting from individual variable compensation components	%	36	35	32
REPRESENTATION				
Percentage of employees benefiting from personnel representation and/or trade union representation	%	91	90	89
Societal				
Number of Common Ground® initiatives		990	1,064	1,011
Group industrial sites taking part in Common Ground®	%	78	84	78
European industrial sites taking part in Common Ground®	%	78	73	73
North American industrial sites taking part in Common Ground®	%	76	73	85
Asian industrial sites taking part in Common Ground®	%	95	69	64

(1) Indicators are defined in detail in the methodological note in section 4.5.2 of this chapter.
(2) The scope assessed covered 44% of the Group's sales to third parties in 2019.
(3) In 2019, GHG emissions include those of American Acryl's Bayport facility. Emissions from previous years have been recalculated to take account of this consolidation (see section 4.5.2.1 of this chapter).
(4) The Scope 3 categories covered by this estimate are detailed in section 4.3.3.2.3 of this chapter.
(5) This amount corrects the figure indicated in the 2018 reference document following the detection of double counting of participants in certain e-learning modules.

4.5.5 GRI content index

DECLARATION OF GRI COMPLIANCE

Arkema applies the reporting principles and prepared its reporting in compliance with GRI: essential compliance.

In order to ensure a good quality approach, in line with GRI standards expectations, Arkema ensured the implementation of the tests indicated for each principle by Materiality-Reporting, GRI DATA PARTNER for France.

The GRI content index below presents the general and specific items of information, in accordance with their materiality for the Group.

GRI standard	Item	Description	Location or omission
GRI 101: GENERAL PRINCIPLES – 2016			
GRI 102: GENERAL STANDARD DISCLOSURES – 2016			
ORGANIZATIONAL PROFILE			
	102-1	Name of the organization	6.1.1 – Information about the Company
	102-2	Activities, brands, products and services	1.2 – Business overview
	102-3	Location of the organization's headquarters	6.1.1 – Information about the Company
	102-4	Location of operations	6.1.2 – Subsidiaries and shareholdings of the Company
	102-5	Capital and legal form	6.1.1 – Information about the Company
	102-6	Markets served	1.2 – Business overview
	102-7	Scale of the organization	1.2 – Business overview 6.1.1 – Information about the Company
	102-8	Information on employees and other workers	4.4.1.1 – Talent management/Total headcount and employees by region, gender and age
	102-9	Supply chain	1.4 – Raw materials and energy supply contracts 4.1.6 – Stakeholders and materiality assessment 4.2.1 – Management of the sustainable solutions portfolio 4.2.3 – Management of the solutions portfolio
	102-10	Significant changes to the organization and its supply chain	2.2 – Comprehensive internal control and risk management procedures
	102-11	Precautionary principle or approach	2.1.1 and 2.1.3 – Industrial safety, environmental and climate change risks
	102-12	External initiatives	4.1 – Introduction 4.4.4.5 – Membership of the Together for Sustainability (TfS) initiative
	102-13	Membership of associations	4.4.6 – Corporate citizenship and philanthropy
STRATEGY			
	102-14	Statement from senior decision-maker	Message from the Chairman and CEO in the introduction of this document
ETHICS AND INTEGRITY			
	102-16	Values, principles, standards and norms of behavior	4.4.2 – Compliance and ethics
CORPORATE GOVERNANCE			
	102-18	Governance structure	4.1.5 – CSR governance 3.2 – Composition of administrative and management bodies

GRI standard	Item	Description	Location or omission
APPROACH TO STAKEHOLDER ENGAGEMENT			
	102-40	List of stakeholder groups	4.1.6 – Stakeholders and materiality assessment
	102-41	Collective bargaining agreements	4.4.1.7 – Active social dialogue with employee representatives
	102-42	Identification and selection of stakeholders	4.1.6 – Stakeholders and materiality assessment
	102-43	Approach to stakeholder engagement	4.1.6 – Stakeholders and materiality assessment
	102-44	Key topics and concerns raised	4.1.6 – Stakeholders and materiality assessment
REPORTING PRACTICE			
	102-45	Entities included in the consolidated financial statements	4.5.2.1 – Environmental reporting tools and scope 4.5.2.2 – Safety reporting tools and scope 4.5.3. – Social, employee and R&D 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	1.2.1.3 – Overview of the High Performance Materials division – Highlights 1.2.2.3 – Overview of the Industrial Specialties division – Highlights 1.2.3.3 – Overview of the Coating Solutions division – Highlights
	102-49	Changes in reporting	4.5 – Reporting methodology
	102-50	Reporting period	4.5.1 – Reporting organization
	102-51	Date of most recent report	Page 1 footnote
	102-52	Reporting cycle	4.5.1 – 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	4.5.5 – GRI content index
	102-55	GRI content index	4.5.5 – GRI content index
	102-56	External assurance	4.5.6 – Independent third-party opinion pursuant to the provisions of article L. 225102-1 of the French Commercial Code
SPECIFIC ITEMS			
GRI 200: ECONOMIC STANDARDS			
GRI 103: Managerial approach – 2016	103-1	Explanation of the material topics and their scope	4.1.6 – Stakeholders and materiality assessment
	103-2	Description of managerial approach	4.4 Open dialogue and close relations with stakeholders
	103-3	Evaluation of the managerial approach	4.5.4 Indicators
ECONOMIC PERFORMANCE			
GRI 201: Economic performance – 2016	201-1	Direct economic value generated and distributed	Profile, ambition and strategy 4.2.3 – Management of the solutions portfolio 4.4.6 Corporate citizenship and philanthropy 5.3.2 Consolidated financial statements at December 31, 2019

GRI standard	Item	Description	Location or omission
MARKET PRESENCE			
	202-2	Proportion of senior management hired from the local community	4.4.1.6 – Diversity, equal opportunity and equal treatment
INDIRECT ECONOMIC IMPACTS			
GRI 203: Indirect economic impacts – 2016	203-1	Infrastructure investments and philanthropy	4.4.6 – Corporate citizenship and philanthropy
	203-2	Significant indirect economic impacts	4.4.6 – Corporate citizenship and philanthropy
PROCUREMENT PRACTICES			
GRI 204: Procurement practices – 2016	204-1	Proportion of spending on local suppliers	4.4.4 – Suppliers and subcontractors
Anti-corruption			
GRI 205: Anti-corruption – 2016	205-1	Operations assessed for risks related to corruption	4.4.2 – Compliance and ethics
	205-2	Communication and training on anti-corruption policies and procedures	4.4.2 – Compliance and ethics
TAXES			
GRI 207: Tax – 2019	207-1	Approach to tax	4.4.2.6 – Tax policy
	207-2	Tax governance, control and risk management	4.4.2.6 – Tax policy
GRI 300: ENVIRONMENTAL STANDARDS			
GRI 103: Managerial approach – 2016	103-1	Explanation of the material topics and their scope	4.1.6 – Stakeholders and materiality assessment
	103-2	Description of managerial approach	4.3.1 – Health, safety and environmental management
	103-3	Evaluation of the managerial approach	4.5.4 – Indicators
MATERIALS			
GRI 301: Materials – 2016	301-1	Materials used by weight or volume	4.3.3.3.3 – Raw materials consumption
	301-2	Recycled materials used	4.3.3.3.4 – Circular economy
	301-3	Reclaimed products and their packaging materials	4.3.3.3.4 – Circular economy
ENERGY			
GRI 302: Energy – 2016	302-1	Energy consumption within the organization	4.3.3.3.4 – Circular economy
	302-3	Energy intensity	4.3.3.2.2 – Energy
	302-4	Reduction of energy consumption	4.3.3.2.2 – Energy
	302-5	Reduction in energy requirements of products and services	4.3.3.2.2 – Energy
WATER AND EFFLUENTS			
GRI 303: Water and effluents – 2018	303-1	Interactions with water as a shared resource	4.3.3.3.2 – Water use
	303-2	Management of water discharge-related impacts	4.3.3.4.2 – Emissions into air, water and soil
	303-3	Water withdrawal	4.3.3.3.2 – Water use
	303-4	Water discharge	4.3.3.4.2 – Emissions into air, water and soil
	303-5	Water use	4.3.3.3.2 – Water use

GRI standard	Item	Description	Location or omission
BIODIVERSITY			
	304-2	Significant impacts of activities, products and services on biodiversity	4.3.3.4 – Protecting Biodiversity
EMISSIONS			
GRI 305: Emissions – 2016	305-1	Direct GHG emissions (Scope 1)	4.3.3.2.1 – Scope 1 and 2 greenhouse gas emissions
	305-2	Indirect GHG emissions (Scope 2)	4.3.3.2.1 – Scope 1 and 2 greenhouse gas emissions
	305-3	Other indirect GHG emissions (Scope 3)	4.3.3.2.3 – Scope 3 emissions inventory
	305-4	GHG emissions intensity	4.3.3.2.1 – Scope 1 and Scope 2 greenhouse gas emissions/Intensive indicator for direct greenhouse gas emissions
	305-5	Reduction of GHG emissions	4.3.1 – Health, safety and environmental management 4.3.3.1 – Environmental management 4.3.3.2 – Climate change
	305-7	Emissions of nitrogen oxides (NOx), sulfur oxides (SOx) and other significant atmospheric emissions	4.3.3.4.2 – Emissions into air, water and soil
EFFLUENTS AND WASTE			
GRI 306: Effluents and waste – 2016	306-1	Water discharge by quality and destination	4.3.3.4.2 – Emissions into air, water and soil – Discharge into water
	306-2	Waste by type and disposal method	4.3.3.3.4 – Circular economy – Waste
	306-3	Significant spills	4.3.3.4.2 – Emissions into air, water and soil
	306-4	Transportation of hazardous waste	4.3.3.3.4 – Circular economy – Waste
ENVIRONMENTAL COMPLIANCE			
GRI 307: Environmental compliance – 2016	307-1	Non-compliance with environmental laws and regulations	4.3.1.2 – Management systems and audits
SUPPLIER ENVIRONMENTAL ASSESSMENT			
GRI 308: Supplier environmental assessment – 2016	308-1	New suppliers that were screened using environmental criteria	4.4.4 – Suppliers and subcontractors
	308-2	Negative environmental impacts in the supply chain and actions taken	4.4.4 – Suppliers and subcontractors
GRI 400: SOCIAL STANDARDS			
GRI 103: Managerial approach – 2016	103-1	Explanation of the material topics and their scope	4.1.6 – Stakeholders and materiality assessment
	103-2	Description of managerial approach	4.4.1 – Employee information
	103-3	Evaluation of the managerial approach	4.5.4 – Indicators
EMPLOYMENT			
GRI 401: Employment – 2016	401-1	New employee hires and employee turnover	4.4.1.1 – Talent management
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	4.4.1.2 – An agile and collaborative organization – Organization of working time 4.4.1.4 – Employee engagement and wellbeing – Social protection 4.4.1.5 – A motivating and competitive compensation system 5.3.3 – Notes to the consolidated financial statements – note 27: Personnel expenses 6.2.7 – Share capital increase reserved for employees

GRI standard	Item	Description	Location or omission
OCCUPATIONAL HEALTH AND SAFETY			
GRI 403: Occupational health and safety – 2018	**403-1**	Occupational health and safety management system	4.3.2.2 – Employee health and safety
	403-2	Hazard identification, risk assessment and incident investigation	4.3.1.2 – Management system and audits
	403-3	Occupational health services	4.3.1.3 – Safety and environmental culture
	403-4	Worker participation, consultation and communication on occupational health and safety	4.3.2.2 – Employee health and safety
	403-5	Worker training on workplace health and safety	4.3.1.3 – Safety and environmental culture
	403-6	Promotion of worker health	4.3.2.2 – Employee health and safety
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked to business relationships	4.3.2.2 – Employee health and safety
	403-8	Workers covered by an occupational health and safety management system	4.3.2.2 – Employee health and safety
	403-9	Work-related injuries	4.3.2.2 – Employee health and safety
	403-10	Work-related ill-health	4.3.2.2 – Employee health and safety
TRAINING AND EDUCATION			
GRI 404: Training and education – 2016	**404-1**	Average hours of training per year per employee	4.4.1.3 – Training and personal development
	404-2	Programs for upgrading employee skills and transition assistance programs	4.4.1.3 – Training and personal development
	404-3	Percentage of employees receiving regular performance and career development reviews	4.4.1.3 – Training and personal development
DIVERSITY AND EQUAL OPPORTUNITIES			
GRI 405: Diversity and equal opportunity – 2016	**405-1**	Diversity of governance bodies and employees	4.4.1.6 Diversity, equal opportunity and equal treatment 4.4.1.1 – Talent management – Total headcount and employees by region, gender and age
	405-2	Ratio of basic salary and remuneration of women to men	4.4.1.6 – Diversity and equal opportunity, equal treatment – Measures to promote gender equality
FREEDOM OF ASSOCIATION AND COLLECTIVE BARGAINING			
GRI 407: Freedom of association and collective bargaining – 2016	**407-1**	Operations and suppliers with the right to freedom of association	4.4.1.7 – 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	4.4.3 – Human rights

GRI standard	Item	Description	Location or omission
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	4.4.3 – Human rights
HUMAN RIGHTS ASSESSMENT			
GRI 412: Human rights assessment – 2016	**412-1**	Operations that have been subject to human rights reviews or impact assessments	4.4.2 – Compliance and ethics 4.4.3 – Human rights
	412-2	Employee training on human rights policies or procedures	4.4.2 – Compliance and ethics 4.4.3 – Human rights
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	4.4.2 – Compliance and ethics 4.4.3 – Human rights
LOCAL COMMUNITIES			
GRI 413: Local communities – 2016	**413-1**	Operations with local community engagement, impact assessments, and development program	4.4.6 – Corporate citizenship and philanthropy
SUPPLIER SOCIAL ASSESSMENT			
GRI 414: Supplier social assessment – 2016	**414-1**	New suppliers screened to environmental criteria	4.4.4 – Suppliers and subcontractors
	414-2	Negative social impacts in the supply chain and actions taken	4.4.4 – Suppliers and subcontractors
PUBLIC POLICY			
GRI 415: Public policy – 2016	**415-1**	Political contributions	4.4.5 – Institutional 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	4.2.4 – Product stewardship
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	4.2.4 – Product stewardship
MARKETING AND LABELING			
GRI 417: Marketing and labeling – 2016	**417-1**	Requirements for product and service information and labeling	4.2.4.2 – Product stewardship
	417-2	Incidents of non-compliance concerning product and service information and labeling	4.2.4.2 – Product stewardship
	417-3	Incidents of non-compliance concerning marketing communications	4.2.4.2 – Product stewardship
CUSTOMER PRIVACY			
GRI 418: Customer privacy – 2016	**418-1**	Substantiated complaints concerning breaches of customer privacy and losses of customer data	4.4.2.4 – Personal data protection
SOCIOECONOMIC COMPLIANCE			
GRI 419: Socioeconomic compliance – 2016	**419-1**	Non-compliance with social and economic laws and regulations	4.4.2 – Compliance and ethics

4.5.6 Independent third-party opinion pursuant to article L. 225-102-1 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 31 December 2019

To the Annual General Meeting,

In our capacity as statutory auditor of your company (hereinafter the "entity") appointed as independent third party, and accredited by the French Accreditation Committee (*Comité Français d'Accréditation* or COFRAC) under number 3-1049[1], we hereby report to you on the consolidated non-financial statement for the year ended 31 December 2019 (hereinafter the "Statement"), included in the Group Management Report pursuant to the requirements of articles L. 225-102-1, R. 225-105 and R. 225-105-1 of the French Commercial Code (*Code de commerce*).

Responsibility of the entity

The Management Board's is responsible for preparing the Statement, including a presentation of the business model, a description of the principal non-financial risks, a presentation of the policies implemented considering those risks and the outcomes of said policies, including key performance indicators.

The Statement has been prepared in accordance with the entity's procedures (hereinafter the "Guidelines"), the main elements of which are presented in the Statement and available upon request at the entity's head office.

Independence and quality control

Our independence is defined by the requirements of article L. 822-11-3 of the French Commercial Code and the French Code of Ethics (Code de déontologie) of our profession. In addition, we have implemented a system of quality control including documented policies and procedures regarding compliance with applicable legal and regulatory requirements, the ethical requirements and French professional guidance.

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 information provided in accordance with article R. 225-105 I, 3° and II of the French Commercial Code, i.e., the outcomes, including key performance indicators, and the measures implemented considering the principal risks (hereinafter the "Information").

However, it is not our responsibility to comment on the entity's compliance with other applicable legal and regulatory requirements, in particular the French duty of care law and anti-corruption and tax avoidance legislation, nor on the compliance of products and services with the applicable regulations.

(1) *Accreditation scope available at www.cofrac.fr*

Nature and scope of our work

The work described below was performed in accordance with the provisions of Article A. 225-1 *et seq.* of the French Commercial Code, as well as with the professional guidance of the French Institute of Statutory Auditors (*Compagnie nationale des commissaires aux comptes* or CNCC) applicable to such engagements and with ISAE 3000[(1)]:

- 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 information 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 risks (ethics and compliance, human rights, climate change, failure of suppliers and subcontractors in social and environmental issues, exposure to chemicals), 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[(2)];
- 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 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 [(2)] and covers between 14% 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.

We believe that the work carried out, based on our professional judgment, is 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.

Means and resources

Our work was carried out by a team of nine people between August 2019 and February 2020 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 around twenty interviews with the people responsible for preparing the Statement.

(1) ISAE 3000: international standard on assurance engagements other than audits or reviews of historical financial information.

(2) Arkema France S.A. of which La Chambre, Jarrie, Rion des Landes and Carling sites (France); Arkema Srl (Italy); Arkema Inc. of wich Calvert City and Houston sites (USA); Bostik Ltd of which Stafford site (UK); Casda Biomaterials Co.,Ltd. (China).

Conclusion

Based on the procedures performed, nothing has come to our attention that causes us to believe that the non-financial 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.

Comment

Without modifying our conclusion and in accordance with article A. 225-3 of the French Commercial Code, we have the following comment:

- Regarding the training hours, improvements remain to be made in the reporting of data by the Arkema France subsidiary.

Paris-La Défense, 26 February 2020

KPMG S.A.

Anne Garans	Éric Dupré
Partner	Partner
Sustainability Services	

Appendix

Qualitative information (actions and results) considered most important

Actions implemented in terms of work organization

Actions implemented in terms of individual development and training

Measures taken for employee engagement and well-being

The policy on diversity and equal treatment

The Group's safety, health and environment management systems

The policy on responsible product management

Internal identification systems for sites exposed to severe risks of storms and/or floods

Actions taken to prevent corruption

Actions taken in favor of Human Rights

Importance of subcontracting and consideration, in the relationship with subcontractors and suppliers of their social and environmental responsibility

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

Percentage of non-French nationals in senior management and executive positions

Average number of training hours per employee per year

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 sites implementing peer observation of tasks

Percentage of AIMS (Arkema Integrated Management System) audited sites

Net purchases of energy

Direct greenhouse gas emissions (Scope 1)

Indirect greenhouse gas emissions (Scope 2)

Indirect greenhouse gas emissions (Scope 3 – Categories 1, 9, 12)

Volatile Organic Compounds (VOC)

Total water withdrawn

Chemical Oxygen Demand (COD)

Hazardous waste

HFC emissions (hydrofluorocarbons)

Number of patent applications filed during the year relating to sustainable development

Percentage of plants taken part in Common Ground® program

Sales from products made in full or in part from renewable raw materials

4.5.7 Contacts

See section 8.2 of this document.

FINANCIAL AND ACCOUNTING INFORMATION 5

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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 2019 in section 5.3.3 of this chapter, and in particular with the accounting policies described in note B "Accounting policies".

All figures contained in this section are provided on a consolidated basis and in accordance with the Group's organization into three business divisions.

5.1.1 Indicators used in management analysis

The main alternative performance indicators used by the Group are defined in note C.1 to the consolidated financial statements presented in section 5.3.3 of this chapter.

When analyzing changes in its results, particularly changes in its sales, the Group identifies the impact of the following effects (such analysis is unaudited):

- **scope effect**: 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 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;
- **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 in the summer months (July-August) 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.

5.1.3 Impact of changes to accounting standards

Changes to accounting standards and any related impacts are disclosed in note B "Accounting policies" to the consolidated financial statements at 31 December 2019 presented in section 5.3.3 of this chapter.

IFRS 16 "Leases", which came into effect on 1 January 2019, led to the recognition in the balance sheet of right-of-use assets representing around 1.5% of total assets, and financial liabilities for the same amount. In the income statement, the application of this new standard led to an increase in EBITDA of less than 4%, while the impact on operating income and net income was negligible. In the cash flow statement, cash flow from operating activities increased by an amount similar to the EBITDA impact with an equivalent decrease in cash flow from financing activities. Further details are provided in notes C.1.9 "IFRS 16 Impact" and C.12 "IFRS 16 Leases" to the consolidated financial statements at 31 December 2019 presented in section 5.3.3 of this chapter. The Group estimates that the application of IFRS 16 does not have a material impact on its mid- and long-term objectives.

5.1.4 Description of the main factors which affected sales and results in the period

After a record year in 2018, Arkema delivered another high-level financial performance in 2019, in an increasingly challenging economic context, marked by persistent geopolitical tensions and uncertainty that weighed heavily on demand. These results attest to the quality of the Group's business portfolio and its resulting ability to adapt to different environments. They also confirm the validity of its transformation strategy towards specialty businesses.

Consolidated EBITDA for 2019, comparable with the previous year's record high, was driven by strong growth in the specialty businesses [(1)], accounting now for 72% of total consolidated sales and which EBITDA is up 13%, which were taking over from intermediate businesses [(1)], which EBITDA was down 20%.

A number of factors contributed to the Group's financial performance to varying degrees, notably:

- the strong progression of Bostik, which reported EBITDA up in the high-teens compared with 2018 and an EBITDA margin close to 13% on the year. This performance was attributable to (i) slight increase in sales prices in a more favorable raw materials environment after the sharp increases seen in 2018, (ii) a shift in the product mix towards higher value-added applications, (iii) internal operational excellence plans, and (iv) the ongoing deployment of synergies resulting from the bolt-on acquisitions. The most recent of these was Prochimir, a company specializing in high performance thermobonding adhesive films that was acquired in October;
- a solid performance in Advanced Materials, which reported an EBITDA margin of close to 20% despite being severely affected by weaker volumes. The less favorable macroeconomic environment weighed on demand, especially in the transportation, consumer electronics, oil and gas sectors, and has led to inventory adjustments from our customers; Advanced Materials benefited from the contribution of ArrMaz from 1 July and, to a lesser extent, that of Lambson in the fourth quarter;
- the robust performance in Coating Solutions, with EBITDA up by nearly 10% over the year. The increase reflected sharp increase in volumes, particularly in upstream businesses, and improved downstream margins in an environment of lower propylene prices;
- Fluorogases faced with very poor market conditions, impacted in particular by illegal HFC imports into Europe, and achieved in 2019, after record results in 2018, a performance between 2016 and 2017 levels;
- the normalization of market conditions in the MMA/PMMA chain, after new capacity was introduced by competitors, notably in Saudi Arabia. This normalization of market conditions was nevertheless mitigated by the Group's high level of integration and the benefits of its innovation, as well as the decline in certain raw materials prices. The normalization process is expected to continue in 2020;
- the stronger performance reported by Thiochemicals, led by sustained demand in its markets;
- first-time application of IFRS 16 standard as of 1 January 2019, which added €56 million to EBITDA for the year and around €150 million to financial liabilities at 31 December 2019;
- the appreciation of the US dollar against the euro in 2019, the average exchange rate was 1.12 *versus* 1.18 in 2018. The overall currency effect (translation only) increased sales by 2.0% for the year;

(1) The Group distinguishes intermediate businesses corresponding to PMMA, Fluorogases and Acrylics Business Lines, and specialty businesses

- the sharp rise in Group's cash flow. Free cash flow totaled €667 million, and included a cash inflow linked to working capital that reflected tight management, the slowdown in activity and lower raw materials costs; and
- a net debt under control at €1.6 billion excluding hybrid bonds, representing 1.1x 2019 EBITDA and a gearing of 31% after taking into account the acquisitions for the year representing roughly €730 million impact.

5.1.5 Group income statement analysis

(In millions of euros)	2019	2018	Year-on-year change
Sales	**8,738**	**8,816**	**-0.9%**
Operating expenses	(6,837)	(6,841)	-0.1%
Research and development expenses	(249)	(237)	+5.1%
Selling and administrative expenses	(773)	(747)	+3.5%
Other income and expenses	(73)	(63)	+15.9%
Operating income	**806**	**928**	**-13.1%**
Equity in income of affiliates	(2)	2	
Financial result	(116)	(101)	+14.9%
Income taxes	(137)	(114)	+20.2%
Net income	**551**	**715**	**-22.9%**
Of which: non-controlling interests	8	8	-
Net income – Group share	**543**	**707**	**-23.2%**
EBITDA	**1,457**	**1,474**	**-1.2%**
Recurring operating income (REBIT)	**926**	**1,026**	**-9.7%**
Adjusted net income	**625**	**725**	**-13.8%**

SALES

At **€8,738 million, sales** were down **0.9%** year on year, in an uncertain and less favorable macroeconomic context and a tense geopolitical environment marked by trade wars. The scope effect of +1.8% mainly corresponds to the acquisition of ArrMaz in the High Performance Materials division. Although positive in High Performance Materials (3.6%), the price effect was a negative 2.3% for the Group due to a sharp drop in propylene prices for the Coating Solutions division and challenging market conditions for Fluorogases. Volumes were down 2.4% during the year, with notably much lower demand in High Performance Materials in the transportation, oil & gas, and consumer electronics sectors, which overshadowed robust growth in certain niche segments such as batteries and 3D printing. The 2.0% positive currency effect was essentially attributable to the appreciation of the US dollar against the euro.

High Performance Materials represented 47% of Group sales excluding corporate sales [(1)] (45% in 2018), Industrial Specialties 29% (31% in 2018), and Coating Solutions sales were stable at 24%.

The Group continued to re-balance its geographical footprint in 2019, with total sales for the year breaking down as 36% for Europe (38% in 2018), 32% for North America (31% in 2018), and 32% for Asia and the rest of the world (31% in 2018).

EBITDA, RECURRING OPERATING INCOME AND OPERATING INCOME

Comparable with the record high reached in 2018, EBITDA for the year amounted to €1,457 million in a challenging environment, demonstrating the quality of the Group's portfolio. This performance was driven by the strong increase in specialty businesses (72% of Group sales) thanks notably to solid growth for Bostik and Thiochemicals, the benefits of the Group's innovation and partnerships in composites, batteries and additive manufacturing, the positive impact of lower raw materials prices, as well as the contribution of ArrMaz in line with our expectations. The intermediate businesses were down year on year, impacted in particular by the strong decline of Fluorogases compared with last year's historically high level. The EBITDA figure also includes a positive €56 million impact linked to the application of IFRS 16.

(1) As defined in note C.2 to the consolidated financial statements at 31 December 2019 presented in section 5.3.3 of this chapter.

At 16.7%, EBITDA margin was stable year on year at a high level.

Recurring operating income (REBIT) came to €926 million *versus* €1,026 million in 2018. It includes €531 million in recurring depreciation and amortization, up €83 million from €448 million in 2018. The increase reflects the impact of applying IFRS 16 for €54 million, the start-up of production units during the year, the consolidation of ArrMaz from 1 July 2019 and the unfavorable currency effect. Consequently REBIT margin for the year stood at 10.6% *versus* 11.6% in 2018.

Operating income for the year amounted to €806 million (€928 million in 2018). The 2019 figure includes:

- operating expenses of €6,837 million, generally stable (€6,841 million in 2018), with the consolidation of companies acquired during the year and the unfavorable currency effect broadly offset by lower raw materials costs and reduced volumes. Operating expenses include €47 million in depreciation and amortization resulting from the revaluation of tangible and intangible assets as part of the Bostik, Den Braven, XL Brands and ArrMaz purchase price allocation (€35 million in 2018);
- research and development (R&D) expenses of €249 million, representing 2.8% of sales (€237 million and 2.7% of sales in 2018);
- selling and administrative expenses of €773 million, up from €747 million in 2018 due to scope effects and the unfavorable currency effect.

Lastly, operating income also included other income and expenses representing a net expense of €73 million. This amount corresponds primarily to (i) net restructuring charges, mainly in the adhesives business, for €25 million, (ii) €32 million in asset impairments, (iii) an insurance compensation for the investments made on the Crosby site after the Hurricane Harvey (iv) expenses linked to acquisitions and (v) costs linked to an incident at a supplier's site. In 2018, other income and expenses represented a net expense of €63 million, corresponding for the most part to (i) €23 million in net restructuring charges, (ii) €23 million in asset impairments, and (iii) charges related to the termination of a supply agreement.

FINANCIAL RESULT

The financial result represented a net expense of €116 million, up €15 million on 2018. The year-on-year change is mainly due to the unfavorable interest rate effect on the portion of the Group's debt swapped into US dollars. The refinancing in December 2019, at favorable market conditions, of the €480 million senior notes maturing in April 2020 should lead to a positive impact of around €10 million on the financial result in 2020.

INCOME TAXES

Income taxes represented a net expense of €137 million in 2019 *versus* a net expense of €114 million in 2018. Excluding non-recurring items, the tax rate amounted to 19% of recurring operating income, unchanged from 2018. In 2020, the Group's tax rate excluding non-recurring items should amount to around 20% of recurring operating income (REBIT).

At end 2019, unrecognized deferred tax assets amounted to €434 million.

In 2018, income tax expense amounted to €114 million, including notably a €59 million one-off tax profit with no cash impact arising from the recognition of deferred tax assets in France.

NET INCOME GROUP SHARE AND ADJUSTED NET INCOME

Consequently, net income – Group share totaled €543 million (€707 million in 2018).

Excluding the post-tax impact of non-recurring items, adjusted net income amounted to €625 million (*versus* €725 million in 2018), i.e., €8.20 per share (€9.51 per share in 2018).

5.1.6 Analysis of results by division

5.1.6.1 HIGH PERFORMANCE MATERIALS

(In millions of euros)	2019	2018	Year-on-year change
Sales	**4,065**	**3,970**	**+2.4%**
EBITDA	**654**	**640**	**+2.2%**
EBITDA margin	***16.1%***	***16.1%***	
Recurring operating income (REBIT)	**468**	**481**	**-2.7%**
REBIT margin	*11.5%*	*12.1%*	
Other income and expenses	(51)	(41)	
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(44)	(35)	
Operating income	**373**	**405**	**-7.9%**

Sales of the High Performance Materials division amounted to **€4,065 million**, up 2.4% on 2018. This performance was driven by a positive 3.6% price effect, positive in all of the division's Business Lines and mainly reflecting the Group's actions to increase sales prices and optimize the product mix. The positive 3.5% scope effect primarily stemmed from the consolidation of ArrMaz as of 1 July and, to a lesser extent, the bolt-on acquisitions of Lambson and Prochimir in the fourth quarter. In a challenging macroeconomic environment, volumes fell 6.6%. They were mainly impacted by a marked slowdown in the transportation, oil & gas, and consumer electronics sectors, as well as by the inventory adjustments of our customers, all of which overshadowed strong demand in the batteries and 3D printing segments. The currency effect added 1.9% to the division's sales.

EBITDA of the High Performance Materials division was up 2.2% year on year to **€654 million**. The increase was driven by the impact of price increases, the shift in the product mix towards higher added-value applications, the contribution from acquisitions in line with our expectations, and a more favorable raw materials environment. In particular, Adhesives delivered a remarkable performance, with EBITDA up in the high-teens in 2019. The division's **EBITDA margin** was stable at **16.1%**. Advanced Materials resisted well with an EBITDA margin of close to 20% despite a sharp decrease in volumes, while Bostik reported a strong gain with an EBITDA margin of around 13%.

Recurring operating income (REBIT) came to €468 million *versus* €481 million in 2018. The 2019 figure includes recurring depreciation and amortization of €186 million, up €27 million *versus* 2018. The increase particularly reflects the impact of applying IFRS 16 for €18 million, the consolidation of ArrMaz as of 1 July 2019 and an unfavorable currency effect.

Operating income contracted to €373 million (€405 million in 2018). Other income and expenses included in the total represented a net expense of €51 million corresponding primarily to (i) asset impairments, (ii) net restructuring charges, mainly for Bostik's operational excellence program, and (iii) acquisition costs related to ArrMaz, Prochimir and Lambson. Operating income also included €44 million in depreciation and amortization following the revaluation of tangible and intangible assets carried out as part of the purchase price allocation mainly for Bostik, Den Braven, XL Brands and ArrMaz.

5.1.6.2 INDUSTRIAL SPECIALTIES

(In millions of euros)	2019	2018	Year-on-year change
Sales	**2,514**	**2,699**	**-6.9%**
EBITDA	**621**	**675**	**-8.0%**
EBITDA margin	***24.7%***	***25.0%***	
Recurring operating income (REBIT)	**406**	**497**	**-18.3%**
REBIT margin	*16.1%*	*18.4%*	
Other income and expenses	(15)	(24)	
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	-	-	
Operating income	**391**	**473**	**-17.3%**

Industrial Specialties **sales** declined 6.9% year on year to **€2,514 million**, with a negative 7.3% price effect and a 1.5% decrease in volumes. Against a high basis of comparison in 2018, these price and volume effects mainly reflect challenging market conditions in 2019 for Fluorogases and, to a lesser extent, normalization in the MMA/PMMA chain. The currency effect was a positive 1.9%.

At **€621 million**, the division's **EBITDA** was down on the excellent performance delivered in 2018 (€675 million). EBITDA for Fluorogases was strongly penalized by illegal HFC imports into Europe, which weighed on the prices and volumes of this activity. For MMA/PMMA, the impact of the normalization of market conditions was mitigated by its strong integration, the benefits of our innovation, and the favorable evolution of certain raw materials. Over the full year, the division's EBITDA was supported by the very good performance of Thiochemicals and the growth of Hydrogen Peroxide.

The division's **EBITDA margin** of **24.7%** remained very high and close to last year's level (25.0%).

In line with EBITDA, recurring operating income (REBIT) came in at €406 million *versus* €497 million in 2018, including recurring depreciation and amortization of €215 million, up €37 million from the previous year. The increase was mainly due to the €23 million impact of applying IFRS 16, and to the unfavorable currency effect.

Operating income stood at €391 million, down €82 million from 2018. Other income and expenses included in the total represented a net expense of €15 million, linked mainly to the consequences of an incident at a supplier's site.

5.1.6.3 COATING SOLUTIONS

(In millions of euros)	2019	2018	Year-on-year change
Sales	**2,133**	**2,120**	**+0.6%**
EBITDA	**264**	**243**	**+8.6%**
EBITDA margin	***12.4%***	***11.5%***	
Recurring operating income (REBIT)	**142**	**140**	**+1.4%**
REBIT margin	*6.7%*	*6.6%*	
Other income and expenses	(1)	(4)	
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(3)	-	
Operating income	**138**	**136**	**+1.5%**

At **€2,133 million**, **sales** for the Coating Solutions division were 0.6% higher year on year. Volumes rose 4.4%, reflecting strong momentum for acrylic monomers, especially in the United States following the start-up of the Clear Lake acrylic acid reactor, and in Asia during the first nine months of the year. The negative 7.0% price effect mechanically reflected lower propylene prices. The scope effect was a positive 0.7%, corresponding to Arkema's acquisition of Jurong's stake in Taixing Sunke Chemicals, the two companies' joint venture that produces acrylic monomers in China. The currency effect added 2.4% to sales.

The division's **EBITDA** rose 8.6% year on year to **€264 million**, driven mainly by improved unit margins in downstream businesses in a favorable raw materials environment. However, market conditions were more difficult for acrylic monomers in the fourth quarter in a context of low seasonality. Over the year as a whole, the **EBITDA margin** expanded to **12.4%** (from 11.5% in 2018).

Recurring operating income (REBIT) increased to €142 million. This amount includes recurring depreciation and amortization of €122 million (€103 million in 2018), with increase due to the impact of (i) applying IFRS 16, for €11 million, (ii) start-ups of industrial projects and (iii) the acquisition of our partner's stake in Taixing Sunke Chemicals.

Operating income came to €138 million, up 1.5% compared with 2018.

5.1.7 Group cash flow analysis

(In millions of euros)	2019	2018
Cash flow from operating activities	1,300	1,029
Cash flow used in investing activities	(1,362)	(743)
Net cash flow	**(62)**	**286**
Of which net cash flow from portfolio management operations	(729)	(213)
Free cash flow	**667**	**499**
Cash flow from/(used in) financing activities	**64**	**(268)**

EBITDA can be reconciled to free cash flow as follows:

(In millions of euros)	2019	2018
EBITDA	**1,457**	**1,474**
Taxes	(142)	(180)
Cash items included in the financial result	(98)	(90)
Change in working capital (1)	82	(121)
Change in fixed asset payables (2)	8	46
Recurring capital expenditure	(511)	(500)
Exceptional capital expenditure	(96)	(61)
Non-recurring items	(50)	(42)
Other	17	(27)
Free cash flow	**667**	**499**

(1) Excluding cash flows related to non-recurring items and portfolio management operations, representing a net cash inflow of €10 million in 2019 (net outflow of €9 million in 2018).

(2) Excluding cash flows related to non-recurring items and portfolio management operations, representing a net cash outflow of €34 million in 2019, primarly related to the discontinuation of a project that was fully financed by a partner, for which a corresponding exceptionnal gain was recognized in the same amount. These two amounts, which offset each other, have been included in "Non-recurring items".

NET CASH FLOW AND FREE CASH FLOW

In 2019, net cash flow represented a net outflow of €62 million *versus* a net inflow of €286 million in 2018. The 2019 amount includes a net cash outflow of €729 million from portfolio management operations, stemming from Arkema's acquisitions of (i) ArrMaz and Lambson in Performance Additives and Prochimir in Adhesives, (ii) an equity interest in Carbon®, and (iii) Jurong's stake in Taixing Sunke Chemicals. In 2018, cash flows from portfolio management operations represented a net outflow of €213 million, corresponding mainly to the acquisition of XL Brands' assets in Adhesives.

Consequently, free cash flow (corresponding to net cash flow, excluding the impact of portfolio management operations) rose by €168 million year on year to €667 million (€499 million in 2018). On a comparable EBITDA basis, this performance includes this year a cash inflow linked to working capital, due to tight management and a slowdown in activity in a context of lower raw materials costs. It also reflects the reduction in income taxes paid during year in line with the change in activity levels. This working capital evolution has more than offset the €46 million increase in recurring and exceptional capital expenditure, in line with the Group's ambitious organic spending policy to support its future growth.

In 2019, non-recurring items represented a net cash outflow of €50 million, corresponding mainly to restructuring costs, expenses arising on the termination of a contract with a supplier and the consequences of an incident at a supplier's site. In 2018, free cash flow also included €21 million in loans granted to employees as part of the share capital increase reserved to them, reported on the "Other" line.

Excluding exceptional capital expenditure, the EBITDA to cash conversion rate was 52% in 2019 (38% in 2018), thus exceeding the Group's target of 35%. This high-level performance reflects the Group's disciplined approach to maximizing cash generation, with a particular focus on tightly controlling working capital.

INVESTMENTS OVER THE PAST THREE YEARS

(In millions of euros)	2019	2018	2017
Total intangible assets and property, plant and equipment additions	**635**	*591*	*459*
Of which recurring capital expenditure	*511*	*500*	*420**
Recurring capital expenditure as a % of Group sales	*5.8%*	*5.7%*	*5.0%*
Of which exceptional capital expenditure	*96*	*61*	*10*

* *Restated figures*

Capital expenditure in 2019

Total capital expenditure amounted to €635 million (€591 million in 2018), of which €511 million was recurring and €96 million exceptional.

Recurring capital expenditure corresponded mainly to:

- growth projects, including a 50% increase in global production capacity of specialty polyamide powders in France, and projects to reinforce production unit competitiveness, such as the replacement of two old acrylic-acid reactors with annual capacities of 45,000 tonnes each at the Clear Lake site in the United States with a single new reactor with an annual capacity of 90,000 tonnes; and
- investments in plant maintenance, security and the environment totaling €279 million and representing 55% of recurring capital expenditure.

Recurring capital expenditure represented the equivalent of 5.8% of consolidated sales in 2019 (5.7% in 2018). This level of capital expenditure is in line with Arkema's target of controlling its capital intensity tied up and to spend, on average, around 5.5% of sales in recurring capital expenditure each year.

Exceptional capital expenditure of €96 million is mainly attributable to the project to double thiochemicals production capacity at Kerteh, Malaysia, and to investments relating to specialty polyamides in Asia.

For further details, see note C.1 to the consolidated financial statements at 31 December 2019.

Capital expenditure over the period from 2017 to 2019

Over the past three years, Arkema has spent an average of €477 million per year on recurring capital expenditure. This investment has focused on (i) facility maintenance, safety, environmental protection and information technology, accounting for approximately 63% of the total, and (ii) development projects, including investments to improve productivity of existing facilities, accounting for approximately 37%.

Over the period, 39% of total capital expenditure in property, plant and equipment and intangible assets was made in the High Performance Materials division, 37% in the Industrial Specialties division, 19% in the Coating Solutions division, and 5% on corporate projects. The breakdown of capital expenditure by region was 42% in Europe, 35% in North America, 22% in Asia and 1% in the rest of the world.

Arkema's main development capital expenditure projects started over the past three years were:

2017 2018	Bostik	New hot melt pressure sensitive adhesives (HMPSA) unit in Gujarat, India.
	Technical Polymers	25% increase in PVDF fluoropolymer production capacity at the Changshu site in China started in the first half.
	Performance Additives	New specialty molecular sieve production unit inaugurated at the Honfleur site (France).
2018	Technical Polymers	20% increase in PVDF fluoropolymer production capacity at the Calvert City site in the United States, started in the second quarter.
2019	Coating Resins and Additives	New polyester resin production unit opened at Navi Mumbai (India) in the first quarter.
	Technical 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.
	Acrylics	New 90,000 tonne acrylic acid reactor at Clear Lake (United States), started up in the second half of the year.
	Technical 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.

In Thiochemicals, new methyl mercaptan production capacity at the Kerteh site in Malaysia, will start in the first half of 2020, completing the project to double the site's capacity.

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 C.19.2 and C.23 to the consolidated financial statements at 31 December 2019 presented in section 5.3.3 of this chapter.

CASH FLOW FROM FINANCING ACTIVITIES

Cash flow from financing activities represented a net inflow of €64 million for 2019. This figure primarily includes €499 million in total net proceeds from a bond issue, €38 million net cost for the partial refinancing of hybrid bonds with a nominal amount of €400 million and the payment of a €2.50 per-share dividend for 2018, representing an aggregate payout of €190 million. The cost of share buybacks was €34 million in 2019, and interest paid on the residual €300 million of hybrid bonds issued in October 2014 amounted to €15 million.

In 2018, cash flows from financing activities represented a net outflow of €268 million, mainly including (i) a total dividend payout of €176 million, (ii) €50 million in proceeds from a share capital increase reserved for employees carried out in April 2018, (iii) €53 million in costs for share buybacks, and (iv) €33 million in interest paid on the Group's hybrid bonds issued in October 2014.

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 issue in 2014, 2019 and 2020 of perpetual hybrid bonds classified as equity, these resources amounted to some €3,600 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 26 April 2012, a bond issue for €230 million over eight years with a 3.85% interest rate and on 5 October 2012, the issue of an additional €250 million tranche, bringing the total of the bond issue to €480 million. The prospectus for this bond issue was filed with the French financial markets authority (*Autorité des marchés financiers* – AMF) under no. 12–478 and includes an interest rate adjustment clause in the event of a downgrading of the Group's credit rating to non-investment grade;
- 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; and
- on 3 December 2019, a bond issue for €500 million over ten years with a 0.75% 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 January 2020. 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. 20-022 on 28 January 2020, 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 also carried out the following financing operations:

- on 29 October 2014, a €700 million perpetual hybrid bond issue. These bonds have a first call option exercisable on 29 October 2020 and carry an annual coupon of 4.75% until that date. The coupon will then be reset every five years. The prospectus for this issue was filed with the AMF on 27 October 2014 under no. 14–574;
- on 17 June 2019, a partial buyback of the aforementioned perpetual hybrid bonds for a nominal amount of €400 million;
- on 17 June 2019, a €400 million perpetual hybrid bond issue to finance the above-mentioned buyback. 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;

- on 21 January 2020, a €300 million perpetual hybrid bond issue. 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, except for the remaining portion of the bonds issued on 29 October 2014 which are treated as debt for their total amount. 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.finance.arkema.com) in the "Financials/Debt" section.

Revolving multi-currency credit facility for €900 million

On 29 October 2014, the Company and Arkema France (the "Borrowers") and a syndicate of banks signed a revolving multi-currency credit facility in the maximum amount of €900 million which can be used in renewable drawings. This credit facility (the "Facility") was signed for an initial period of five years but has since been extended to seven years following the exercise by the banks of their option to extend it for one additional year in 2015 and then once again in 2016. 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. The Facility had not been drawn down at 31 December 2019.

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.

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 to the banks the obligations of Arkema France under the terms of the Facility, 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 2019.

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 2019	31 December 2018	Year-on-year change
Non-current assets*	6,744	5,818	+ 15.9%
Working capital	1,173	1,178	- 0.4%
Capital employed	**7,917**	**6,996**	**+ 13.2%**
Deferred tax assets	216	209	+ 3.3%
Provisions for pensions and employee benefits	525	470	+ 11.7%
Other provisions	374	409	- 8.6%
Total provisions	**899**	**879**	**+ 2.3%**
Long-term assets covering some provisions	94	79	+ 19.0%
Total provisions net of non-current assets	**805**	**800**	**+ 0.6%**
Deferred tax liabilities	334	268	+ 24.6%
Net debt	**1,631**	**1,006**	**+ 62.1%**
Shareholders' equity	**5,324**	**5,028**	**+ 5.9%**

** Excluding deferred tax and including pension assets.*

Between 31 December 2018 and 31 December 2019, non-current assets increased by €926 million, primarily due to:

- recurring capital expenditure of €511 million and exceptional capital expenditure of €96 million [1]. These investments are detailed in section 5.1.7 of this chapter. In 2019, the Group also carried out €28 million investments with no impact on net debt, primarily corresponding to investments on Crosby site following Hurricane Harvey, the cost of which was covered by insurance;
- the recognition of right-of-use assets following the application as from 1 January 2019 of IFRS 16. These assets amounted to €202 million at 31 December 2019;
- net depreciation, amortization and impairment expense totaling €650 million including (i) €54 million in amortization of right-of-use assets recognized in application of IFRS 16, (ii) €47 million in depreciation and amortization related to the revaluation of tangible and intangible assets carried out as part of the ArrMaz, Bostik, Den Braven and XL Brands purchase price allocation processes primarily, and (iii) €72 million in impairment of industrial assets;
- the impact of acquisitions amounting to €702 million, mainly attributable to the consolidation of ArrMaz, Prochimir and Lambson assets and the recognition of final goodwill of €285 million (for further details, see note C.7 "Business combinations" to the consolidated financial statements at 31 December 2019);
- reclassification of the functional polyolefins business in assets held for sale for €34 million;
- acquisition of an equity interest in Carbon® for €18 million; and
- a positive translation effect of €64 million, primarily due to the appreciation of the US dollar against the euro.

Arkema has a policy of owning its industrial facilities. By way of exception, Arkema sometimes leases offices and warehouses from third-party lessors. Beginning from 1 January 2019, the Group's lease commitments have been recognized in accordance with IFRS 16 (for further details, see notes C.1.9 and C.12 to the consolidated financial statements at 31 December 2019 presented 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 2019 (see note C.11 to the consolidated financial statements at 31 December 2019 presented in section 5.3.3 of this chapter).

Working capital was reduced by €5 million over the year, despite an unfavorable currency effect of €22 million due to the appreciation of the US dollar against the euro, and a scope effect of €82 million linked primarily to the acquisition of ArrMaz, which was more than offset by the positive effects of tight working capital management in the context of a slowdown in activity and lower raw materials costs. Consequently, at 31 December 2019, the working capital to annual sales ratio remained well under control at 13.8%, close to the 2018 ratio of 13.4%.

Therefore, between 31 December 2018 and 31 December 2019, the Group's capital employed increased by €921 million to €7,917 million. In 2019, the breakdown of capital employed by division (excluding corporate) was as follows: 62% for High Performance Materials (58% in 2018), 20% for Industrial Specialties (23% in 2018), and 18% for Coating Solutions (19% in 2018). Changes in capital employed by region were as follows: the share North America increased to 31% (26% in 2018),

(1) See note C.1 to the consolidated financial statements at 31 December 2019 presented in section 5.3.3 of this chapter.

the share of Asia and the rest of the world was stable at 22% and the share of Europe stood at 47% (52% in 2018).

Deferred tax assets amounted to €216 million at 31 December 2019, in line with 31 December 2018 (€209 million).

At 31 December 2019, gross provisions amounted to €899 million. Some of these provisions, accounting for a total of €94 million, are mainly covered by the guarantee facility granted by Total and described in note C.31.2 to the consolidated financial statements at 31 December 2019 (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. Accordingly, at 31 December 2019, provisions net of these non-current assets amounted to €805 million against €800 million at 31 December 2018.

The breakdown of net provisions by type was as follows: pension liabilities of €381 million (€322 million in 2018), other employee benefit obligations of €143 million (€145 million in 2018), environmental contingencies of €124 million (€129 million in 2018), restructuring provisions of €34 million (€36 million in 2018), and other provisions of €123 million (€168 million in 2018).

Between 31 December 2018 and 31 December 2019, net provisions for pension liabilities increased by €59 million due to a sharp reduction in discount rates that was partly offset by positive fair value adjustments to plan assets, and a limited currency effect. Provisions for other employee benefit obligations (healthcare costs, welfare costs and long-service awards) remained stable.

Long-term deferred tax liabilities amounted to €334 million at 31 December 2019, up €66 million on 31 December 2018. The increase corresponded mainly to the recognition of deferred tax liabilities as part of the ArrMaz, Prochimir and Lambson purchase price allocation processes.

Net debt amounted to €1,631 million at 31 December 2019 (against €1,006 million at 31 December 2018). The increase was mainly due to the cash flows discussed in section 5.1.7 of this chapter, the financial liabilities of newly acquired companies for €34 million and the impact of applying IFRS 16 for €154 million at 31 December 2019. At end December 2019, the Group's gearing stood at 31% (20% at end December 2018) and net debt (excluding the hybrid bonds accounted for in equity) represented 1.1x EBITDA of the year (the ratio at end 2018 was 0.7).

Shareholders' equity amounted to €5,324 million against €5,028 million at the end of 2018. The €296 million increase primarily included (i) €551 million in net income for the period, (ii) the payment of a dividend of €2.50 per share for a total payout of €190 million, (iii) €34 million for share buybacks, (iv) €27 million in coupons paid in relation to the hybrid bonds issued in 2014 accounted for under "Dividends paid", (v) the €26 million total net cost of the partial refinancing of the hybrid bonds issued in 2014, and (vi) a positive net translation effect of €36 million, primarily due to the appreciation of the US dollar against the euro. In 2019, a €45 million actuarial loss was recognized in equity in respect of provisions for post-employment benefit obligations.

5.2 TRENDS AND OUTLOOK

5.2.1 Trends

5.2.1.1 MAIN TRENDS

The growth of chemical industry and of Arkema businesses is globally in line with GDP. On the long-term, these activities are driven by emerging economies development, notably in Asia, and by opportunities derived from megatrends feeding sustainable development. Growing needs for new materials to meet the challenges represented by climate change as well as new energies development, but also recycling and circular economy present a multitude of development opportunities for the Group.

Shorter term, as of the date of this document, the Group, like all economic players, is operating in an uncertain environment, marked by geopolitical tensions and overall subdued demand, leading in particular to weak volumes in certain markets like transportation, consumer electronics and oil and gas.

Also, the Covid-19 epidemic, which emerged in January 2020 in China, has led to a number of disruptions for the Group. First of all in China, where transportation restrictions and quarantine measures for personnel have impacted the supply chain and where business slowdown affected customer demand.

Since mid-February, the spread of the epidemic has accelerated outside of China, notably in Asia, in Europe and in the United States, with more and more countries and states gradually being placed in lockdown. Confronted with this unprecedented public health crisis, the Group's priority is to protect the health and safety of its employees, while continuing to serve its customers to the best of its ability. It is difficult to predict at this stage how long the epidemic will last and how extensive it will be. However, it is having a serious impact on the global economy and is expected to disrupt supply chains, lead to site closures and weigh on customer demand all over the world.

At the date of this document, in this fast-changing and uncertain environment, it is difficult to give a precise estimate of the impact of Covid-19 on the Group's 2020 results.

In Fluorogases, 2019 was marked by large volumes of illegal HFC imports into Europe, which, as of the date of this document, have not disappeared and are expected to once again affect this business's performance in 2020.

In the MAM/PMMA chain, the normalization of market conditions observed in 2019 should continue in 2020.

Lastly, in France, the strikes linked to the proposed national pensions reforms that began in December continued into January 2020.

The Group's performance on the year 2020 should notably reflect these factors.

Over the longer term, the global environment is also characterized by continuing regulatory and legislative changes in different parts of the world. In China, the environmental policy remains strict, leading to temporary plant shutdowns and additional costs for certain players in the country. In the other regions of the world, the attention devoted to environmental subjects continuously rises. The major sustainable development trends, such as lightweight materials, the development of new energies, the use of renewable raw materials and access to drinking water will 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 and the variation in exchange rates, 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

At the date of this document, the Covid-19 epidemic continues to rapidly spread across the world, and the evolution of the situation as well as the magnitude of its impacts on the global economy are highly uncertain.

The Group is implementing all appropriate actions to address the situation, to protect its employees, and to limit consequences on operations and results, relying in particular on the Group's solid balance sheet and financing capabilities.

On February 27, upon publication of its 2019 annual results, Arkema set out its outlook for 2020 excluding the impact of the coronavirus. In this fast-changing environment, this guidance is no longer relevant.

At this point in time, the Group is not in a position to give an estimate of the impact of Covid-19 on its 2020 results. The aggregated impact on the Group's EBITDA in January and February amounted to approximately €20 million. Arkema will reassess the situation on a regular basis.

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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Département de KPMG S.A.
Tour Eqho
2, avenue Gambetta
92066 Paris-La Défense cedex
775 726 417 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie
Régionale de Versailles

ERNST & YOUNG Audit
Tour First
TSA 14444
92037 Paris-La Défense cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Statutory auditor
Member of the Compagnie
Régionale de Versailles

Arkema

Year ended December 31, 2019

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 Meetings, we have audited the accompanying consolidated financial statements of Arkema for the year ended 31 December 2019.

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 2019 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 independence rules applicable to us, for the period from January 1, 2019 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 or in the French Code of Ethics *(Code de déontologie)* for statutory auditors.

- Emphasis of matter

Without qualifying the opinion expressed above, we draw your attention to note B. " Accounting policies - Impact of the application of IFRS 16" and to notes C1.9 and C12 " IFRS 16 leases" of the consolidated financial statements which present the first application of standard IFRS 16 "Lease contract".

Justification of Assessments – Key Audit Matters

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 performs impairment tests on the recoverable value of its intangible assets and property, plant and equipment at least once per year. The methods for this testing are described in Chapter B, Note 6 to the consolidated financial statements. As at 31 December 2019, these fixed assets, including goodwill, amounted to M€ 6,418 in net value, or 58% of total assets. The valuation of these fixed assets is a key audit matter due to 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 Chapter B, Note 6 to the consolidated financial statements.
Our response	We assessed the compliance of the method applied by your Group with the accounting standards in force (IAS 36), particularly with regard to the identification of groups of assets for which the impairment tests are performed. We appraised the conditions of implementation for 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 assumptions used for these tests with those in 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 calculations, including that of the sensitivity tests; • compared, against external references, the assumption consisting in using the same discount rate for all assets tested, and measured the sensitivity of the impairment tests with other assumptions considered to be reasonably likely; • analyzed the consistency of the information and the parameters used in these tests, firstly with regard to our knowledge of the sectors in which your Group operates and, secondly, with regard to our assessment of the five-year plan and our interviews with your Group's management controllers; • analyzed the compliance of the information provided in the Notes to the consolidated financial statements with IAS 36. Among the assets tested, we paid particular attention to those assets which present their own uncertainties.

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 Notes 10 of Chapter B and in Notes 4, 21.2 and 21.3 of Chapter C to the consolidated financial statements. As at 31 December 2019, these provisions amounted to M€ 197. The liabilities and contingent liabilities are listed in Chapter C, Note 22.1 to the consolidated financial statements. We considered the valuation and 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; • familiarizing ourselves with 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 character of contingent liabilities; • comparing the information provided in the Notes to the consolidated financial statements with that required by IFRS. Further, among the environmental risks listed by the Group in contingent liabilities, we paid particular attention to the arguments or document 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 December 31, 2019, as presented in Chapter C, Note 6.2 to the consolidated financial statements, you Group had recognized an amount of M€ 216 in deferred tax assets in the consolidated balance sheet for the global scope. An amount of M€ 5 was recognized in profit for the financial year. As at 31 December 2019, the overall amount of indefinite tax loss carry-forwards stands at M€ 1,234, which mostly originates from the French tax consolidation, and is presented in Chapter C, Note 6.4 to the consolidated financial statements. As presented in Chapter C, Note 6.1 to the consolidated financial statements, almost the entirety of the deferred tax assets recognized for the financial year originate from your Group's ability to generate taxable profits in France. As stated in Chapter B, Note 13.2 to the consolidated financial statements, the group's ability to realize the future tax savings reflected by these deferred tax assets is assessed by management at the close of each period by taking account of 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 degree of judgment used by management to assess the justification for recording the related deferred tax assets.
Our response	Our audit approach consisted in going over 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 familiarized ourselves with 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 familiarized ourselves with and reviewed the forecasting process by: • familiarizing ourselves with the procedure for developing and approving the last taxable income forecast used for estimates; • familiarizing ourselves with 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 making up 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 strategic plan.

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 pertaining to the Group presented 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 provided for by Article L. 225-102-1 of the French Commercial Code (Code de commerce) is included in the information pertaining to the Group presented in the management report, it being specified that, in accordance with the provisions of article L. 823-10 of said Code, we have verified neither the fair presentation nor the consistency with the financial statements of the information contained in this statement, which has to be subject to a report by an independent third party.

Report on Other Legal and Regulatory Requirements

Appointment of the Statutory Auditors

We were appointed as statutory auditors of Arkema by your Annual General Meeting held on June 23, 2005 for KPMG Audit, a department of KPMG S.A., and on 10 May 2006 for ERNST & YOUNG Audit.

As at December 31, 2019, KPMG Audit, department of KPMG S.A., was in the fifteenth year of total uninterrupted engagement, including fourteen years since the securities of the Company were admitted to trading on a regulated market, and ERNST & YOUNG Audit was in the fourteenth year.

Responsibilities of Management and Those Charged with Governance for the Consolidated Financial Statements

Il appartient à la direction d'établir des comptes consolidés présentant une image fidèle conformément au référentiel IFRS tel qu'adopté 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 risks 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 taken 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, 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 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 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, February 26, 2020

The Statutory Auditors
French original signed by

KPMG Audit
Département of KPMG S.A.
Bertrand Desbarrières, Partner
Eric Dupré, Partner

ERNST & YOUNG Audit
Denis Thibon, Partner

5.3.2 Consolidated financial statements at 31 December 2019

CONSOLIDATED INCOME STATEMENT

(In millions of euros)	Notes	2019	2018
Sales	(C2&C3)	**8,738**	**8,816**
Operating expenses		(6,837)	(6,841)
Research and development expenses		(249)	(237)
Selling and administrative expenses		(773)	(747)
Other income and expenses	(C4)	(73)	(63)
Operating income	(C2)	**806**	**928**
Equity in income of affiliates	(C13)	(2)	2
Financial result	(C5)	(116)	(101)
Income taxes	(C6)	(137)	(114)
Net income		**551**	**715**
Of which: non-controlling interests		8	8
Net income - Group share		**543**	**707**
Earnings per share (in euros)	(C9)	*6.45*	*8.84*
Diluted earnings per share (in euros)	(C9)	*6.41*	*8.82*

The accounting policies applied in preparing the consolidated financial statements at 31 December 2019 are identical to those used in the consolidated financial statements at 31 December 2018, except for the policies described at the start of note B “Accounting policies”.

The Group applied IFRS 16 for the first time at 1 January 2019, under the modified retrospective approach which does not require restatement of the comparative figures for 2018.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

(In millions of euros)	Notes	2019	2018
Net income		**551**	**715**
Hedging adjustments		2	1
Other items		(1)	(7)
Deferred taxes on hedging adjustments and other items		1	-
Change in translation adjustments	(C19.6)	36	41
Other recyclable comprehensive income		**38**	**35**
Actuarial gains and losses	(C20.2)	(45)	(3)
Deferred taxes on actuarial gains and losses		7	(1)
Other non-recyclable comprehensive income		**(38)**	**(4)**
TOTAL INCOME AND EXPENSES RECOGNIZED DIRECTLY THROUGH EQUITY		**0**	**31**
Comprehensive income		**551**	**746**
Of which: non-controlling interests		8	9
Comprehensive income – Group share		**543**	**737**

The Group applied IFRS 16 for the first time at 1 January 2019, under the modified retrospective approach which does not require restatement of the comparative figures for 2018.

CONSOLIDATED BALANCE SHEET

(In millions of euros)	Notes	31 December 2019	31 December 2018
ASSETS			
Intangible assets, net	(C10)	3,392	2,877
Property, plant and equipment, net	(C11 & 12)	3,026	2,627
Investments in equity affiliates	(C13)	33	38
Other investments	(C14)	53	33
Deferred tax assets	(C6)	216	209
Other non-current assets	(C15)	240	243
TOTAL NON-CURRENT ASSETS		**6,960**	**6,027**
Inventories	(C16)	1,014	1,136
Accounts receivable	(C17)	1,204	1,247
Other receivables and prepaid expenses	(C17)	184	173
Income taxes recoverable	(C6)	113	80
Other current financial assets	(C25)	17	7
Cash and cash equivalents	(C18)	1,407	1,441
Assets held for sale	(C8)	78	-
TOTAL CURRENT ASSETS		**4,017**	**4,084**
TOTAL ASSETS		**10,977**	**10,111**
LIABILITIES AND SHAREHOLDERS' EQUITY			
Share capital	(C19)	766	766
Paid-in surplus and retained earnings		4,340	4,099
Treasury shares		(11)	(28)
Translation adjustments	(C19.6)	178	142
SHAREHOLDERS' EQUITY – GROUP SHARE		**5,273**	**4,979**
Non-controlling interests		51	49
TOTAL SHAREHOLDERS' EQUITY		**5,324**	**5,028**
Deferred tax liabilities	(C6)	334	268
Provisions for pensions and other employee benefits	(C20)	525	470
Other provisions and non-current liabilities	(C21)	391	433
Non-current debt	(C23)	2,377	2,246
TOTAL NON-CURRENT LIABILITIES		**3,627**	**3,417**
Accounts payable	(C26)	905	1,037
Other creditors and accrued liabilities	(C26)	366	343
Income taxes payable	(C6)	80	78
Other current financial liabilities	(C25)	8	7
Current debt	(C23)	661	201
Liabilities associated with assets held for sale	(C8)	6	-
TOTAL CURRENT LIABILITIES		**2,026**	**1,666**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**10,977**	**10,111**

The Group applied IFRS 16 for the first time at 1 January 2019, under the modified retrospective approach which does not require restatement of the comparative figures for 2018.

CONSOLIDATED CASH FLOW STATEMENT

(In millions of euros)	Notes	2019	2018
Net income		551	715
Depreciation, amortization and impairment of assets		650	508
Other provisions and deferred taxes		(17)	(81)
(Gains)/losses on sales of long-term assets		(6)	(3)
Undistributed affiliate equity earnings		5	(1)
Change in working capital	(C30)	92	(130)
Other changes		25	21
CASH FLOW FROM OPERATING ACTIVITIES		**1,300**	**1,029**
Intangible assets and property, plant, and equipment additions	(C1.3)	(635)	(591)
Change in fixed asset payables		(26)	53
Acquisitions of operations, net of cash acquired	(C7)	(714)	(201)
Increase in long-term loans		(55)	(59)
Total expenditures		**(1,430)**	**(798)**
Proceeds from sale of intangible assets and property, plant, and equipment		13	4
Repayment of long-term loans		55	51
Total divestitures		**68**	**55**
CASH FLOW FROM INVESTING ACTIVITIES		**(1,362)**	**(743)**
Issuance (repayment) of shares and paid-in surplus	(C19.1)	3	54
Purchase of treasury shares	(C19.3)	(34)	(53)
Issuance of hybrid bonds	(C19.2)	399	-
Redemption of hybrid bonds	(C19.2)	(425)	-
Dividends paid to parent company shareholders	(C19.4)	(190)	(176)
Interest paid to bearers of subordinated perpetual notes	(C19.2)	(27)	(33)
Dividends paid to non-controlling interests		(5)	(4)
Increase in long-term debt		502	1
Decrease in long-term debt		(554)	(18)
Increase / decrease in short-term debt		395	(39)
CASH FLOW FROM FINANCING ACTIVITIES		**64**	**(268)**
Net increase/(decrease) in cash and cash equivalents		2	18
Effect of exchange rates and changes in scope		(36)	(15)
Cash and cash equivalents at beginning of period		1,441	1,438
CASH AND CASH EQUIVALENTS AT END OF PERIOD	(C18)	**1,407**	**1,441**

The Group applied IFRS 16 for the first time at 1 January 2019, under the modified retrospective approach which does not require restatement of the comparative figures for 2018.

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 2019	**766**	**1,263**	**689**	**2,147**	**142**	**(28)**	**4,979**	**49**	**5,028**
Cash dividend	-	-	-	(217)	-	-	(217)	(5)	(222)
Issuance of share capital	0	3	-	-	-	-	3	-	3
Purchase of treasury shares	-	-	-	-	-	(34)	(34)	-	(34)
Grants of treasury shares to employees	-	-	-	(51)	-	51	-	-	-
Share-based payments	-	-	-	25	-	-	25	-	25
Issuance of hybrid bonds*	-	-	399		-	-	399	-	399
Redemption of hybrid bonds*	-	-	(394)	(31)	-	-	(425)	-	(425)
Other	-	-	-	-	-	-	-	(1)	(1)
Transactions with shareholders	**0**	**3**	**5**	**(274)**	**-**	**17**	**(249)**	**(6)**	**(255)**
Net income	-	-	-	543	-	-	543	8	551
Total income and expenses recognized directly through equity	-	-	-	(36)	36	-	0	-	0
Comprehensive income	**-**	**-**	**-**	**507**	**36**	**-**	**543**	**8**	**551**
At 31 December 2019	**766**	**1,266**	**694**	**2,380**	**178**	**(11)**	**5,273**	**51**	**5,324**

* *See note C19.2 "Hybrid bonds"*

(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 2018	**759**	**1,216**	**689**	**1,670**	**101**	**(2)**	**4,433**	**41**	**4,474**
Cash dividend	-	-	-	(209)	-	-	(209)	(4)	(213)
Issuance of share capital	7	47	-	-	-	-	54	-	54
Purchase of treasury shares	-	-	-	-	-	(53)	(53)	-	(53)
Grants of treasury shares to employees	-	-	-	(27)	-	27	-	-	-
Share-based payments	-	-	-	20	-	-	20	-	20
Other	-	-	-	(3)	-	-	(3)	3	-
Transactions with shareholders	**7**	**47**	**-**	**(219)**	**-**	**(26)**	**(191)**	**(1)**	**(192)**
Net income	-	-	-	706	-	-	706	9	715
Total income and expenses recognized directly through equity	-	-	-	(10)	41	-	31	-	31
Comprehensive income	**-**	**-**	**-**	**696**	**41**	**-**	**737**	**9**	**746**
At 31 December 2018	**766**	**1,263**	**689**	**2,147**	**142**	**(28)**	**4,979**	**49**	**5,028**

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A. Highlights

1. PORTFOLIO MANAGEMENT

In 2019, Arkema made several acquisitions in the High Performance Materials division.

In the Performance Additives Business Line, Arkema acquired:

- ArrMaz on 1 July, a global leader in specialty surfactants for crop nutrition, mining and infrastructure markets, with sales of US$290 million and an EBITDA margin of 18%. The transaction was based on an enterprise value of US$570 million;
- Lambson on 1 October, a company that specializes in photoinitiators for photocure resins, with sales of approximately €45 million.

In adhesives, on 1 October 2019 Arkema acquired Prochimir, a company specialized in high-performance thermobonding adhesive films with sales of around €30 million.

In acrylics, Arkema finalized the acquisition of its partner Jurong Chemical's interest in Taixing Sunke Chemicals, their joint venture that produces acrylic monomers in China. Consequently the Group now holds all the shares of Taixing Sunke Chemicals.

The impacts of these operations are detailed in note C7 "Business combinations".

In June 2019, Arkema also announced an investment of US$20 million in Carbon®, the world's leading digital manufacturing company. The impacts of this operation are detailed in note C14 "Other investments".

Finally, in the PMMA Business Line, on 14 October 2019 Arkema announced the planned divestment of its Functional Polyolefins business, which represents sales of approximately €250 million. The offer received is based on an enterprise value of €335 million. This operation still requires the approval of the relevant antitrust authorities. The sale is expected to be finalized during the second quarter of 2020. The impacts of this operation are detailed in note C8 "Assets held for sale".

2. OTHER HIGHLIGHTS

Arkema took advantage of favourable market conditions to partially refinance its existing hybrid bonds through a combination of a new bond issue and a bond tender offer. On 17 June 2019 Arkema thus issued a €400 million perpetual hybrid bond. These bonds carry a first-call redemption option that Arkema may exercise at any time between 17 June 2024 and 17 September 2024, and have an annual coupon of 2.75% until the first call date, subject to early redemption. Arkema also accepted the tender of perpetual hybrid bonds amounting to €400 million at a tender price of 106.137%. These bonds were issued on 29 October 2014 in the total amount of €700 million, with a first call date on 29 October 2020 and an annual coupon of 4.75% until that date. For more details see note C19.2 "Hybrid bonds".

On 3 December 2019, Arkema issued a €500 million bond with 10-year maturity and an annual coupon of 0.75%. This operation enabled the Group to refinance its €480 million outstanding senior notes with a 3.85% coupon maturing in April 2020, taking advantage of favourable market conditions. For more details see note C23 "Debt".

B. Accounting policies

Arkema 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 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 consolidated financial statements at 31 December 2019 were prepared under the responsibility of the Chairman and CEO of Arkema and were approved by the Board of Directors of Arkema on 26 February 2020. They will be submitted to the approval of the shareholders' general meeting of 19 May 2020.

The consolidated financial statements at 31 December 2019 were prepared in accordance with the international accounting standards issued by the IASB (International Accounting Standards Board) as released at 31 December 2019 and the international standards endorsed by the European Union at 31 December 2019.

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 2019 are identical to those used in the consolidated financial statements at 31 December 2018, 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 2019 (and which had not been applied early by the Group), namely:

Amendments to IAS 19	Plan amendment, curtailment or settlement	Adopted by the European Union on 14 March 2019
Amendments to IAS 28	Long-term interests in associates and joint ventures	Adopted by the European Union on 11 February 2019
Amendments to IFRS 9	Prepayment features with negative compensation	Adopted by the European Union on 26 March 2018
IFRS 16	Leases	Adopted by the European Union on 9 November 2017
IFRIC 23 interpretations	Uncertainty over income tax treatments (IAS12)	Adopted by the European Union on 24 October 2018
Annual improvements to IFRS – 2015-2017 cycle		Adopted by the European Union on 15 March 2019
Conceptual framework	Amendments to references to the conceptual framework	Adopted by the European Union on 10 December 2019

Application of these amendments and interpretations had no significant impact on the financial statements at 31 December 2019.

IMPACT OF THE APPLICATION OF IFRS 16

The impact of IFRS 16 is described in notes C1.9 "Impact of IFRS 16" and C12 "IFRS 16 leases".

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 amortization 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. Instead of the lease payments previously presented in "cash flow from operating activities", 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 applies this standard 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 amortized on a straight-line basis over the term of the lease.

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 issued by the *Autorité des normes comptables* to real estate property leases in France, taking as the maximum term the longest term, i.e. 9 years. The lease obligation at 1 January 2019 is 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.

For the first-time application of IFRS16, a reconciliation with off-balance sheet commitments is presented below:

(in millions of euros)	**1 January 2019**
Lease obligations	126
Service component included in leases	(6)
Leases outside the scope of IFRS 16 at 1 January 2019	(16)
Materiality threshold effect on off-balance sheet commitments	76
IFRS16 LEASE OBLIGATION	**180**
Discount effect	(22)
TOTAL IFRS 16 DEBT	**158**

The standards, amendments and interpretations published by the IASB and the IFRS IC (IFRS Interpretations Committee) which were not yet mandatory for accounting periods beginning on or after 1 January 2019 and are not applied early by the Group, are:

Amendments to IAS 1 and IAS 8	Definition of material	Adopted by the European Union on 6 December 2019
Amendments to IFRS 3	Definition of a business	Not adopted by the European Union at 31 December 2019
Amendments to IFRS 9, IAS 39 and IFRS 7	Interest rate benchmark reform	Not adopted by the European Union at 31 December 2019
IFRS 17	Insurance contracts	Not adopted by the European Union at 31 December 2019

The Group does not expect application of these amendments and this standard to have a significant impact.

Preparation of 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. 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 principal accounting policies applied by the Group are presented below.

1. CONSOLIDATION PRINCIPLES

All material transactions between consolidated companies, and all intercompany profits, have been eliminated.

1.1 Control and joint 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.

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.

1.2 Full consolidation

Companies controlled directly or indirectly by the Group are fully consolidated.

1.3 Joint arrangements

A joint arrangement is an operation over which two or more parties have joint 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.

1.4 Investments in 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.

1.5 Other non-controlling interests

Shares owned in companies which do not meet the criteria set out in 1.1 to 1.4 are included in "Other investments" and recognized in accordance with IFRS 9 (see note B7.1, "Other investments").

2. FOREIGN CURRENCY TRANSLATION

2.1 Translation of financial statements of foreign companies

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.

2.2 Transactions in foreign currencies

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.

3. GOODWILL AND BUSINESS COMBINATIONS

3.1 Operations after 1 January 2010

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 favourable terms, and direct acquisition expenses, are recognized immediately in the income statement under "Other income and expenses" (see note B12 "Income statement items").

The Group has a maximum of 12 months to finalize determination of the acquisition price and goodwill.

3.2 Operations prior to 31 December 2009

The Group applied IFRS 3. The main points affected by IFRS 3 (revised) are the following:

- goodwill was calculated as the difference between the purchase price, as increased by related costs, of shares of consolidated companies and the Group share of the fair value of their net assets and contingent liabilities at the acquisition date;
- for any subsequent acquisition in the same entity, the difference between the acquisition cost and book value of non-controlling interests was included in goodwill;

- price adjustments were included in the cost of the business combination if the adjustment was probable and could be measured reliably; and
- contingent liabilities arising from potential obligations were recognized.

4. INTANGIBLE ASSETS

Intangible assets principally include goodwill, patents and technologies, trademarks, software and IT licences, capitalized contracts, customer relations, and capitalized research expenses. Intangible assets are recognized in the balance sheet at their acquisition or production cost, less any accumulated amortization and impairment losses recognized.

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 according to which the entity envisages using the future economic benefits related to the asset.

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;
- licences: term of the contract;
- capitalized contracts: term of the contract;
- customer relations: average useful life;
- capitalized research expenses: useful life of the project;
- REACH registration fees: protection period of study data.

4.1 Goodwill

Goodwill is not amortized. It is 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 paragraph B6 “Impairment of long-lived assets”.

Goodwill is measured and recognized as described in note B3 “Goodwill and business combinations”.

4.2 Trademarks

Trademarks are valued by the relief-from-royalty method. Trademarks with indefinite useful lives are subject to impairment tests as soon as any indicators of potential impairment are identified. Impairment tests are performed at least annually.

4.3 Software and IT licences

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.

4.4 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.

4.5 REACH

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 note B4.4 “Capitalized Research and development costs”).

5. PROPERTY, PLANT & EQUIPMENT

5.1 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 & 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 tangible assets 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.

In compliance with IFRS 16 "Leases", 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 amortized on a straight-line basis over the term of the lease.

5.2 Depreciation

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 estimate are accounted for on a prospective basis.

6. IMPAIRMENT OF LONG-LIVED ASSETS

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 5-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 net of costs of disposal.

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. For the Group, the CGUs are the activities as presented in note C2 "Information by business division". 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 5 years or, when the asset is to be sold, by comparison with its market value. In 2019, the terminal value was determined on the basis of a perpetuity annual growth rate of 1.5% (the same rate as used in 2018) 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 2019 (the same rate as used in 2018). 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 2019 evaluating the impact of reasonable changes in the basic assumptions, in particular the impact of a change of plus or minus 1 point in the discount rate, plus or minus 0.5 point in the perpetuity growth rate, and plus or minus 10 points in EBITDAs, have confirmed the carrying amounts of the different CGUs.

7. 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 as part of other current assets and liabilities.

7.1 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.

7.2 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.

7.3 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.

7.4 Cash and cash equivalents

Cash and cash equivalents are liquid assets and assets which can be converted into cash within less than 3 months that are subject to a negligible risk of change in value.

7.5 Non-current and current debt (including accounts payable)

Non-current and current debt (other than derivatives) is recognized at amortized cost.

7.6 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 "Income and expense 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 expense recognized directly through equity" caption.

8. 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 products inventories includes raw material and direct labour 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.

9. PROVISIONS FOR PENSIONS AND OTHER LONG-TERM 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.

9.1 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.

9.2 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 cost method is required, actuarial gains and losses and all past service costs are recognized immediately in the provision, with a corresponding entry being recognized to the income statement.

The net expense related to pension benefit 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.

10. 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 C22 "Liabilities and contingent liabilities").

Provisions for protection of the environment, 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 other non-current liabilities" caption.

11. GREENHOUSE GAS EMISSIONS ALLOWANCES (EUAS) AND CERTIFIED EMISSION REDUCTIONS (CERS)

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 a 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 IAS 39 because of the "own use" exception.

The CERs produced by the Group in the context of projects to reduce its greenhouse gas emissions are recognized in inventories, and sales are recorded at their net-of-tax value on delivery of the CERs.

12. INCOME STATEMENT ITEMS

12.1 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.

12.2 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.

12.3 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 the research tax credit as a deduction from operating expenses.

12.4 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 favourable terms and the valuation difference on inventories between their fair value at the acquisition date and their production cost;
- 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 claims and litigation whose nature is not directly related to ordinary operations.

12.5 Recurring operating income

The recurring operating income is calculated as all income and expenses not relating to the financial result, equity affiliates or income taxes.

12.6 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 in circulation 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.

13. INCOME TAXES

13.1 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 results in determining the tax charge for the entire French tax group. The overall tax charge is payable by Arkema, as the parent company of the tax group. Tax consolidation regimes also exist in countries outside France.

The French Finance Act for 2010 introduced the local tax named CET *(Contribution EconomiqueTerritoriale)*. One of its components is the contribution based on companies' value added (*Cotisation sur la Valeur Ajoutée des Entreprises* – CVAE). After analyzing the methods for determining this contribution in the light of the positions of the IFRS IC and France's Accounting Standards Authority ANC *(Autorité des normes comptables)* in late 2009, the Group considered that in this specific case, the contribution meets the requirements to be treated as a current tax under IAS 12. The CVAE has therefore been classified under "Income taxes" since 1 January 2010.

13.2 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 carry forwards 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.

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.

14. CASH FLOW STATEMENT

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). In consequence, cash flows cannot be recalculated on the basis of the amounts shown in the balance sheet.

15. SHARE-BASED PAYMENTS

In application of IFRS 2 "Share-based payments", the stock options and 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 stock options and free shares.

The fair value of the options is calculated using the Black & Scholes model, adjusted, in the case of the last plans granted in 2011, for an illiquidity cost due to the non-transferability of instruments; the expense is recognized in personnel expenses on a straight-line basis over the period from the date of grant to the date from which the options can be exercised.

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 period of non-transferability. The expense recognized also reflects the probability that the presence condition and performance criteria will be fulfilled. This expense is included in personnel expenses on a straight-line basis over the vesting period of the rights.

c. Notes to the consolidated financial statement

NOTE 1 | Alternative performance indicators

To monitor and analyse the financial performance of the Group and its activities, the Group management uses alternative performance indicators. These are financial indicators that are not defined by the IFRS. This note presents a reconciliation of these indicators and the aggregates from the consolidated financial statements under IFRS.

Note C2 "Information by business division" partly refers to these alternative performance indicators.

1.1 RECURRING OPERATING INCOME (REBIT) AND EBITDA

(In millions of euros)	Notes	2019	2018
OPERATING INCOME		**806**	**928**
– Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		(47)	(35)
– Other income and expenses	(C4)	(73)	(63)
RECURRING OPERATING INCOME (REBIT)		**926**	**1,026**
– Recurring depreciation and amortization of tangible and intangible assets		(531)	(448)
EBITDA		**1,457**	**1,474**

Details of depreciation and amortization of tangible and intangible assets

(In millions of euros)	Notes	2019	2018
Depreciation and amortization of tangible and intangible assets	(C10.2, C11 & C12)	**(650)**	**(508)**
Of which: Recurring depreciation and amortization of tangible and intangible assets		(531)	(448)
Of which: Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		(47)	(35)
Of which: Impairment included in other income and expenses	(C4)	(72)	(25)

1.2 ADJUSTED NET INCOME AND ADJUSTED EARNINGS PER SHARE

(In millions of euros)	Notes	2019	2018
NET INCOME – GROUP SHARE		**543**	**707**
– Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		(47)	(35)
– Other income and expenses	(C4)	(73)	(63)
– Other income and expenses attributable to non-controlling interests		-	-
– Taxes on depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses		14	8
– Taxes on other income and expenses		24	10
– One-time tax effects*		-	62
ADJUSTED NET INCOME		**625**	**725**
Weighted average number of ordinary shares		76,175,660	76,240,868
Weighted average number of potential ordinary shares	(C9)	76,616,360	76,377,502
ADJUSTED EARNINGS PER SHARE (IN EUROS)		**8.20**	**9.51**
DILUTED ADJUSTED EARNINGS PER SHARE (IN EUROS)		**8.16**	**9.49**

* *One-time tax effects for 2018 correspond to partial recognition of tax losses and deferred taxes under the French tax consolidation regime (€59 million).*

1.3 RECURRING CAPITAL EXPENDITURE

(In millions of euros)	2019	2018
INTANGIBLE ASSETS AND PROPERTY, PLANT, AND EQUIPMENT ADDITIONS	**635**	**591**
– Exceptional capital expenditure	96	61
– Investments relating to portfolio management operations	-	4
– Capital expenditure with no impact on net debt	28	26
RECURRING CAPITAL EXPENDITURE	**511**	**500**

Exceptional capital expenditure corresponds to a very limited number of capital expenditure items that the Group presents separately in its financial reporting due to their unusual size or nature (major development projects, accidents or damage, exceptional restructuring operations). In 2018 and 2019, they mainly concern capital expenditure in thiochemicals in Malaysia and specialty polyamides in Asia.

Investments relating to portfolio management operations reflect the impact of acquisition operations.

In 2019, capital expenditure with no impact on net debt mainly corresponds to the investments in the Crosby site after Hurricane Harvey, which are covered by insurance claims. In 2018 it mainly corresponds to capital expenditure for a study concerning a project for which the partner financing was booked as a change in fixed asset payables.

1.4 FREE CASH FLOW AND EBITDA TO CASH CONVERSION RATE

(In millions of euros)	2019	2018
Cash flow from operating activities	1,300	1,029
+ Cash flow from net investments	(1,362)	(743)
NET CASH FLOW	**(62)**	**286**
– Net cash flow from portfolio management operations	(729)	(213)
FREE CASH FLOW	**667**	**499**

The net cash flow from portfolio management operations corresponds to the impact of acquisition and divestment operations described in note A1, "Highlights".

The EBITDA to cash conversion rate corresponds to the free cash flow excluding exceptional capital expenditure as a percentage of EBITDA.

(In millions of euros)	2019	2018
Free cash flow	667	499
– Exceptional capital expenditure	(96)	(61)
= FREE CASH FLOW EXCLUDING EXCEPTIONAL CAPITAL EXPENDITURE	**763**	**560**
EBITDA	1,457	1,474
EBITDA TO CASH CONVERSION RATE	**52.4%**	**38.0%**

1.5 WORKING CAPITAL

(In millions of euros)	Notes	2019	2018
Inventories	(C16)	1,014	1,136
+ Accounts receivable	(C17)	1,204	1,247
+ Other receivables including income taxes	(C17 & C6)	297	253
+ Other current financial assets	(C25)	17	7
– Accounts payable	(C26)	905	1,037
– Other liabilities including income taxes	(C26 & C6)	446	421
– Other current financial liabilities	(C25)	8	7
WORKING CAPITAL		**1,173**	**1,178**

1.6 CAPITAL EMPLOYED

(In millions of euros)		2019	2018
Goodwill, net	(C10)	1,917	1,618
+ Intangible assets (excluding goodwill) and property, plant and equipment, net	(C10, C11 & C12)	4,501	3,886
+ Investments in equity affiliates	(C13)	33	38
+ Other investments and Other non-current assets	(C14 & C15)	293	276
+ Working capital		1,173	1,178
CAPITAL EMPLOYED		**7,917**	**6,996**

1.7 NET DEBT

(In millions of euros)	Notes	2019	2018
Non-current debt	(C23)	2,377	2,246
+ Current debt	(C23)	661	201
– Cash and cash equivalents	(C18)	1,407	1,441
NET DEBT		**1,631**	**1,006**

1.8 RETURN ON AVERAGE CAPITAL EMPLOYED (ROACE)

The return on average capital employed (ROACE) corresponds to the recurring operating income (REBIT) for the current year as a percentage of the average capital employed at the end of the current and prior year.

(In millions of euros)	2019	2018
Recurring operating income (REBIT)	926	1,026
Average capital employed	7,457	6,775
ROACE	**12.4%**	**15.1%**

1.9 IMPACT OF IFRS 16

As of 1 January 2019 Arkema applies IFRS 16 "Leases". The impacts of this standard on the main aggregates and alternative performance indicators used by the Group are described below. The 2018 figures have not been restated.

INCOME STATEMENT

(In millions of euros)	2019
EBITDA	56
Recurring depreciation and amortization	(54)
Recurring operating income (REBIT)	2
Operating income	2
Financial result	(4)
Adjusted net income	(2)
Net income	(2)

CASH FLOW STATEMENT

(In millions of euros)	2019
Cash flow from operating activities	52
FREE CASH FLOW	**52**
Cash flow from financing activities	(52)

BALANCE SHEET

(In millions of euros)	**31 December 2019**
Property, plant and equipment	152
TOTAL ASSETS	**152**
Non-current debt	110
Current debt	44
NET DEBT	**154**
Net income	(2)
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY	**152**

INFORMATION BY BUSINESS DIVISION (2019)

(In millions of euros)	High Performance Materials	Industrial Specialties	Coating Solutions	Corporate
EBITDA	18.5	24	11.5	2
Recurring depreciation and amortization of tangible and intangible assets	(18)	(23)	(11)	(2)
RECURRING OPERATING INCOME (REBIT)	**0.5**	**1**	**0.5**	**0**

NOTE 2 Information by business division

As required by IFRS 8, "Operating Segments", segment information for the Group is presented in accordance with the business divisions identified in the internal reports that are regularly reviewed by general management in order to allocate resources and assess financial performance.

The Group has three business divisions: High Performance Materials, Industrial Specialties and Coating Solutions. Three members of the Executive Committee supervise these divisions; they report directly to the Chairman and CEO, the Group's chief operating decision-maker as defined by IFRS 8, and are in regular contact with him for the purpose of discussing their sector's operating activity, financial results, forecasts and plans.

The content of the business divisions is as follows:

- High Performance Materials includes the following Business Lines [1]:
  - Bostik,
  - Technical Polymers, comprising specialty polyamides and PVDF,
  - Performance Additives, comprising photocure resins (Sartomer), organic peroxides and the adsorption activity,

  High Performance Materials provide innovative solutions with high value added, used in varied sectors such as transport, oil extraction, renewable energies (photovoltaics, lithium-ion batteries), consumer goods (beauty products, sports equipment, packaging, etc), electronics, construction, coatings and water treatment;
- Industrial Specialties groups the following Business Lines:
  - Thiochemicals,
  - Fluorogases,
  - PMMA,
  - Hydrogen Peroxide.

  These integrated industrial niche markets on which the Arkema Group is among the world leaders concern products used in several industrial sectors such as production of cold (refrigeration and air conditioning), petrochemicals, refining, paper pulp, animal nutrition, electronics and the automotive industry;
- Coating Solutions comprises the following Business Lines:
  - Acrylics,
  - Coating Resins and Additives, comprising coating resins activities and Coatex rheology additives.

  This division offers solutions for decorative paints, industrial coatings, adhesives and high-growth acrylic applications

(1) Business Lines are activities or groups of activities.

(superabsorbents for disposable nappies, water treatment, oil and gas extraction).

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 division.

Operating income and assets are allocated between business divisions prior to inter-division adjustments. Sales between divisions take place at market prices.

2019 *(In millions of euros)*	**High Performance Materials**	**Industrial Specialties**	**Coating Solutions**	**Corporate**	**Total**
Non-Group sales	**4,065**	**2,514**	**2,133**	**26**	**8,738**
Inter-division sales	10	139	73		
Total sales	**4,075**	**2,653**	**2,206**	**26**	
EBITDA*	**654**	**621**	**264**	**(82)**	**1,457**
Recurring depreciation and amortization*	(186)	(215)	(122)	(8)	(531)
Recurring operating income (REBIT)*	**468**	**406**	**142**	**(90)**	**926**
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(44)	-	(3)	-	(47)
Other income and expenses	(51)	(15)	(1)	(6)	(73)
Operating income	**373**	**391**	**138**	**(96)**	**806**
Equity in income of affiliates	(0)	(2)	-	-	(2)
Intangible assets and property, plant, and equipment additions	271	226	119	19	635
Of which: recurring capital expenditure*	205	169	118	19	511
Employees at year end	**11,404**	**5,660**	**3,117**	**128**	**20,309**
Goodwill, net	1,527	90	292	8	1,917
Intangible assets other than goodwill, and property, plant and equipment, net	2,397	1,182	844	78	4,501
Investments in equity affiliates	15	18	-	-	33
Other investments and other non-current assets	86	55	22	130	293
Working capital*	736	184	225	28	1,173
Capital employed*	**4,761**	**1,529**	**1,383**	**244**	**7,917**
Provisions and other non-current liabilities	(338)	(263)	(70)	(245)	(916)

* *See note C1 "Alternative performance indicators"*

2018 *(In millions of euros)*	High Performance Materials	Industrial Specialties	Coating Solutions	Corporate	Total
Non-Group sales	**3,970**	**2,699**	**2,120**	**27**	**8,816**
Inter-division sales	10	159	75	-	
Total sales	**3,980**	**2,858**	**2,195**	**27**	
EBITDA*	**640**	**675**	**243**	**(84)**	**1,474**
Recurring depreciation and amortization*	(159)	(178)	(103)	(8)	(448)
Recurring operating income (REBIT)*	**481**	**497**	**140**	**(92)**	**1,026**
Depreciation and amortization related to the revaluation of tangible and intangible assets as part of the allocation of the purchase price of businesses	(35)	-	-	-	(35)
Other income and expenses	(41)	(24)	(4)	6	(63)
Operating income	**405**	**473**	**136**	**(86)**	**928**
Equity in income of affiliates	1	1	-	-	2
Intangible assets and property, plant, and equipment additions	199	238	117	37	591
Of which: recurring capital expenditure*	168	178	117	37	500
Employees at year end	**10,920**	**5,681**	**3,133**	**128**	**19,862**
Goodwill, net	1,224	90	297	7	1,618
Intangible assets other *than* goodwill, and property, plant and equipment, net	1,985	1,152	676	73	3,886
Investments in equity affiliates	16	22	-	-	38
Other investments and other non-current assets	72	62	23	119	276
Working capital*	667	232	277	2	1,178
Capital employed*	**3,964**	**1,558**	**1,273**	**201**	**6,996**
Provisions and other non-current liabilities	(310)	(297)	(73)	(223)	(903)

* *See C1 "Alternative performance indicators"*

Breakdown of non-Group sales by Business Line:

	2019	2018
High Performance Materials	**47%**	**45%**
Technical Polymers	10%	10%
Performance Additives	13%	12%
Bostik	24%	23%
Industrial Specialties	**29%**	**31%**
Thiochemicals	8%	8%
Fluorogases	8%	9%
PMMA	9%	10%
Hydrogen Peroxide	4%	4%
Coating Solutions	**24%**	**24%**
Acrylics	11%	11%
Coating Resins and Additives	13%	13%

NOTE 3 Information by geographical area

Non-Group sales are presented on the basis of the geographical location of customers. Capital employed, intangible assets, property, plant, and equipment additions, and employees at year end are presented on the basis of the location of the assets.

2019 *(In millions of euros)*	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Non-Group sales	675	2,455	2,803	2,425	380	8,738
Capital employed	2,611	1,117	2,468	1,661	60	7,917
Intangible assets and property, plant, and equipment additions	218	46	192	175	4	635
Employees at year end	7,309	3,615	4,074	4,665	646	20,309

2018 *(In millions of euros)*	France	Rest of Europe	NAFTA*	Asia	Rest of the world	Total
Non-Group sales	732	2,612	2,727	2,342	403	8,816
Capital employed	2,598	1,034	1,843	1,476	45	6,996
Intangible assets and property, plant, and equipment additions	202	45	215	127	2	591
Employees at year end	7,193	3,632	3,880	4,581	576	19,862

** NAFTA: USA, Canada, Mexico.*

NOTE 4 Other income and expenses

	2019			2018		
(In millions of euros)	Expenses	Income	Net	Expenses	Income	Net
Restructuring and environment	(31)	-	(31)	(27)	1	(26)
Goodwill impairment	-	-	-	-	-	-
Asset impairment (excluding goodwill)	(32)	-	(32)	(23)	-	(23)
Litigation and claims	(17)	26	9	(24)	7	(17)
Gains (losses) on sales and purchases of assets	(18)	-	(18)	(5)	4	(1)
Other	(37)	36	(1)	-	4	4
TOTAL OTHER INCOME AND EXPENSES	**(135)**	**62**	**(73)**	**(79)**	**16**	**(63)**

In 2019, restructuring and environment expenses mainly include restructuring costs in adhesives.

Asset impairments concern industrial assets in the United States.

Expenses related to litigation and claims concern the consequences of an incident at a supplier's site, and costs resulting from the consequences of Hurricane Harvey in the United States in 2017. Income related to litigation and claims corresponds to insurance compensation for the investments made on the Crosby site after the hurricane.

The losses on sales and purchases of assets mainly correspond to expenses for the acquisitions of ArrMaz, Prochimir and Lambson.

"Other" items essentially comprise asset impairments recognized after discontinuation of a project that was fully financed by a partner; consequently, this impairment is offset by an exceptional gain of the same amount.

In 2018, restructuring and environment expenses mainly include restructuring costs in adhesives. Litigation and claims costs correspond to the termination of a contract with a supplier, and costs resulting from the consequences of Hurricane Harvey in the

United States in 2017. The income corresponds to a partial compensation for the initial investments on the Crosby site after Hurricane Harvey. Asset impairments principally concern industrial assets in the United States.

The total impairment included in other income and expenses amounts to €(72) million at 31 December 2019 compared to €(25) million at 31 December 2018.

NOTE 5 | 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)	2019	2018
Cost of debt	(59)	(62)
Financial income/expenses on provisions for pensions and employee benefits	(18)	(11)
Spot/forward exchange rate difference and foreign exchange gain/loss on unhedged financing	(39)	(30)
Capitalized interest	4	2
Interest expenses on leases*	(4)	-
Other	0	0
FINANCIAL RESULT	**(116)**	**(101)**

* *The Group applied IFRS 16 for the first time at 1 January 2019, under the modified retrospective approach which does not require restatement of the comparative figures for 2018.*

NOTE 6 | Income taxes

6.1 INCOME TAX EXPENSE

The income tax expense is broken down as follows:

(In millions of euros)	2019	2018
Current income taxes	(129)	(180)
Deferred income taxes	(8)	66
TOTAL INCOME TAXES	**(137)**	**(114)**

The income tax expense amounts to €137 million for 2019 including €15 million for the CVAE, compared with €114 million for 2018 including €17 million for the CVAE (see note B.13 "Income taxes"). In the 2018 financial statements, deferred taxes include income of €59 million generated by the recognition of deferred tax assets in France, due to the country's improved prospects of taxable profits.

6.2 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)	31/12/2018	Changes in scope/ Reclassifications	Changes recognized in shareholders' equity	Changes recognized in the income statement	Translation adjustments	31/12/2019
Tax loss and tax credit carryforwards	113	1	0	3	0	117
Provisions for pensions and similar benefits	95	0	12	2	0	109
Other temporarily non-deductible provisions	187	7	0	(2)	2	194
Deferred tax assets	**395**	**8**	**12**	**3**	**2**	**420**
Valuation allowance on deferred tax assets	**(66)**	**0**	**(4)**	**2**	**0**	**(68)**
Excess tax over book depreciation	111	4	(2)	22	2	137
Other temporary tax deductions	277	62	0	(7)	1	333
Deferred tax liabilities	**388**	**66**	**(2)**	**15**	**3**	**470**
NET DEFERRED TAX ASSETS (LIABILITIES)	**(59)**	**(58)**	**10**	**(10)**	**(1)**	**(118)**

After offsetting assets and liabilities at fiscal entity level, deferred taxes are presented as follows in the balance sheet:

(In millions of euros)	31/12/2019	31/12/2018
Deferred tax assets	216	209
Deferred tax liabilities	334	268
NET DEFERRED TAX ASSETS (LIABILITIES)	**(118)**	**(59)**

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.

6.3 RECONCILIATION BETWEEN INCOME TAX EXPENSE AND PRE-TAX INCOME

(In millions of euros)	2019	2018
Net income	551	715
Income taxes	(137)	(114)
Pre-tax income	688	829
French corporate income tax rate	34.43%	34.43%
Theoretical tax expense	(237)	(285)
Difference between French and foreign income tax rates	53	54
Tax effect of equity in income of affiliates	0	0
Permanent differences	30	17
Change in valuation allowance against deferred tax assets ceiling	2	12
Deferred tax assets not recognized (losses)	15	88
INCOME TAX EXPENSE	**(137)**	**(114)**

The French corporate income tax rate includes the standard tax rate (33.33%) and the additional social contribution. The overall income tax rate therefore stands at 34.43%.

The net impact of the CVAE is included in permanent differences.

6.4 EXPIRY OF TAX LOSS CARRY FORWARDS 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:

	31/12/2019		31/12/2018	
(In millions of euros)	Base	Income taxes	Base	Income taxes
2018	-	-	35	9
2019	34	8	36	9
2020	16	4	47	12
2021	16	4	33	8
2022	10	3	27	6
2023 and beyond	48	12	-	-
Tax losses that can be carried forward indefinitely*	1,234	335	1,247	338
TOTAL	**1,358**	**366**	**1,425**	**382**

* *Essentially in France.*

The Group's unrecognized tax loss carryforwards and tax credits take into account the changes in the tax rates.

NOTE 7 Business combinations

7.1 ARRMAZ

On 1 July 2019 Arkema finalized the acquisition of ArrMaz in the United States, for an enterprise value of US$570 million and a final price of €527 million.

In compliance with IFRS 3 (revised), the Group used the acquisition method for the accounting treatment of this operation.

The amount recorded in the financial statements at 31 December 2019 for the identifiable assets acquired and liabilities assumed at the acquisition date breaks down as follows:

(In millions of euros)	**Fair value acquired from ArrMaz**
Intangible assets	199
Property, plant and equipment	52
Deferred tax assets	7
Other non-current assets	1
Total non-current assets	**259**
Inventories	35
Accounts receivable	52
Other current assets	5
Cash and cash equivalents	16
Total current assets	**108**
Total assets	**367**
Deferred tax liabilities	54
Non-current debt	4
Total non-current liabilities	**58**
Accounts payable	13
Other current liabilities	8
Total current liabilities	**21**
Fair value of net assets	**288**
Goodwill	**239**

Intangible assets stated at fair value mainly consist of the ArrMaz® and Road Science® trademarks, technologies and customer relations. Technologies are amortized over periods of 5 to 15 years, and customer relations over periods of 11.5 to 14.5 years. The revalued inventories were consumed during the second half of 2019.

The goodwill of €239 million mainly corresponds to the value of future technologies and expected commercial development. This goodwill is provisional and may be subject to adjustments for tax purposes. Goodwill and trademarks are not amortizable for tax purposes.

If the acquisition of ArrMaz had taken place at 1 January 2019, it would have generated additional sales of approximately US$138 million, and additional EBITDA of approximately US$25 million.

7.2 TAIXING SUNKE CHEMICALS

In September 2019 Arkema finalized the acquisition of its partner Jurong Chemical's interest in Taixing Sunke Chemicals, their joint venture that produces acrylic monomers in China, for the price of €111 million. Consequently the Group now holds all the shares of Taixing Sunke Chemicals.

In compliance with IFRS 3 (revised), the Group used the step acquisition method for the accounting treatment of this operation, and has not recognized any gain or loss in respect of the interest held prior to the takeover.

The amount recorded in the financial statements at 31 December 2019 for the identifiable assets acquired and liabilities assumed at the acquisition date breaks down as follows:

(In millions of euros)	**Fair value acquired from Taixing Sunke Chemicals**
Intangible assets	3
Property, plant and equipment	99
Total non-current assets	**102**
Inventories	8
Accounts receivable	10
Other current assets	4
Cash and cash equivalents	31
Total current assets	**53**
Total assets	**155**
Non-current debt	5
Total non-current liabilities	**5**
Accounts payable	31
Other current liabilities	14
Total current liabilities	**45**
Fair value of net assets	**105**
Goodwill	**6**

7.3 OTHER BUSINESS COMBINATIONS

Other business combinations in 2019 concern the acquisitions of:

- Lambson, a company that specializes in photoinitiators for photocure resins, with annual sales of €45 million;
- Prochimir, a company specialized in high-performance thermobonding adhesive films, with annual sales of €30 million.

In compliance with IFRS 3 (revised), the Group used the acquisition method for the accounting treatment of this operation.

The amount recorded in the financial statements at 31 December 2019 for the identifiable assets acquired and liabilities assumed at the acquisition date is €65 million.

Intangible assets stated at fair value principally comprise technologies and customer relations. Technologies are amortized over periods of 6 to 17 years, and customer relations over periods of 7 to 17 years. These assets amount to €50 million.

The total goodwill of €46 million resulting from allocation of the purchase price for Lambson and Prochimir mainly corresponds to the value of future technologies and expected commercial development. This goodwill is provisional and will be adjusted when the purchase prices are finalized.

Goodwill is not amortizable for tax purposes.

NOTE 8 | Assets held for sale

On 14 October 2019 Arkema announced the planned sale of its Functional Polyolefins business, which is part of its PMMA Business Line (in the Industrial Specialties division), with sales of €250 million. The offer received is based on an enterprise value of €335 million. This operation still requires the approval of the relevant antitrust authorities. The sale is expected to be finalized during the second quarter of 2020.

In accordance with IFRS 5, "Non-current assets held for sale and discontinued operations", assets held for sale and the associated liabilities are presented in two specific lines of the balance sheet, and are not offset. 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 are the following:

(In millions of euros)	2019
Intangible assets	31
Deferred tax assets	1
Other non-current assets	3
Total non-current assets	**35**
Inventories	42
Other current assets	1
Total current assets	**43**
ASSETS HELD FOR SALE	**78**
Deferred tax liabilities	2
Provisions and other non-current liabilities	5
Total non-current liabilities	**7**
Accounts payable	(3)
Other current liabilities	2
Total current liabilities	**(1)**
LIABILITIES ASSOCIATED WITH ASSETS HELD FOR SALE	**6**

NOTE 9 Earnings per share

	2019	2018
Weighted average number of ordinary shares	76,175,660	76,240,868
Dilutive effect of stock options	2,312	38,003
Dilutive effect of free share grants	438,388	98,631
Weighted average number of potential ordinary shares	76,616,360	76,377,502

(In millions of euros)	Notes	2019	2018
Net income – Group share		543	707
Interest on subordinated perpetual notes, net of tax	(C19.2)	(52)	(33)
Net income used in calculating earnings per share		491	674

	2019	2018
Earnings per share *(€)*	6.45	8.84
Diluted earnings per share *(€)*	6.41	8.82

NOTE 10 | Intangible assets

10.1 GOODWILL

	31/12/2019			31/12/2018
(In millions of euros)	Gross book value	Accumulated amortization and impairment	Net book value	Net book value
Goodwill	2,460	(543)	1,917	1,618

The breakdown by segment, with allocation by Business Line and CGU, is as follows:

Goodwill* by *Business Line	**by CGU** *(in millions of euros)*	31/12/2019 Net book value	31/12/2018 Net book value
Bostik	*Bostik*	948	914
Performance Additives		439	171
of which:	*Adsorption*	276	34
	Organic peroxides	24	24
	Sartomer	139	113
Technical Polymers	*Technical Polymers (specialty polyamides and PVDF)*	140	139
High Performance Materials		**1,527**	**1,224**
PMMA	*PMMA and methacrylates (Altuglas)*	-	-
Thiochemicals	*Thiochemicals*	8	8
Fluorogases	*Fluorogases*	41	41
Hydrogen Peroxide	*Hydrogen Peroxide*	41	41
Industrial Specialties		**90**	**90**
Acrylics	*Acrylics*	165	170
Coating Resins and Additives		127	127
of which:	*Rheology additives (Coatex)*	96	96
	Coating resins	31	31
Coating Solutions		**292**	**297**
Corporate		**8**	**7**
TOTAL		**1,917**	**1,618**

Changes in the net book value of goodwill are as follows:

(In millions of euros)	2019	2018
At 1 January	**1,618**	**1,525**
Acquisitions	-	-
Impairments	-	-
Disposals	-	-
Changes in scope	290	75
Translation adjustments	21	18
Reclassifications	(12)	0
At 31 December	**1,917**	**1,618**

The increase in goodwill in 2019 mainly relates to the acquisitions of ArrMaz, Lambson and Prochimir (see note C7 "Business combinations").

In 2018, the change in goodwill mainly reflected acquisitions in adhesives.

10.2 OTHER INTANGIBLE ASSETS

	31/12/2019			31/12/2018
(In millions of euros)	Gross book value	Accumulated amortization and impairment	Net book value	Net book value
Patents and technologies	492	(211)	281	244
Trademarks	582	(3)	579	546
Software and IT licences	348	(254)	94	102
Capitalized REACH costs	67	(33)	34	34
Other capitalized research expenses	18	(6)	12	16
Capitalized contracts	356	(285)	71	81
Asset rights	52	(18)	34	32
Customer relations	254	(25)	229	76
Other intangible assets	90	(36)	54	60
Intangible assets in progress	109	(22)	87	68
TOTAL	**2,368**	**(893)**	**1,475**	**1,259**

Trademarks essentially comprise the Bostik® and Den Braven® trademarks, which are part of the Bostik Business Line.

Changes in the net book value of intangible assets are as follows:

(In millions of euros)	2019	2018
At 1 January	**1,259**	**1,181**
Acquisitions	60	51
Amortization	(108)	(94)
Impairments	(2)	(3)
Disposals	0	0
Changes in scope	252	111
Translation adjustments	12	11
Reclassifications	2	2
At 31 December	**1,475**	**1,259**

NOTE 11 | Property, plant and equipment

11.1 PROPERTY, PLANT AND EQUIPMENT

	31/12/2019			31/12/2018
(In millions of euros)	Gross book value	Accumulated depreciation and impairments	Net book value	Net book value
Land and buildings	2,061	(1,331)	730	655
Complex industrial facilities	3,894	(3,093)	801	659
Other property, plant and equipment	3,258	(2,357)	901	850
Construction in progress	453	(11)	442	463
TOTAL PROPERTY, PLANT AND EQUIPMENT EXCLUDING RIGHTS OF USE	**9,666**	**(6,792)**	**2,874**	**2,627**
Rights of use	202	(50)	152	-
TOTAL PROPERTY, PLANT AND EQUIPMENT	**9,868**	**(6,842)**	**3,026**	**2,627**

Other property, plant and equipment at 31 December 2019 mainly comprises machinery and tools with a gross value of €2,505 million (€2,374 million at 31 December 2018), and accumulated depreciation and provisions for impairment of €1,873 million (€1,753 million at 31 December 2018).

11.2 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)	2019	2018
At 1 January	**2,627**	**2,464**
Acquisitions	575	540
Amortization	(411)	(380)
Impairments	(75)	(31)
Disposals	(6)	(3)
Changes in scope	170	6
Translation adjustments	27	33
Other	(31)*	-
Reclassifications	(2)	(2)
At 31 December	**2,874**	**2,627**

* *See note C8 "Assets held for sale".*

NOTE 12 | IFRS 16 leases Rights of use and IFRS 16 debt

From 1 January 2019, the Group's lease obligations are accounted for in accordance with IFRS 16 "Leases" and classified in property, plant and equipment. The principles applied and the impacts on the alternative performance indicators are described in notes B "Accounting policies" and C1.9 "Impact of IFRS 16".

At 31 December 2019, the net book value of the rights of use associated with leases is €152 million.

	31/12/2019			31/12/2018
(In millions of euros)	Gross book value	Accumulated depreciation and impairments	Net book value	Net book value
Rights of use: real estate assets (head offices, offices)	61	(12)	49	-
Rights of use: industrial assets (factories, land, warehouses)	25	(4)	21	-
Rights of use: logistics assets (trucks, containers, trolleys)	96	(28)	68	-
Rights of use: other assets (cars, etc)	20	(6)	14	-
TOTAL RIGHTS OF USE	**202**	**(50)**	**152**	**-**

Changes in the net book value of rights of use are as follows:

(In millions of euros)	2019	2018
At 1 January	**158**	**-**
Acquisitions and contract revisions	45	-
Amortization	(54)	-
Disposals and contract revisions	(2)	-
Changes in scope	3	-
Translation adjustments	2	-
At 31 December	**152**	**-**

The IFRS 16 debt amounts to €154 million at 31 December 2019 (see note C23 "Debt"). The total non-discounted value of the Group's future lease payments amounts to €170 million at 31 December 2019, maturing as follows:

(In millions of euros)	31 December 2019
Within one year	47
1–5 years	94
After 5 years	29
TOTAL	**170**

At 31 December 2019, the cash outflows associated with leases amount to €52 million. The financial expenses related to the IFRS 16 debt amount to €4 million.

The application of exemptions for short-term leases and leases of low-value assets concerns amounts that are not material at Group level.

NOTE 13 | Equity affiliates

The amounts of the Group's commitments to joint ventures and associates are non-significant.

13.1 ASSOCIATES

	2019				2018			
(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	16	49%	4	0	15
CJ Bio Malaysia Sdn. Bhd.	14%	15	(4)	266	14%	19	(2)	235
Ihsedu Agrochem Private Ltd.	25%	5	0	268	25%	5	0	238
TOTAL		**24**	**(4)**			**28**	**(2)**	

13.2 JOINT VENTURES

	2019				2018			
(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%	6	0	1
Daikin Arkema Refrigerants Asia Ltd.	40%	2	2	29	40%	2	2	38
Daikin Arkema Refrigerants Trading Ltd.	40%	1	1	41	40%	2	1	53
TOTAL		**9**	**2**			**10**	**3**	

NOTE 14 | Other investments

The main movements in 2018 and 2019 are as follows:

(In millions of euros)	2019	2018
At 1 January	**33**	**30**
Acquisitions	20	1
Disposals	-	(2)
(Increases)/Reversals of impairment	0	4
Changes in scope	0	-
Translation adjustments	0	0
Other changes	-	0
At 31 December	**53**	**33**

The main movements in 2019 concern the investment in Carbon®. See note A.1 "Portfolio management".

NOTE 15 | Other non-current assets

	31/12/2019			31/12/2018		
(In millions of euros)	Gross value	Impairment	Net value	Gross value	Impairment	Net value
Pension assets	1	0	1	3	-	3
Loans and advances	221	(15)	206	226	(15)	211
Security deposits paid	33	0	33	29	0	29
TOTAL	**255**	**(15)**	**240**	**258**	**(15)**	**243**

Loans and advances include amounts receivable from the French tax authorities in respect of the research tax credit (CIR), and the tax credit for competitiveness and employment (CICE). Loans and advances also include €56 million of receivables on Total related to the remediation costs in respect of closed industrial sites in the United States (see note C21.3 "Other provisions and other non-current liabilities/Provisions for environmental contingencies").

The CIR and CICE for 2015, amounting to €27 million, were reimbursed during the fourth quarter of 2019.

The CIR and CICE for 2016, amounting to €32 million, will be reimbursed in 2020.

NOTE 16 | Inventories

(In millions of euros)	31/12/2019	31/12/2018
INVENTORIES (COST)	**1,123**	**1,248**
Valuation allowances	(109)	(112)
INVENTORIES (NET)	**1,014**	**1,136**
Of which:		
Raw materials and supplies	*338*	*353*
Finished products	*676*	*783*

NOTE 17 | Accounts receivable, other receivables and prepaid expenses

At 31 December 2019, accounts receivable are stated net of a bad debt provision of €32 million (€35 million at 31 December 2018). Other receivables and prepaid expenses notably include receivables from governments in an amount of €134 million at 31 December 2019 (€119 million at 31 December 2018), including €108 million of VAT. Details of accounts receivable net of valuation allowances are presented in note C24.4 "Credit risk".

NOTE 18 | Cash and cash equivalents

(In millions of euros)	31/12/2019	31/12/2018
Short-term cash advances	15	12
Money market funds	186	796
Available cash	1,206	633
CASH AND CASH EQUIVALENTS	**1,407**	**1,441**

NOTE 19 | Shareholders' equity

At 31 December 2019, Arkema's share capital amounted to €766 million, divided into 76,624,220 shares with nominal value of €10.

19.1 CHANGES IN SHARE CAPITAL AND PAID-IN SURPLUS

Following the exercise of 42,728 share subscription options, the Company undertook a capital increase in the total amount of €3 million.

	2019	2018
Number of shares at 1 January	**76,581,492**	**75,870,506**
Issuance of shares following the capital increase reserved for employees	-	610,405
Issuance of shares following the exercise of subscription options	42,728	100,581
Number of shares at 31 December	**76,624,220**	**76,581,492**

19.2 HYBRID BONDS

The amount of the perpetual hybrid bonds recorded in shareholders' equity is €694 million at 31 December 2019.

On 17 June 2019 Arkema issued a perpetual hybrid bond with a nominal value of €400 million, or €399 million net of issue premiums and fees. These bonds carry a first-call redemption option that Arkema may exercise at any time between 17 June 2024 and 17 September 2024, and have a coupon of 2.75% until the first call date, subject to early redemption.

In parallel, Arkema redeemed some of its existing perpetual hybrid bonds for the nominal value of €400 million plus a redemption premium of €25 million including bank charges. These bonds were issued on 29 October 2014 in the total nominal value of €700 million, with a first call option on 29 October 2020 and an annual coupon of 4.75% until that date. As part of this bond redemption, Arkema also paid accrued coupons due on the redeemed portion of these bonds, amounting to €12 million, on 17 June 2019. Arkema also paid a coupon of €15 million in 2019 on the residual portion of bonds issued in 2014 (€300 million).

Following these combined operations, the total nominal value of Arkema's perpetual hybrid bonds is unchanged at €700 million. The breakdown is as follows at 31 December 2019:

Issue date	Nominal value *(in millions of €)*	Currency	Redemption option	Annual coupon rate
29 October 2014	300	EUR	6 years	4.75%
17 June 2019	400	EUR	5.25 years	2.75%

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.

19.3 TREASURY SHARES

The Company bought back 408,621 treasury shares during 2019. Arkema Group definitively granted 22,749 free shares to its employees between April and June 2019, mainly in application of plans 2016-1, 2 and 2016-3, then 573,842 shares in application of plans 2015-1, 2015-2 and 2016-4 in November 2019.

	2019	2018
Number of treasury shares at 1 January	318,998	33,225
Repurchases of treasury shares	408,621	557,642
Grants of treasury shares	(596,591)	(271,869)
Number of treasury shares at 31 December	131,028	318,998

19.4 DIVIDENDS

The combined shareholders' general meeting of 21 May 2019 approved the distribution of a €2.50 dividend per share in respect of the 2018 financial year, or a total amount of €190 million. This dividend was paid out on 29 May 2019.

19.5 NON-CONTROLLING INTERESTS

Non-controlling interests do not represent a significant share of the Group's consolidated financial statements.

19.6 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.

NOTE 20 | Provisions for pensions and other employee benefits

(In millions of euros)	2019	2018
Pension obligations	382	325
Healthcare and similar coverage	64	74
Post-employment benefits	**446**	**399**
Long service awards	74	66
Other	5	5
Other long-term benefits	**79**	**71**
PROVISIONS FOR PENSIONS AND OTHER EMPLOYEE BENEFITS	**525**	**470**

(In millions of euros)	2019	2018
Provision recognized in liabilities	525	470
Amount recognized in assets	(1)	(3)
NET PROVISIONS FOR PENSIONS AND EMPLOYEE BENEFITS	**524**	**467**

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.

Post-employment benefits are detailed in the tables in 20.1, 20.2, and 20.3 below.

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 is now frozen 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 pre-funded, 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 dependants is still open to new members; this plan is not pre-funded;
- in France, the top hat pension plans are closed to new members. One of these plans is managed by an insurance company and pre-funded by plan assets. The other plan has been terminated insofar as it concerns the Chairman and CEO, following the resolution adopted at the Company's shareholders' general meeting held on 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 pre-funded. Other benefit plans (bonuses, long service awards and retirement gratuities) pay out lump sums; they are open to all employees and are partly pre-funded;
- 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 pre-funded, 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;
- in the United Kingdom, no further rights can now be earned under any existing plan. The UK plans are pre-funded through a pension fund.

20.1 EXPENSE IN THE INCOME STATEMENT

The expense related to defined benefit plans is broken down as follows:

	2019			2018		
(In millions of euros)	**Total**	**Pension obligations**	**Healthcare and similar coverage**	**Total**	**Pension obligations**	**Healthcare and similar coverage**
Current service cost	15	14	1	17	15	2
Past service cost	(7)	(3)	(4)	0	0	0
Settlements	-	-	-	-	-	-
Interest expense	24	22	2	23	21	2
Expected return on plan assets	(13)	(13)	-	(13)	(13)	-
Other	-	-	-	-	-	-
(Income)/Expense	**19**	**20**	**(1)**	**27**	**23**	**4**

20.2 CHANGE IN NET PROVISIONS OVER THE PERIOD

(In millions of euros)	Pension obligations 2019	2018	Healthcare and similar coverage 2019	2018	Total post-employment benefits 2019	2018
Net liability (asset) at beginning of year	**322**	**321**	**74**	**75**	**396**	**396**
Provision recognized in liabilities	*325*	*321*	*74*	*75*	*399*	*396*
Amount recognized in assets	*(3)*	-	-	-	*(3)*	-
(Income)/Expense for the period	20	23	(1)	4	19	27
Contributions made to plan assets	(7)	(22)	-	-	(7)	(22)
Net benefits paid by the employer	(6)	(12)	(4)	(3)	(10)	(15)
Changes in scope	(2)	1	-	0	(2)	1
Other	-	-	-	-	-	-
Translation adjustments	3	4	1	2	4	6
Actuarial gains and losses recognized in shareholders' equity	51	7	(6)	(4)	45	3
Net liability (asset) at year-end	**381**	**322**	**64**	**74**	**445**	**396**
Provision recognized in liabilities	*382*	*325*	*64*	*74*	*446*	*399*
Amount recognized in assets	*(1)*	*(3)*	*0*	-	*(1)*	*(3)*

20.3 VALUATION OF OBLIGATIONS AND PROVISIONS AT 31 DECEMBER

a) Present value of benefit obligations

(In millions of euros)	Pension obligations 2019	2018	Healthcare and similar coverage 2019	2018
Present value of benefit obligations at beginning of year	**690**	**704**	**74**	**75**
Current service cost	14	15	1	2
Net interest expense	22	21	2	2
Past service cost (including curtailments)	(3)	0	(4)	0
Settlements	0	0	-	-
Plan participants' contributions	0	0	-	-
Benefits paid	(38)	(46)	(4)	(3)
Actuarial (gains) and losses	99	(21)	(6)	(4)
Changes in scope	-	1	0	-
Translation adjustments	13	16	1	2
Liabilities associated with assets held for sale	(2)	-	-	-
Present value of benefit obligations at year-end	**795**	**690**	**64**	**74**

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)	**2019**	**2018**
Fair value of plan assets at beginning of year	**(368)**	**(383)**
Interest income	(13)	(13)
Settlements	0	0
Plan participants' contributions	0	0
Employer contributions	(8)	(22)
Benefits paid from plan assets	33	34
Actuarial (gains) and losses	(48)	28
Changes in scope	-	-
Other	-	-
Translation adjustments	(10)	(12)
Fair value of plan assets at year-end	**(414)**	**(368)**

c) Obligations in the balance sheet

	Pension obligations		Healthcare and similar coverage	
(In millions of euros)	**2019**	**2018**	**2019**	**2018**
Present value of unfunded obligations	117	110	64	74
Present value of funded obligations	678	580	-	-
Fair value of plan assets	(414)	(368)	-	-
(Surplus)/Deficit of assets relative to benefit obligations	**381**	**322**	**64**	**74**
Asset ceiling	-	-	-	-
Net balance sheet provision	**381**	**322**	**64**	**74**
Provision recognized in liabilities	*382*	*325*	*64*	*74*
Amount recognized in assets	*(1)*	*(3)*	*0*	-

Changes in recent years in the obligation, the value of the plan assets and actuarial gains and losses are as follows:

(In millions of euros)	**2019**	**2018**	**2017**	**2016**
Obligations for pensions, healthcare and similar coverage	859	764	779	864
Plan assets	(414)	(368)	(383)	(405)
Net obligations	**445**	**396**	**396**	**459**
Actuarial (gains)/losses on accumulated rights				
• experience adjustments	5	(6)	(22)	2
• effects of changes in financial assumptions	99	(27)	22	45
• effects of changes in demographic assumptions	(11)	7	0	(37)

d) Pre-tax amount recognized through equity (SORIE) during the valuation period

(In millions of euros)	Pension obligations 2019	Pension obligations 2018	Healthcare and similar coverage 2019	Healthcare and similar coverage 2018
Actuarial (gains) and losses generated in the period (A)	51	7	(6)	(4)
Effect of the surplus cap and the asset ceiling (B)	-	-	-	-
Total amount recognized in equity (A+B)	**51**	**7**	**(6)**	**(4)**
Cumulative actuarial (gains) and losses recognized in equity	**198**	**147**	**(79)**	**(73)**

e) Composition of the investment portfolio

	Pension obligations							
	At 31 December 2019				At 31 December 2018			
	France	UK	Rest of Europe	USA	France	UK	Rest of Europe	USA
Shares	16%	33%	9%	43%	16%	31%	27%	41%
Bonds	13%	33%	14%	41%	11%	36%	32%	40%
Property	1%	-	0%	10%	1%	-	8%	8%
Monetary/Cash assets	-	1%	58%	-	-	1%	8%	5%
Investment funds	-	33%	-	-	-	32%	5%	-
Funds held by an insurance company	70%	-	10%	-	72%	-	10%	-
Other	-	-	9%	6%	0%	-	10%	6%

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:

	2019				2018			
	France	UK	Rest of Europe	USA	France	UK	Rest of Europe	USA
Discount rate	1.25	2.00	1.30	3.15	1.95	2.70	1.90	4.20
Rate of increase in salaries	2.30-2.50	N/A	1.20-3.50	4.16	2.30-2.50	N/A	1.50-3.50	3.90

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:

Pension obligations, healthcare and similar coverage	2019	
(In millions of euros)	Europe	USA
Increase of 0.50	(33)	(24)
Decrease of 0.50	37	25

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:

Pension obligations, healthcare and similar coverage	2019	
(In millions of euros)	Europe	USA
Increase of 0.50	16	5
Decrease of 0.50	(15)	(5)

g) Provisions by geographical area

2019	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	130	94	16	133	9	382
Healthcare and similar coverage	31	-	-	33	-	64

2018	France	Germany	Rest of Europe	USA	Rest of the world	Total
Pension obligations	106	83	19	105	9	322
Healthcare and similar coverage	30	-	-	44	0	74

h) Cash flows

The contributions to be paid by the Group in 2020 for funded benefits are estimated at €26 million.

The benefits to be paid by the Group in 2020 in application of defined benefit plans are valued at €6 million for pension obligations, and €4 million for healthcare and similar coverage.

NOTE 21 | Other provisions and other non-current liabilities

21.1 OTHER NON-CURRENT LIABILITIES

Other non-current liabilities amount to €17 million at 31 December 2019 as against €24 million at 31 December 2018.

21.2 OTHER PROVISIONS

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
At 1 January 2019	**189**	**36**	**184**	**409**
Increases in provisions	22	9	30	61
Reversals from provisions on use	(15)	(11)	(36)	(62)
Reversals of unused provisions	(1)	0	(35)	(36)
Changes in scope	0	-	0	0
Translation adjustments	2	0	1	3
Other	-	-	(1)	(1)
At 31 December 2019	**197**	**34**	**143**	**374**
Of which less than one year	26	11	44	81
Of which more than one year	171	23	99	293

Furthermore, certain provisions are covered by non-current assets (receivables and deposits):

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
Total provisions at 31 December 2019	**197**	**34**	**143**	**374**
Portion of provisions covered by receivables or deposits	56	-	20	76
Deferred tax asset related to amounts covered by the Total indemnity	17	-	-	17
Provisions at 31 December 2019 net of non-current assets	**124**	**34**	**123**	**281**

(In millions of euros)	Environmental contingencies	Restructuring	Other	Total
At 1 January 2018	**189**	**42**	**178**	**409**
Increases in provisions	12	10	60	82
Reversals from provisions on use	(15)	(15)	(29)	(59)
Reversals of unused provisions	(1)	(1)	(27)	(29)
Changes in scope	-	-	-	-
Translation adjustments	4	0	2	6
Other	-	0	0	0
At 31 December 2018	**189**	**36**	**184**	**409**
Of which less than one year	26	14	77	117
Of which more than one year	163	22	107	292

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 2018	**189**	**36**	**184**	**409**
Portion of provisions covered by receivables or deposits	46	-	16	62
Deferred tax asset related to amounts covered by the Total indemnity	14	-	-	14
Provisions at 31 December 2018 net of non-current assets	**129**	**36**	**168**	**333**

21.3 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 €85 million (€90 million at 31 December 2018);
- in the United States for €94 million (€80 million at 31 December 2018), of which €73 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 €56 million and €17 million recognized in deferred tax assets).

21.4 RESTRUCTURING PROVISIONS

Restructuring provisions are mainly in respect of restructuring measures in France for €19 million (€22 million at 31 December 2018), in Europe outside France for €7 million (€10 million at 31 December 2018) and in the United States for €8 million (€4 million at 31 December 2018).

Increases in such provisions in the year mainly correspond to the restructuring plans described in note C4 "Other income and expenses".

21.5 OTHER PROVISIONS

Other provisions amount to €143 million and mainly comprise:

- provisions for labour litigation for €62 million (€61 million at 31 December 2018);
- provisions for commercial litigation and warranties for €33 million (€61 million at 31 December 2018);
- provisions for tax litigation for €28 million (€29 million at 31 December 2018);
- provisions for other risks for €20 million (€33 million at 31 December 2018).

NOTE 22 | Liabilities and contingent liabilities

22.1 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 general 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.

Clean-up of sites

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 neighbouring sites or at sites where the Group stored or disposed of waste.

22.1.1 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 condition.

22.1.2 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), Bonn (Germany) and Wetteren (Belgium) have been closed and the land sold. The businesses exercised on the Bernouville (France) and Zaramillo (Spain) sites 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.

In addition, the Prefect of Haute Savoie issued an additional decision on 6 April 2018 cancelling and replacing the previous decision of 1 December 2017, ordering investigations on the Chedde site (France) where the Group had a perchlorate production business in the past.

22.1.3 Sites in operation that have been sold

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 to the site.

The Prefect of the Rhône region issued decisions on 14 May 2007 and 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.

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 programme of work to be done over the period 2017 to 2020 for some of these salt mines, and the costs of surveillance beyond 2020. In 2017, a provision considered adequate by the Group has been established in the financial statements.

22.2 LITIGATION, CLAIMS AND PROCEEDINGS IN PROGRESS

22.2.1 Labour litigation

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.

Prejudice related to asbestos (Arkema France)

In a ruling of 11 May 2010, the labour 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.

No compensation claims against Arkema France for the prejudice of anxiety are still in process before the employee claims courts.

However, it is possible that current or former employees of Arkema France who worked on sites that are added by ministerial decision to the official list of eligible sites could in future bring action before an employee claims court to claim compensation for the prejudice of anxiety.

22.2.2 Tax litigations

Arkema Quimica Ltda

Following a declaration as to the unconstitutional nature of certain taxes, Arkema's Brazilian subsidiary Arkema Quimica Ltda offset certain tax assets and liabilities commencing in 2000. The Brazilian government contests 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 programme that reduced the amount payable to 6 million reais, to be paid in instalments until September 2029.

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 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 won every case for which a judgement has been issued.

22.2.3 Other litigation

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 peroxides products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, approximately thirty civil lawsuits have been filed against Arkema Inc., with approximately 800 named plaintiffs and one federal class action. The Company is currently a named defendant in four of those lawsuits. At this time, the Company has not been formally served and cannot estimate any potential losses associated with these lawsuits; if formally served, the Company 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 environmental regulatory requirements, and the planning 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 their final investigation report on the incident. On 3 August 2018, a Grand Jury in Harris County returned indictments against Arkema Inc., its CEO and its former plant manager, formally charging each with the crime of reckless endangerment. On 10 April 2019, a Grand Jury in Harris County returned indictments against Arkema Inc. and its former VP of Logistics formally charging each with the crime of reckless assault. Each will vigorously defend against such claims.

Fluorinated substances

Arkema Inc. and Arkema France, along with multiple Fluorochemical manufacturers and users, have been sued in the United States in cases involving per- and poly-fluoroalkyl substances. The two companies are vigorously defending against the allegations of these lawsuits.

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 by employees against Arkema Inc. concerning alleged exposure to asbestos in the United States are covered by the employee insurance policy in each State. However, in 2015 Arkema 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.

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 judgement on 8 August 2019.

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 considers that these claims have no legal foundation, and no provision has been booked in the financial statements.

NOTE 23 | Debt

Group net debt amounted to €1,631 million at 31 December 2019, taking account of cash and cash equivalents of €1,407 million.

23.1 ANALYSIS OF NET DEBT BY CATEGORY

(In millions of euros)	31/12/2019	31/12/2018
Bonds	2,237	2,219
Bank loans	11	11
Other non-current debt	19	16
Non-current debt excluding IFRS 16 debt	**2,267**	**2,246**
Bonds	481	-
Syndicated credit facility	-	-
Negotiable European Commercial Paper	-	-
Other bank loans	79	145
Other current debt	57	56
Current debt excluding IFRS 16 debt	**617**	**201**
Debt excluding IFRS 16 debt	**2,884**	**2,447**
Non-current IFRS 16 debt	110	-
Current IFRS 16 debt	44	-
Debt	**3,038**	**2,447**
Cash and cash equivalents	1,407	1,441
NET DEBT	**1,631**	**1,006**

Bonds

- In April 2012, the Group issued a €230 million bond that will mature on 30 April 2020, with a fixed coupon of 3.85%. A further €250 million tap issue was undertaken in October 2012, bringing the total amount of this bond issue to €480 million.

  At 31 December 2019 the fair value of this bond is €486 million.
- 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 2019 the fair value of this bond is €162 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 2019 the fair value of this bond is €744 million.
- In April 2017, the Group issued a €700 million bond that will mature on 20 April 2027, with a fixed coupon of 1.5%. 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 2019 the fair value of this bond is €961 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 2019 the fair value of this bond is €497 million.

The last four issues are part of the Group's Euro Medium Term Notes (EMTN) programme introduced in October 2013.

Negotiable European Commercial Paper

In April 2013 the Group introduced an annually-renewed Negotiable European Commercial Paper programme with a ceiling of €1 billion.

Issues outstanding as part of this programme amount to nil at 31 December 2019.

Syndicated credit facility

On 29 October 2014, the Group put in place a multi-currency syndicated credit facility of €900 million, with an initial duration of five years maturing on 29 October 2019, and the possibility of two one-year extensions subject to approval by the lenders, exercisable at the end of the first and the second year. The Group was authorized by its lenders to exercise these two extensions, bringing the maturity of this credit facility to 29 October 2021. This credit facility is intended to finance the Group's general requirements as a substitute line for the Negotiable European Commercial Paper programme, and includes an early repayment clause in the event of certain situations including a change in control of the Arkema Group. It includes: (i) standard information undertakings and commitments for this type of financing, and (ii) a financial undertaking by the Group to maintain the ratio of consolidated net debt to consolidated EBITDA (tested twice a year) below 3.5.

At 31 December 2019, the amount drawn on the syndicated credit line is nil.

IFRS 16 debt

The maturities of the Group's future lease payments, at non-discounted value, are presented in note C12 "IFRS 16 leases".

23.2 ANALYSIS OF DEBT EXCLUDING IFRS 16 DEBT BY CURRENCY

Arkema Group's debt excluding IFRS 16 debt is mainly denominated in euros.

(In millions of euros)	31/12/2019	31/12/2018
Euros	2,761	2,270
Chinese Yuan	89	147
US Dollars	10	9
Other	24	21
TOTAL DEBT EXCLUDING IFRS 16 DEBT	**2,884**	**2,447**

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 2019 the swapped portion, mainly in US dollars, represented approximately 36% of gross debt excluding IFRS 16 debt.

23.3 ANALYSIS OF DEBT EXCLUDING IFRS 16 DEBT BY MATURITY

The breakdown of debt excluding IFRS 16 debt including interest costs by maturity is as follows:

(In millions of euros)	31/12/2019	31/12/2018
Less than 1 year	639	223
Between 1 and 2 years	44	534
Between 2 and 3 years	33	35
Between 3 and 4 years	183	29
Between 4 and 5 years	29	179
More than 5 years	2,175	1,679
TOTAL DEBT EXCLUDING IFRS 16 DEBT	**3,103**	**2,679**

NOTE 24 | 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.

24.1 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 €14 million.

The amount of foreign exchange gains and losses recognized in recurring operating income at 31 December 2019 is a negative €11 million (negative €5 million at 31 December 2018).

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 €39 million at 31 December 2019 (negative €31 million at 31 December 2018).

At 31 December 2019, 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	456	108	192
Accounts payable	(285)	(50)	(69)
Bank balances and loans/borrowings	(27)	(61)	153
Off balance sheet commitments (forward currency hedging)	(880)	(113)	(351)
NET EXPOSURE	**(736)**	**(116)**	**(75)**

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.

24.2 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 2019.

An increase (decrease) of 1% (100 basis points) in interest rates would have the effect of decreasing (increasing) the interest on net debt by €2 million.

At 31 December 2019, 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)	(628)	(150)	(2,106)	(2,884)
Cash and cash equivalents	1,407	-	-	1,407
Net exposure before hedging	779	(150)	(2,106)	(1,477)
Hedging instruments	-	-	-	-
Off-balance sheet items	-	-	-	-
NET EXPOSURE AFTER HEDGING	**779**	**(150)**	**(2,106)**	**(1,477)**

24.3 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 honour its commitments, and, in the context of meeting this objective, optimizing the annual financial 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, favouring long maturities and diversifying its sources of financing. The Group thus has:

- a €500 million bond maturing on 3 December 2029;
- a €900 million bond maturing on 20 April 2027;
- a €700 million bond maturing on 20 January 2025;
- a €150 million bond maturing on 6 December 2023;
- a €480 million bond maturing on 30 April 2020; and
- a €900 million syndicated credit facility maturing on 29 October 2021. This credit facility is used particularly as a substitute line for the Negotiable European Commercial Paper programme (see note C23 "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 C23 "Debt"), if the ratio of consolidated net debt to consolidated EBITDA exceeds 3.5.

At 31 December 2019, 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 2019 amounts to €1,631 million and represents 1.1 times the consolidated EBITDA for the year 2019.

At 31 December 2019, the amount of the unused syndicated credit facility is €900 million and the amount of cash and cash equivalents is €1,407 million.

Note C23 "Debt" provides details of the maturities of debt.

24.4 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 2019. 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 programme. On account of 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 2019, accounts receivable net of provisions are distributed as follows:

Accounts receivable net of provisions *(In millions of euros)*	31/12/2019	31/12/2018
Receivables not yet due	1,119	1,121
Receivables overdue by 1-15 days	33	77
Receivables overdue by 16-30 days	24	16
Receivables overdue by more than 30 days	28	32
TOTAL NET RECEIVABLES	**1,204**	**1,246**

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 C25 "Presentation of financial assets and liabilities" represents the maximum exposure to credit risk.

24.5 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 has no impact on the income statement at 31 December 2019 (no impact at 31 December 2018).

24.6 EQUITY RISK

At 31 December 2019 the Company held 131,028 of its own shares. These shares are used to cover its free share grant plans.

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 25 | Presentation of financial assets and liabilities

25.1 FINANCIAL ASSETS AND LIABILITIES BY ACCOUNTING CATEGORY

2019

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 shareholders' equity	Assets/ liabilities measured at amortized cost	Total net carrying amount
Other investments	(C14)	-	53	-	53
Other non-current assets (loans and advances, security deposits paid)	(C15)	-	1	127	128
Accounts receivable	(C17)	-	-	1,204	1,204
Cash and cash equivalents	(C18)	1,407	-	-	1,407
Derivatives*	(C25.2)	12	5	-	17
FINANCIAL ASSETS		**1,419**	**59**	**1,331**	**2,809**
Current and non-current debt	(C23)	-	-	3,038	3,038
Accounts payable	(C26)	-	-	905	905
Derivatives*	(C25.2)	5	3	-	8
FINANCIAL LIABILITIES		**5**	**3**	**3,943**	**3,951**

* Derivatives are carried in the balance sheet in "Other current financial assets" and "Other current financial liabilities".

2018

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 shareholders' equity	Assets/ liabilities measured at amortized cost	Total net carrying amount
Other investments	(C14)	0	33	-	33
Other non-current assets (loans and advances, security deposits paid)	(C15)	-	3	130	133
Accounts receivable	(C17)	-	-	1,247	1,247
Cash and cash equivalents	(C18)	1,441	-	-	1,441
Derivatives*	(C25.2)	6	1	-	7
FINANCIAL ASSETS		**1,447**	**37**	**1,377**	**2,861**
Current and non-current debt	(C23)	-	-	2,447	2,447
Accounts payable	(C26)	-	-	1,037	1,037
Derivatives*	(C25.2)	6	1	-	7
FINANCIAL LIABILITIES		**6**	**1**	**3,484**	**3,491**

** Derivatives are carried in the balance sheet in "Other current financial assets" and "Other current financial liabilities".*

At 31 December 2019 as at 31 December 2018, the fair value of financial assets and liabilities is approximately equal to the net carrying amount, except in the case of bonds.

25.2 DERIVATIVES

The main derivatives used by the Group are as follows:

(In millions of euros)	Notional amount of contracts at 31/12/2019			Notional amount of contracts at 31/12/2018			Fair value of contracts	
	< 1 year	<5 years and >1 year	> 5 years	< 1 year	<5 years and >1 year	> 5 years	31/12/2019	31/12/2018
Forward foreign currency contracts	1,699	-	-	1,711	-	-	12	0
Commodities and energy swaps	10	12	-	7	14	-	(3)	(0)
TOTAL	**1,709**	**12**	**-**	**1,718**	**14**	**-**	**9**	**0**

25.3 IMPACT OF FINANCIAL INSTRUMENTS ON THE INCOME STATEMENT

The income statement includes the following items related to financial assets (liabilities):

(In millions of euros)	2019	2018
Total interest income (expenses) on financial assets and liabilities*	(55)	(60)
Impact on the income statement of valuation of derivatives at fair value	6	(7)
Impact on the income statement of operations on other investments	3	5

* *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 2019 is a negative €11 million (negative €5 million at 31 December 2018).

25.4 IMPACT OF FINANCIAL INSTRUMENTS ON SHAREHOLDERS' EQUITY

At 31 December 2019, the impact of financial instruments net of deferred taxes on the Group's shareholders' equity is a positive €3 million (€1 million at 31 December 2018), essentially reflecting the net-of-tax fair value of foreign currency and commodity hedges.

NOTE 26 | Accounts payable, other creditors and accrued liabilities

Accounts payable amount to €905 million at 31 December 2019 (€1,037 million at 31 December 2018).

Other creditors and accrued liabilities mainly comprise employee-related liabilities for €234 million at 31 December 2019 (€235 million at 31 December 2018) and amounts owing to governments for €77 million at 31 December 2019 (€70 million at 31 December 2018), including €37 million of VAT (€32 million at 31 December 2018).

NOTE 27 | Personnel expenses

Personnel expenses, including stock options and free share grants (see note C29 "Share-based payments"), amount to €1,481 million in 2019 (€1,388 million in 2018).

They comprise €1,119 million of wages and salaries and IFRS 2 expenses (€1,040 million in 2018) and €362 million of social charges (€348 million in 2018).

NOTE 28 | Related parties

28.1 TRANSACTIONS WITH NON-CONSOLIDATED OR EQUITY ACCOUNTED COMPANIES

Transactions between consolidated companies have been eliminated in the consolidation process. 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.

28.2 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 (Comex).

The compensation and benefits of all kinds recognized in expenses by the Group are as follows:

(In millions of euros)	**2019**	**2018**
Salaries and other short-term benefits	9	8
Pensions, other post-employment benefits and contract termination benefits	-	-
Other long-term benefits	-	-
Share-based payments	7	6

Salaries and other short-term benefits comprise all types of remuneration recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and CEO is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of two years' total gross compensation (fixed and variable), subject to achievement of performance criteria.

NOTE 29 | Share-based payments

29.1 STOCK OPTIONS

The Board of Directors has decided not to introduce any further stock option plans.

Movements in the stock option plans granted in previous years and still outstanding at 31 December 2019 are as follows:

Plan	Total number of options granted*	Exercise price*	Number of options exercised in 2019	Number of options cancelled in 2019	Total number of options exercised	Total number of options outstanding	Final year for exercising options
2011-1	109,082	65.92	10,000	-	109,082	-	2019
2011-2	109,082	65.92	32,728	-	109,082	-	2019

** After adjustment following the capital increase with preferential subscription rights of November 2014.*

Valuation method

The fair value of the options granted was determined using the Black & Scholes method using the following assumptions:

	Plan 2011-1	Plan 2011-2
Volatility	32%	32%
Risk-free interest rate	1.29%	1.29%
Maturity	4 years	4 years
Exercise price *(in euros)*	68.48	68.48
Fair value of stock options *(in euros)*	**12.73**	**12.73**

The volatility assumption was determined on the basis of observation of historical movements in the Arkema share since its admission to listing, restated for certain non-representative days in order to better represent the long-term trend.

The maturity adopted for the options corresponds to the period of unavailability for tax purposes.

The amount of the IFRS 2 expense recognized in respect of stock options at 31 December 2019 was nil (also nil at 31 December 2018).

29.2 FREE SHARE GRANTS

On 29 October 2019, the Board of Directors decided to put in place two performance share plans for the benefit of Group employees, particularly employees with responsibilities whose exercise influences the Group's results.

Movements in the free share grant plans existing at 31 December 2019 are as follows:

Plan	Grant date	Vesting period	Conservation period	Total number of free shares granted	Number of shares subject to performance conditions	Fair value (euros per share)	Number of shares definitively granted in 2019	Number of shares cancelled in 2019	Total number of shares still to be granted at 31/12/2019
2015-1	9 Nov 2015	4 years	-	**285,525**	285,525	42.31	271,640	2,775	-
2015-2	9 Nov 2015	4 years	-	**59,595**	-	42.31	52,165	3,150	-
2016-1, 2	10 May 2016	3–4 years	0–3 years	**43,278**	-	22.91–39.70	5,058	189	**38,031**
2016-3	7 Jun 2016	1–3 years	2 years	**50,000**	-	41.04–53.53	16,666	-	-
2016-4	9 Nov 2016	3 years	2 years	**235,835** (1)	226,040	47.31	250,437 (1)	2,500	-
2016-5	9 Nov 2016	4 years	-	**122,080** (2)	112,860	50.01	400	3,170	**113,175**
2017-1	8 Nov 2017	3 years	2 years	**230,695** (3)	218,255	63.59	-	590	**229,645**
2017-2	8 Nov 2017	4 years	-	**129,405** (4)	114,845	67.88	200	2,985	**122,220**
2018-1, 2	2 May 2018	3–4 years	0–3 years	**41,137**	-	59.31–61.13	25	10	**41,087**
2018-3	5 Nov 2018	3 years	2 years	**231,820** (5)	217,570	62.64	-	980	**230,840**
2018-4	5 Nov 2018	4 years	-	**127,665** (6)	111,235	64.15	-	3,680	**123,985**
2019-1	29 oct. 2019	3 ans	2 years	**237,945** (7)	225,015	57.73	-	-	**237,945**
2019-2	29 oct. 2019	4 ans	-	**131,035** (8)	112,740	59.76	-	180	**130,855**

(1) May be raised to 258,439 in the event of outperformance. The number of 250,437 shares granted includes the effect of outperformance.
(2) May be raised to 133,366 in the event of outperformance.
(3) May be raised to 252,521 in the event of outperformance.
(4) May be raised to 140,890 in the event of outperformance.
(5) May be raised to 254,011 in the event of outperformance
(6) May be raised to 139,261 in the event of outperformance
(7) May be raised to 282,948 in the event of outperformance
(8) May be raised to 153,583 in the event of outperformance

The amount of the IFRS 2 expense recognized in respect of free shares at 31 December 2019 is €25 million (€20 million at 31 December 2018).

NOTE 30 | Information on cash flows

Additional information on amounts received and paid as operating cash flows are presented below:

(In millions of euros)	31/12/2019	31/12/2018
Interest paid	63	59
Interest received	0	0
Income taxes paid	156	173

Details of the monetary change in working capital are as follows:

(In millions of euros)	31/12/2019	31/12/2018
Inventories	151	23
Accounts receivable	132	(119)
Other receivables including income taxes	(26)	(15)
Accounts payable	(177)	7
Other liabilities including income taxes	12	(26)
CHANGE IN WORKING CAPITAL	**92**	**(130)**

NOTE 31 | Off-balance sheet commitments

31.1 COMMITMENTS GIVEN

31.1.1 Off-balance sheet commitments given in the Group's operating activities

The main commitments given are summarized in the table below:

(In millions of euros)	31/12/2019	31/12/2018
Guarantees granted	75	75
Comfort letters	-	-
Contractual guarantees	11	7
Customs and excise guarantees	21	17
TOTAL	**107**	**99**

Guarantees granted are mainly bank guarantees in favour of local authorities and public bodies (State agencies, environmental agencies) in respect of environmental obligations or concerning classified sites.

31.1.2 Off-balance sheet commitments related to the Group's operating activities

Some of the commitments described in the lease commitments in note 29.1.2 to the consolidated financial statements at 31 December 2018, "Contractual commitments related to the Group's operating activities", do not fall within the scope of IFRS 16. Many of them are irrevocable purchase commitments described below, and service contracts or contracts making available assets that are not controlled by Arkema at 31 December 2019. Only the irrevocable portion of outstanding future purchases has been valued, and the corresponding amounts are included in the table below at 31 December 2019.

As of 1 January 2019 Arkema applies IFRS 16 "Leases". The impacts of this standard are described in notes B "Accounting policies", C1.9 "Impact of IFRS 16", and C12 "IFRS 16 leases". A reconciliation table of lease commitments at 31 December 2018 and the IFRS 16 debt is presented in note B, "Accounting policies".

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.

The total amount of the Group's financial commitments is €654 million at 31 December 2019, maturing as follows:

(En millions d'euros)	31/12/2019	31/12/2018
2019	-	202
2020	186	69
2021	105	67
2022	62	38
2023 until expiry of the contracts	301	282
TOTAL	**654**	**658**

31.1.3 Contractual commitments related to the Group's operating activities

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 €85 million at 31 December 2019 (€85 million at 31 December 2018). These amounts are stated net of provisions recognized in the balance sheet in respect of such warranties.

31.1.4 Off-balance sheet commitments related to Group financing

These commitments are described in note C23 "Debt".

31.2 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.

31.2.1 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, that performs 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 defence 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 defence 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$114 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 32 | Statutory auditors' fees

	KPMG		Ernst & Young	
(In millions of euros)	**2019**	**2018**	**2019**	**2018**
AUDIT				
Auditing, certification, review of individual and consolidated financial statements	**2.9**	**2.7**	**2.7**	**2.5**
Issuer	0.6	0.7	0.6	0.7
Fully consolidated subsidiaries	2.3	2.0	2.1	1.8
Other due diligence work and services directly related to the auditors' mission	**0.4**	**0.2**	**0**	**0.1**
Issuer	0.1	0.1	0	0
Fully consolidated subsidiaries	0.3	0.1	0	0.1
SUB-TOTAL	**3.3**	**2.9**	**2.7**	**2.6**
Other services provided by the networks to fully consolidated subsidiaries	**-**	**-**	**0.3**	**-**
TOTAL	**3.3**	**2.9**	**3.0**	**2.6**

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' mission shall not exceed 30% of fees for the audit of the individual and consolidated financial statements.

NOTE 33 | Subsequent events

On 12 December 2019 Arkema announced the acquisition of LIP Bygningsartikler AS (LIP), the Danish leader in tile adhesives, waterproofing systems and floor preparation solutions, with sales of approximately €30 million. This operation was finalized on 3 January 2020.

Also, taking advantage of favourable market conditions, on 21 January 2020 Arkema undertook a €300 million undated hybrid bond issue with an annual coupon of 1.5% until the first call date after 6 years. This issue complements the previous hybrid refinancing operation of June 2019 and puts the Group in a position to refinance the remaining €300 million portion of its outstanding 4.75% hybrid notes with a first call date in October 2020.

On 28 January 2020 the ceiling for Arkema's Euro Medium Term Notes (EMTN) programme was raised to €3.5 billion.

The Covid-19 epidemic, which started in January 2020 in China, has led to a number of disruptions for the Group. Quarantined personnel and transportation restrictions in China have impacted the supply chain. Furthermore, lower activity levels have affected the level of demand of our customers in China and in Europe. Uncertainty persists concerning the evolution of the epidemic and its impact on the Group's results beyond the month of February.

D. Scope of consolidation at 31 December 2019

(a) Companies which changed their name in 2019.
(b) Companies merged in 2019.
(c) Companies liquidated in 2019.
(d) Companies consolidated for the first time in 2019.
(e) Companies for which the percentage ownership was changed in 2019, with no change to control.
(f) Companies for which the percentage ownership was changed in 2019, with change to control.

The percentage of control indicated below also corresponds to the Group's ownership interest.

AEC Polymers	France	100.00	FC
Afinitica Process Technologies S.L.	Spain	100.00	FC
Afinitica Technologies S.L.	Spain	100.00	FC
Altuglas International Denmark A/S	Denmark	100.00	FC
Altuglas International Mexico Inc.	United States	100.00	FC
Altuglas International SAS	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	France	100.00	FC
Arkema Amériques S.A.S.	France	100.00	FC
Arkema Antwerp	Belgium	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 Coating Resins Ltd.	United Kingdom	100.00	FC
Arkema Company Ltd.	Hong Kong	100.00	FC
Arkema Daikin Advanced Fluorochemicals (Changshu) Co., Ltd.	China	60.00	JO
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 Ltd.		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		Brazil	100.00	FC
Arkema Quimica SAU		Spain	100.00	FC
Arkema Chemicals Saudi Arabia		Saudi Arabia	51.00	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 Acquisition Co.	(d) (b)	United States	100.00	FC
AMP Trucking, Inc.	(d)	United States	100.00	FC
AMZ Holding Corp.	(d)	United States	100.00	FC
AMZ Intermediate Holding Corp.	(d) (b)	United States	100.00	FC
AMZ Parent Corp.	(d) (b)	United States	100.00	FC
ARR MAZ GLOBAL HOLDINGS, S.L.	(d)	Spain	100.00	FC
ArrMaz Africa I, LLC	(d)	United States	100.00	FC
ArrMaz Africa II, LLC	(d)	United States	100.00	FC
ARR-MAZ Brazil LLC	(d)	United States	100.00	FC
ArrMaz Chemicals (Yunnan) Co., Ltd.	(d)	China	100.00	FC
ArrMaz Chemicals SAS	(d)	France	100.00	FC
ArrMaz China, LLC	(d)	United States	100.00	FC
ARR-Maz Custom Chemicals, Inc.	(d)	United States	100.00	FC
ARR-MAZ DO BRASIL LTDA.	(d)	Brazil	99.99	FC
ArrMaz Gulf Chemical Company Ltd.	(d)	Saudi Arabia	100.00	FC
ARR-MAZ Management Company	(d)	United States	100.00	FC
ARRMAZ MOROCCO SARLAU	(d)	Morocco	100.00	FC
ArrMaz Morocco, LLC	(d)	United States	75.00	FC
Arr-Maz Product, L.P.	(d)	United States	100.00	FC
ArrMaz Speciality Chemicals, Inc.	(d)	United States	100.00	FC
ARRMAZ TECHNOLOGY AFRICA, SARL	(d)	Morocco	100.00	FC
Barrflex TU LLC		United States	49.00	JV
Blueridge Films Inc.	(d)	United States	100.00	FC
Bostik AB		Sweden	100.00	FC

Bostik Aerosols GmbH	(a)	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.	(a)	Netherlands	100.00	FC
Bostik B.V.		Netherlands	100.00	FC
Bostik Canada Ltd.		Canada	100.00	FC
Bostik Egypt For Production of Adhesives S.A.E		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 SA		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 Ltd.		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 Technology GmbH	(a)	Germany	100.00	FC
Bostik Romania S.r.l	(a)	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		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
CUSTOM CHEMICALS CORPORATION	(d)	United States	100.00	FC
Daikin Arkema Refrigerants Asia Ltd.		Hong Kong	40.00	JV
Daikin Arkema Refrigerants Trading (Shanghai) Co., Ltd.		China	40.00	JV
Den Braven Belgium N.V.	(b)	Belgium	100.00	FC
Den Braven France		France	100.00	FC
Den Braven Produtos Quimicos, Unipessoal, Lda.		Portugal	100.00	FC
Den Braven Sealants GmbH		Austria	100.00	FC
Den Braven SA (Proprietary) Ltd.		South Africa	100.00	FC
Delaware Chemicals Corporation		United States	100.00	FC
Distri-Mark France	(b)	France	100.00	FC
Febex SA		Switzerland	96.77	FC
Ihsedu Agrochem Private Ltd.		India	24.90	SI
Jiangsu Bostik Adhesive Co., Ltd		China	100.00	FC
Lambson Europe		France	100.00	FC
LambsonLimited	(d)	United Kingdom	100.00	FC
MEM BAUCHEMIE GmbH		Germany	100.00	FC
Michelet Finance, Inc.		United States	100.00	FC
MLPC International		France	100.00	FC
Odor-Tech LLC		United States	100.00	FC
Ozark Mahoning Company		United States	100.00	FC
Prochimir	(d)	France	100.00	FC
Prochimmo	(d)	France	100.00	FC
Prochimmo2	(d)	France	100.00	FC
Prochitech	(d)	France	100.00	FC
Prochimir Inc.	(d)	United States	100.00	FC
Prochimir Real Estate Holdings Inc.	(d)	United States	100.00	FC
PT Bostik Indonesia		Indonesia	100.00	FC
Sartomer (Guangzhou) Chemicals Co., Ltd.		China	100.00	FC
Sartomer Distribution (Shanghai) Co., Ltd.		China	100.00	FC
Seki Arkema Co. Ltd.		South Korea	51.00	FC
Siroflex LLC	(a)	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.	(f)	China	100.00	FC
Tamer Endüstriyel Madencilik Anonim Sirketi		Turkey	50.00	FC
The LightLock Company Limited		Hong Kong	55.00	FC
Turkish Products, Inc.		United States	100.00	FC
Usina Fortaleza Industria E commercio de massa fina Ltda		Brazil	100.00	FC
Vetek SAU		Argentina	100.00	FC
Viking Chemical Company		United States	100.00	FC

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 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.
Tour EQHO
2, Avenue Gambetta
CS 60055
92066 Paris La Défense

Commissaire aux comptes
Membre de la Compagnie Régionale de Versailles

Ernst & Young Audit
Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Commissaire aux comptes
Membre de la Compagnie Régionale de Versailles

Arkema S.A.

Statutory auditors' report on the financial statements

For the year ended 31 December 2019

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 2019.

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 2019 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 rules applicable to us, for the period from January 1, 2019 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 or in the French Code of Ethics (Code de déontologie) for statutory auditors.

Justification of Assessments - Key Audit Matters

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 the entity Arkema France

Risk identified

As at December 31, 2019, the investments in affiliates recorded in the balance sheet at a net carrying amount of €2,905 million, including investments in the entity Arkema France in the amount of €1,527 million, representing 20% of total assets. Investments in affiliates are recognized in the balance sheet at the lower of acquisition cost or value in use.

As disclosed in Note B1 to the financial statements, value in use of investments held is determined based on the share of equity owned, or, where such methods provide more relevant information, with regard to an external valuation or by reference to discounted future cash flows. In particular, investments in the entity Arkema France are valued using the multiples method applied to the EBITDA of the company and its subsidiaries, adjusted for net debt within Arkema France.

Estimates 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 the entity Arkema France in the balance sheet and the importance of Management's judgement in determining the assumptions on which estimates of the value in use will be based, we considered the valuation of investments in affiliates to be a key audit matter.

Audit procedures implemented to address the risk identified

In order to assess the reasonable basis of the estimates of the value in use of investments in affiliates, our work consisted primarily in:

- verifying that value in use as estimated by Management is supported by appropriate justification of the valuation method and amounts used;
- verifying the consistency of the valuation method used;
- reconciling the data used in valuing investments in Arkema France (determining the EBITDA multiple used, contribution of EBITDA and net debt within Arkema France) with data from the accounting records, and verifying that adjustments made, if applicable, to these data are based on appropriate documentation;
- verifying the arithmetical accuracy of calculations.

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 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.441-4 of the French Commercial Code (Code de commerce).

Information relating to corporate governance

We certify the existence, in a section of the Board of Directors' management report relating to Corporate Governance, of the information required by Articles L. 225-37-3 and L. 225-37-4 of the French Commercial Code (Code de commerce).

Concerning the information given in accordance with the requirements of Article L. 225-37-3 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 controlling and controlled companies. 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.225-37-5 of the French Commercial Code, 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 purchase of investments and controlling interests and 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

Appointment of the Statutory Auditors

We were appointed as statutory auditors of Arkema by your Annual General Meeting held on June 23, 2005 for KPMG Audit, Departement of KPMG S.A., and on May 10, 2006 for ERNST & YOUNG Audit.

As at December 31, 2019, KPMG Audit, Departement of KPMG S.A., was in the fifteenth year of total uninterrupted engagement (including fourteen years since securities of the Company were admitted to trading on a regulated market) and ERNST & YOUNG Audit in the fourteenth 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) N° 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, February 26, 2020

The Statutory Auditors

French original signed by

KPMG Audit
Department of KPMG S.A.

Bertrand Desbarrières
Partner

Eric Dupré
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

5.4.2 Parent company financial statements at 31 December 2019

BALANCE SHEET

Assets		31.12.2019 Gross	31.12.2019 Depreciation and impairment	31.12.2019 Net	31.12.2018 Net
Investments	D 1	3,420	515	2,905	2,905
Other financial assets	D 1	3,472	0	3,472	2,969
TOTAL FIXED ASSETS		**6,892**	**515**	**6,377**	**5,874**
Advances	D 2	0	0	0	0
Trade receivables	D 2	33	0	33	22
Other receivables	D 2	166	0	166	177
Subsidiary current accounts	D 2	1,226	0	1,226	1,266
Treasury shares	D 2	11	0	11	28
Cash and cash equivalents		0	0		0
TOTAL CURRENT ASSETS		**1,436**	**0**	**1,436**	**1,493**
Bond premium and issuing costs	D 2	16	0	16	19
Prepaid expenses					
TOTAL ASSETS		**8,344**	**515**	**7,829**	**7,386**

		31.12.2019	31.12.2018
Share capital		766	766
Paid-in surplus		1,266	1,263
Legal reserve		76	100
Retained earnings		1,905	1,549
Net income for the year		165	522
TOTAL SHAREHOLDERS' EQUITY	D 3	**4,177**	**4,200**
ADDITIONAL EQUITY	D 4	**700**	**700**
PROVISIONS	D 5	**57**	**62**
Bonds and other financial debt	D 6	2,773	2,273
Subsidiary current accounts	D 8		
Trade payables	D 8	13	11
Tax and employee-related liabilities	D 8	**10**	8
Other payables	D 8	99	132
TOTAL LIABILITIES		**2,895**	**2,424**
TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY		**7,829**	**7,386**

INCOME STATEMENT

(In millions of euros)	Note	2019	2018
Services billed to related companies		109	86
Other purchases and external expenses		(82)	(64)
Taxes other than income taxes		(1)	(2)
Personnel expenses		(32)	(18)
Other operating expenses		(0)	(0)
Increases and reversals from provisions	D 5	0	(0)
OPERATING INCOME		**(6)**	**1**
Dividends from investments		100	0
Interest income		110	88
Interest expenses		(102)	(82)
Net foreign exchange gains (losses)		(0)	(0)
Impairment of investments		0	500
Increases and reversals of provisions for financial risks	D 5	(4)	(3)
FINANCIAL RESULT	D 10	**104**	**503**
INCOME BEFORE TAX AND EXCEPTIONAL ITEMS		**98**	**504**
Increases and reversals from exceptional provisions	D 5	5	5
Other exceptional income		18	8
Income and (expenses) on capital transactions		35	(13)
EXCEPTIONAL ITEMS		**58**	**1**
Income taxes	D 11	9	18
NET INCOME		**165**	**522**

CASH FLOW STATEMENT

(In millions of euros)	2019	2018
Net income	165	522
Changes in provisions	(0)	(502)
Changes in impairment		
(Gains)/losses on sales of assets		
GROSS OPERATING CASH FLOW	**165**	**20**
Change in working capital	(15)	(35)
CASH FLOW FROM OPERATING ACTIVITIES	**149**	**(15)**
Cost of acquisition of investments	0	(64)
Change in loans	(503)	(1)
Sale of investments	0)	0
CASH FLOW FROM INVESTING ACTIVITIES	**(503)**	**(65)**
Increase (decrease) in bonds	501	(2)
Increase in Additional equity	0	0
Change in share capital and other equity	3	54
Dividends paid to shareholders	(190)	(176)
CASH FLOW FROM FINANCING ACTIVITIES	**313**	**(123)**
CHANGE IN NET CASH	**(40)**	**(203)**
Net cash at beginning of period *	1 266	1 469
Net cash at end of period *	1 226	1 266

* *Including subsidiary current accounts*

TABLE OF SUBSIDIARIES AND INVESTMENTS AT 31 DECEMBER 2019

Subsidiaries and investments	Share capital (in €m)	Shareholders' equity other than capital, excluding net income (in €m)	Gross value of shares owned (in €m)	Net carrying amount of shares owned (in €m)	Number of shares owned	Ownership interest (%)	Loans, advances & current accounts - gross value (in €m)	Guarantees given by the Company (in €m)	Sales (excl taxes) for 2019[1] (in €m)	Net income for 2019 (in €m)	Dividends received by the Company (in €m)
FRENCH SUBSIDIARIES											
Arkema France *420, rue d'Estienne d'Orves 92 705 Colombes Cedex*	270	654	2,023	1,527	1,584,247	100.00	4,655.90	1,034	2,856	27	-
Arkema Amériques SAS 420, rue d'Estienne d'Orves 92 705 Colombes Cedex	1,049	346	1,057	1,057	104,918,729	100.00	-	-	-	7	100
Arkema Europe SA 420, rue d'Estienne d'Orves 92 705 Colombes Cedex	548	122	188	188	12,370,920	34.32	-		-	53	-
Arkema Asie SAS 420, rue d'Estienne d'Orves 92 705 Colombes Cedex	120	(14)	122	122	66,360	100.00	-	-	0	(28)	-
Arkema Afrique SAS 420, rue d'Estienne d'Orves 92 705 Colombes Cedex	30	(18)	30	11	300,370	100.00	-	-	-	0	-
TOTAL INVESTMENTS			**3,420**	**2,905**			**4,656**	**1,034**	**2,856**	**59**	**100**

(1) Financial statements not yet approved by the shareholders at the general meeting.

5.4.3 Notes to the parent company financial statements at 31 December 2019

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A. Highlights

- On 21 May 2019 the combined general meeting of Arkema's shareholders approved the distribution of a €2.50 dividend per share in respect of the 2018 financial year.
- HDI indemnity.

  Under the Group insurance policy, Arkema S.A. received an indemnity of €36.3 million in compensation for damage caused by Hurricane Harvey.
- Refinancing of perpetual hybrid bonds.

  Arkema took advantage of favourable market conditions to partially refinance its existing hybrid bonds through a combination of a new bond issue and a bond tender offer. On 17 June 2019 Arkema thus issued a €400 million perpetual hybrid bond. These bonds carry a first-call redemption option that Arkema may exercise at any time between 17 June 2024 and 17 September 2024, and have a coupon of 2.75% until the first call date, subject to early redemption. Arkema also accepted the tender of perpetual hybrid bonds amounting to €400 million at a tender price of 106.137%. These bonds were issued on 29 October 2014 in the total amount of €700 million, with a first call option on 29 October 2020 and an annual coupon of 4.75% until that date.
- New bond issue

  On 3 December 2019 Arkema issued a €500 million bond with 10-year maturity and an annual coupon of 0.75%. This operation enabled the Group to refinance its €480 million outstanding senior notes with a 3.85% coupon maturing in April 2020, taking advantage of favourable market conditions.

B. Accounting policies

The annual financial statements of Arkema S.A. were prepared under the responsibility of the Chairman and CEO of Arkema S.A. and were approved by the Board of Directors on 26 February 2020.

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 have been adapted to the holding activity exercised by the Company.

The usual French accounting conventions have been applied, in compliance with the conservatism principle, under the following basic assumptions:

- going concern;
- 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 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 2014-07 of 26 November 2014 of the French Accounting Standards Authority (Autorité des Normes Comptables), 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 financial fixed assets in a "Treasury shares for cancellation" sub-account when a decision is taken to cancel the shares. They are then recorded at their net carrying amount at the date on which their allocation is changed.

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 the heading 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 issuance 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 the operating income by a direct credit to the bond issuing cost 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 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.

7.2 Free share grants

Arkema S.A. shares will be definitively granted to beneficiaries at the end of a vesting period subject to the beneficiary remaining with the Company and 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, the capital increase by means of a transfer from reserves of the nominal amount of the shares created is recognized in the financial statements at the end of the defined vesting period.

7.2.2 Buybacks of existing shares

When a free share grant is carried out through buybacks of existing shares (following a decision taken 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 definitively granted 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 remaining with the Company and fulfilling the performance conditions set by the Board of Directors.

7.3 Social security tax 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 for expenses corresponding to the contribution payable for Arkema S.A. personnel is established progressively over the vesting period.

8. PENSION AND SIMILAR BENEFIT OBLIGATIONS

The complementary "top-hat" defined benefit pension plan was terminated during 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 (1.25% at 31 December 2019 versus 1.95% at 31 December 2018);
- 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.

9. 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 income) 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:

- in "other receivables", with an offsetting entry to income taxes, the amount of income taxes due by profitable companies in the tax consolidation group;
- 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 urgent issues committee of the CNC, Arkema S.A. does not recognize any provision for taxes.

c. Subsequent events

On 21 January 2020, Arkema SA took advantage of favourable market conditions to undertake a €300 million undated hybrid bond issue with annual coupon of 1.5% until the first call date after 6 years.

Also, on 28 January 2020 the ceiling for Arkema's Euro Medium Term Notes (EMTN) programme was raised to €3.5 billion

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)	31.12.2018	Increase	Decrease	31.12.2019
Gross value	3,420		-	3,420
Impairment	(515)			(515)
NET VALUE	**2,905**			**2,905**

1.2 OTHER FINANCIAL ASSETS

Arkema S.A. has 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 €3,430 million (excluding accrued interest) at 31 December 2019.

NOTE 2 Current assets

2.1 BREAKDOWN OF RECEIVABLES

The breakdown by maturity of the Company's receivables at 31 December 2019 is as follows:

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing after 1 year
Operating receivables and VAT [(a)]	37	37	-
Cash advances to the subsidiary [(b)]	1,226	1,226	-
Other receivables [(c)]	174	68	106
TOTAL	**1,437**	**1,331**	**106**

(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 intra-group receivables.

2.2 TREASURY SHARES

At 31 December 2019, Arkema S.A. owns 131,028 treasury shares which are recorded at the total value of €11 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 2019.

2.3 BOND PREMIUMS AND COSTS

The following amounts are recognized in this item:

(In millions of euros)	31/12/2018	Increase	Decrease	31/12/2019
Bonds				
Issue premiums	13.0	0.5 (2)	1.6 (1)	11.7
Issuing costs	2.4	0.9 (2)	0.4 (1)	2,9
SUBTOTAL	15.4	1.4	2.0	14.6
Perpetual hybrid bonds				
Issue premiums	2.4		1.9 (1)	0.5
Issuing costs	0,9	1.0 (3)	0.8 (1)	1.1
SUBTOTAL	**3.3**	**1.0**	**2.7**	**1.6**
TOTAL	**18.7**	**2.4**	**4.7**	**16.2**

(1) Amount charged to expenses for the period.
(2) New bond issue.
(3) New perpetual hybrid bond issue.

NOTE 3 Shareholders' equity

At 31 December 2019, the share capital is composed of 76,624,220 shares with a nominal value of 10 euros, compared to 76,581,492 shares with a nominal value of 10 euros at 31 December 2018.

Changes in shareholders' equity are as follows:

(In millions of euros)	Opening balance at 01/01/2019	Appropriation of 2018 net income	Distribution of dividends (1)	2019 net income	Capital increase due to subscriptions (2)	31/12/2019 before appropriation
Share capital	765.8				0,4	766.2
Issue premium	512.9				2,4	515.3
Paid-in surplus	625.9					625.9
Merger surplus	124.8					124,8
Legal reserve	100.0	- 24.4				75.6
Other reserves	0					0
Retained earnings	1,548.7	356.0				1,904.7
2018 net income	521.9	- 331.6	- 190.3			0
2019 net income		-		165.0		165.0
TOTAL SHAREHOLDERS' EQUITY	**4,200.0**	**0**	**- 190.3**	**165.0**	**2,8**	**4,177.5**

(1) On 21 May 2019 the shareholders' general meeting adopted a resolution proposing to distribute a dividend of €2.50 per share, or a total amount of €190.3 million, in respect of the 2018 financial year.
(2) Capital increases resulting from the exercise of stock options in 2019.
On 30 June 2019, Arkema S.A. undertook a capital increase of €0.4 million with a €2.4 million increase in the issue premium, following the exercise of stock options between 1 January and 30 June 2019.
The exercise period for stock options terminated on 30 June 2019.
Following completion of these operations, the share capital of Arkema S.A. was increased to €766.2 million divided into 76,624,220 shares.

NOTE 4 Additional equity

(In millions of euros)	Gross amount	Maturing within 1 year	Maturing after 1 year
Issuance of perpetual hybrid bonds	700	-	700

In connection with the financing of its acquisition of Bostik, Arkema S.A. issued a perpetual hybrid bond in October 2014 in the total amount of €700 million with an issue premium and issuing costs (see Note 2.3). These bonds include a first call option on 29 October 2020 and carry an annual coupon of 4.75% until that date.

Arkema took advantage of favourable market conditions in 2019 to partially refinance its existing hybrid bonds through a combination of a new bond issue and a bond tender offer. On 17 June 2019 Arkema thus issued a €400 million perpetual hybrid bond. These bonds carry a first-call redemption option that Arkema may exercise at any time between 17 June 2024 and 17 September 2024, and have a coupon of 2.75% until the first call date, subject to early redemption. Arkema also accepted the tender of perpetual hybrid bonds amounting to €400 million at a tender price of 106.137%.

NOTE 5 Provisions

Changes in provisions recognized in the Company's balance sheet are set out in the table below:

(In millions of euros)	31/12/2018	Increase	Decrease	31/12/2019
Provisions for pensions and similar benefits [a]	1.8	0.2	0.5	1.5
Provisions for long service awards	0.4	-	-	0.4
Provision for free share grants [b]	59.3	34.8	39.5 [c]	54.6
Provisions for risks related to subsidiaries	-	-	-	-
Provisions for other risks	0.1	-	-	0.1
TOTAL	**61.6**	**35.0**	**40.0**	**56.6**

(a) The increase mainly corresponds to entitlements earned over the year.
(b) Increases and reversals from these provisions are recorded in exceptional items.
(c) The decrease corresponds to a reversal following delivery of shares under the 2015 and 2016-1 plans.

These movements break down as follows:

Recognized in operating income	0.2	(0.5)
Recognized in financial result	0	0
Recognized in exceptional items	34.8	(39.5)
TOTAL	**35.0**	**(40.0)**

NOTE 6 Bonds and other financial debt

This heading covers:

- the bond issued in April 2012 that will mature on 30 April 2020, with fixed coupon of 3.85% and the tap issue undertaken in October 2012 bringing its total amount to €480 million;
- the €150 million bond issued in December 2013 that will mature on 6 December 2023, with fixed coupon of 3.125%;
- the €700 million bond issued in January 2015 that will mature on 20 January 2025, with fixed coupon of 1.5%;
- the bond issued in April 2017 that will mature on 20 April 2027 with 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 fixed coupon of 0.75%.

  These last four issues are part of the Group's Euro Medium Term Notes (EMTN) programme introduced in October 2013;
- the difference between the issue price and the nominal value of the 2012 bond, initially recognized in liabilities at the amount of €13.7 million (net of issuing costs); after a €1.9 million charge to the period, the balance of this difference amounts to €0.7 million at 31 December 2019;
- the difference between the issue price and the nominal value of the 2017 bond, recorded in liabilities at 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 €1.7 million at 31 December 2019;
- the accrued interest on bonds, amounting to €32.5 million;
- the accrued interest on the perpetual hybrid bond, amounting to €8.5 million.

NOTE 7 Negotiable European Commercial Paper

In April 2013 the Group introduced a Negotiable European Commercial Paper programme with a ceiling of €1 billion.

Issues outstanding as part of this programme amount to nil at 31 December 2019.

NOTE 8 Debt

The breakdown by maturity of the Company's debt at 31 December 2019 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	2,773	522 (a)	150 (b)	2,101 (b)
Trade payables	13	13	-	-
Tax and employee-related liabilities	10	10	-	-
Other payables	99 (c)	40	59	-
TOTAL	**2,895**	**585**	**209**	**2,101**

(a) 2012 bond, accrued interest on bonds and accrued interest on the perpetual hybrid bond, and the 2020 share of the issue premium recognized in liabilities.

(b) Long-term bonds issued by Arkema S.A. (see note D6).

(c) Income tax payables owed to companies in the tax consolidation group.

NOTE 9 | Details of items concerning related companies

(In millions of euros)	
Investments	
Investments in other companies*	2,905
Receivables related to subsidiaries	3,471
Receivables	
Trade receivables	33
Other receivables (current account)	1,226
Other amounts receivable	46
Liabilities	
Financial debt	-
Trade payables	9
Other payables	95
Sales	
Services billed to related companies	109
Financial income and expenses	
Dividends from investments	100
Income on loans and current accounts	105

* *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 2019, application of the French tax consolidation system resulted in an income tax receivable of €9.4 million for Arkema S.A.

This tax income consists of:

- income of €5.2 million corresponding to the tax paid by subsidiaries included in the tax consolidation group as if they were taxed separately;
- tax income of €4.2 million relating to the tax consolidation group, including a €3.2 million regularisation of 2018 income tax.

NOTE 12 | Deferred tax position

Temporarily non-deductible expenses relating to provisions for pensions and similar benefits at 31 December 2019 amount to €1.6 million, down by €0.2 million from 31 December 2018.

After utilisation of €12 million corresponding to the 2019 taxable income under the French tax consolidation system, the tax loss carry-forward of the Company's tax consolidation group at 31 December 2019 amounts to €1,473 million, and can be used indefinitely.

NOTE 13 | Stock option plans and free share grants

STOCK OPTIONS

The Board of Directors has decided not to introduce any further stock option plans.

Movements in the stock option plans granted in previous years and still outstanding at 31 December 2019 are as follows:

Plan	Total number of options granted*	Exercise price (€)*	Number of options exercised in 2019	Number of options cancelled in 2019	Total number of options exercised	Total number of options outstanding	Final year for exercising options
2011-1	109,082	65.92	10,000	-	109,082	-	2019
2011-2	109,082	65.92	32,728	-	109,082	-	2019

* *After adjustment following the capital increase with preferential subscription rights of November 2014.*

FREE SHARE GRANTS

On 29 October 2019, the Board of Directors decided to put in place two performance share plans for the benefit of Group employees, particularly employees with responsibilities whose exercise influences the Group's results.

Movements in the free share grant plans existing at 31 December 2019 are as follows:

Plan	Grant date	Vesting period	Conservation period	Total number of free shares granted	Number subject to performance conditions	Number of shares definitively granted in 2019	Number of shares cancelled in 2019	Total number of shares still to be granted at 31/12/2019
2015-1	9 nov. 2015	4 years	-	**285,525**	285,525	271,640	2,775	**-**
2015-2	9 nov. 2015	4 years	-	**59,595**	-	52,165	3,150	**-**
2016-1, 2	10 mai 2016	3-4 years	0-3 years	**43,278**	-	5,058	189	**38,031**
2016-3	7 juin 2016	1-3 years	2 years	**50,000**	-	16,666	-	**-**
2016-4	9 nov. 2016	3 years	2 years	**235,835** (1)	226,040	250,937	2,500	**-**
2016-5	9 nov. 2016	4 years	-	**122,080** (2)	112,860	400	3,170	**113,175**
2017-1	8 nov. 2017	3 years	2 years	**230,695** (3)	218,255	-	590	**229,645**
2017-2	8 nov. 2017	4 years	-	**129,405** (4)	114,845	200	2,985	**122,220**
2018-1,2	2 mai 2018		0-3 years	**41 137**	-	25	10	**41,087**
2018-3	5 nov. 2018	3 years	2 years	**231,820** (5)	217,570	-	980	**230,840**
2018-4	5 nov. 2018	4 years	-	**127,665** (6)	111,235	-	3,680	**123,985**
2019-1	29 oct. 2019	3 years	2 years	**237,945** (7)	225,015	-	-	**237,945**
2019-2	5 nov. 2019	4 years	-	**131,035** (8)	112,740	-	180	**130,855**

(1) May be raised to 258,439 in the event of outperformance.
(2) May be raised to 133,366 in the event of outperformance.
(3) May be raised to 252,521 in the event of outperformance.
(4) May be raised to 140,890 in the event of outperformance.
(5) May be raised to 254,011 in the event of outperformance.
(6) May be raised to 139,261 in the event of outperformance.
(7) May be raised to 270,018 in the event of outperformance.
(8) May be raised to 135,288 in the event of outperformance.

INCOME AND EXPENSES IN THE FINANCIAL YEAR IN RESPECT OF THE 2015 TO 2019 PLANS

The delivery of shares in respect of plans 2015 and 2016-1 led to recognition in the 2019 exceptional items of a net expense of €11.9 million (€51.4 million exceptional expense offset by a €39.5 million reversal from provisions).

The provision for free share grants was increased in 2019 by €34.8 million (of which €2.2 million relates to the 2019 plans).

The total amount of provisions in respect of all plans is €54.6 million at 31 December 2019.

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.

14.1 COMMITMENTS GIVEN

Syndicated credit facility

On 29 October 2014, the Group put in place a multi-currency syndicated credit facility of €900 million, with an initial duration of five years maturing on 29 October 2019, and the possibility of two one-year extensions subject to approval by the lenders, exercisable at the end of the first and the second year. The Group was authorized by its lenders to exercise these two extensions, bringing the maturity of this credit facility to 29 October 2021. This credit facility is intended to finance the Group's general requirements as a substitute line for the Negotiable European Commercial Paper programme, and includes an early repayment clause in the event of certain situations including a change in control of the Arkema Group. It includes: (i) standard information undertakings and commitments for this type of financing, and (ii) a financial undertaking by the Arkema Group to maintain the ratio of consolidated net debt to consolidated EBITDA (tested twice a year) below 3.5. This credit facility has not yet been used.

NOTE 15 | Liabilities and contingent liabilities

As a result of Hurricane Harvey in August 2017, 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 peroxides products that require refrigeration and, ultimately, a series of fires at the plant. Floodwaters also caused wastewater releases. Since September 2017, five civil lawsuits have been filed against Arkema Inc., including one in which Arkema S.A. is also a named defendant. At this time, Arkema S.A. has not been officially notified and cannot estimate the potential losses resulting from this lawsuit. If Arkema S.A. is officially notified, it will vigorously defend the case.

NOTE 16 | Employees

The average number of employees by category of personnel is as follows:

- engineers and managerial: 8;
- supervisors and technicians: 0;
- total: 8.

NOTE 17 | Transactions with related parties

The compensation of directors and members of its executive committee (Comex) recognized in expenses by Arkema S.A. is as follows:

(In millions of euros)	2019	2018
Salaries and other short-term benefits	9	8
Pensions, other post-employment benefits and contract termination benefits	-	-
Other long-term benefits	-	-
Share-based payments [(a)]	7	6

(a) This amount includes the cash payment to the Chairman and CEO in compensation for rights earned under the complementary pension plan which was terminated on 9 March 2016 by decision of the Board of Directors.

Salaries and other short-term benefits comprise all types of remuneration recorded, including variable amounts, bonuses, attendance fees and benefits in kind.

The Chairman and CEO is entitled to a contractual indemnity in the event of non-voluntary departure, up to a maximum of two years' total gross 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 regulation n° 2014-03 of 5 June 2014 of the French Accounting Standards Authority *(Autorité des Normes Comptables)*.

5.4.4 Article D. 441 I-1°: invoices issued and overdue at the year-end

The following table shows the number and total amount of supplier invoices received, due and not yet settled at 31 December 2019:

	Article D. 441 I-1°: invoices received and overdue at the year-end					
en K€	**0 day (indicative)**	**1 - 30 days**	**31 - 60 days**	**61 - 90 days**	**91 days and more**	**Total (1 day and more)**
(A) Period overdue						
Number of invoices concerned	0					
Total amount of invoices concerned	0	1	0	0	0	1
Percentage of annual sales	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %	0,00 %
(B) Invoices excluded from (A) relating to disputed or unrecognized receivables and payables						
Number of invoices excluded	0	0	0	0		0
Total amount of invoices excluded	0	0	0	0		0
(C) Standard payment terms (contractual or by law)						
Payment terms used to calculate overdue payments						

The following table shows the number and total amount of customer invoices issued, due and not yet settled at 31 December 2019:

	Article D. 441 I-1° : invoices issued and overdue at the year-end					
	0 day (indicative)	**1 - 30 days**	**31 - 60 days**	**61 - 90 days**	**91 days and more**	**Total (1 day and more)**
(A) Period overdue						
Number of invoices concerned	1					399
Total amount of invoices concerned	- 45	6 761	23 030		15	29 806
Percentage of annual sales (excluding taxes)	- 0,04 %	6,22 %	21,20 %		0,01 %	27,44 %
(B) Invoices excluded from (A) relating to disputed or unrecognized receivables 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 (contractual or by law)						
Payment terms used to calculate overdue payments	Contractual terms specified in the order					

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)	2015	2016	2017	2018	2019
Type of disclosures					
I – Financial position at year end					
a) Share capital	745	757	759	766	766
b) Number of shares issued	74,472,101	75,717,947	75,870,506	76,581,492	76,624,220
II – Operations and results					
a) Sales (excluding taxes)	18	19	66	86	109
b) Income before tax, depreciation, impairment and provisions	703	528	60	2	155
c) Income taxes	52	89	(51)	18	9
d) Employee profit sharing					
e) Income after tax, depreciation, impairment and provisions	754	767	485	522	165
f) Amount of dividends distributed	143	155	176	190	NC
III – Earnings per share (in euros)					
a) Income after tax but before depreciation, impairment and provisions	10.14	8.15	0.12	0.26	2.15
b) Income after tax, depreciation, impairment and provisions	10.12	10.13	6.39	6.82	2.15
c) Net dividend per share	1.90	2.05	2.30	2.50	NC
IV – Employee data					
a) Number of employees	7	9	9	8	8
b) Total payroll	7	8	7	8	9
c) Amounts paid to employee benefit bodies in the year	4	5	4	6	7

INFORMATION ABOUT THE COMPANY AND ITS SHARE CAPITAL

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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.

Dates	Nature of operation	Company	Businesses	Division
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 High Performance Materials
February 2012	Acquisition	Suzhou Hipro Polymers Co. Ltd.	Specialty polyamides	High Performance Materials
July 2012	Divestment	Vinyl Products division	Vinyls	Vinyl Products
October 2014	Joint venture	Taixing Sunke Chemicals	Acrylics	Coating Solutions
February 2015	Acquisition	Bostik	Adhesives	High Performance Materials
December 2016	Acquisition	Den Braven	High performance sealants	High Performance Materials
January 2018	Acquisition	XL Brands	Adhesives	High Performance Materials
July 2019	Acquisition	ArrMaz	Performance Additives	High Performance Materials
September 2019	Acquisition	Sunke (buyback of 45% interest held by Taixing Jurong Chemical)	Acrylics	Coating Solutions

Arkema is a French joint stock corporation (*société anonyme*) with a share capital of €766,242,200 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 are not part of this Universal Registration Document, except those expressly incorporated by reference to 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

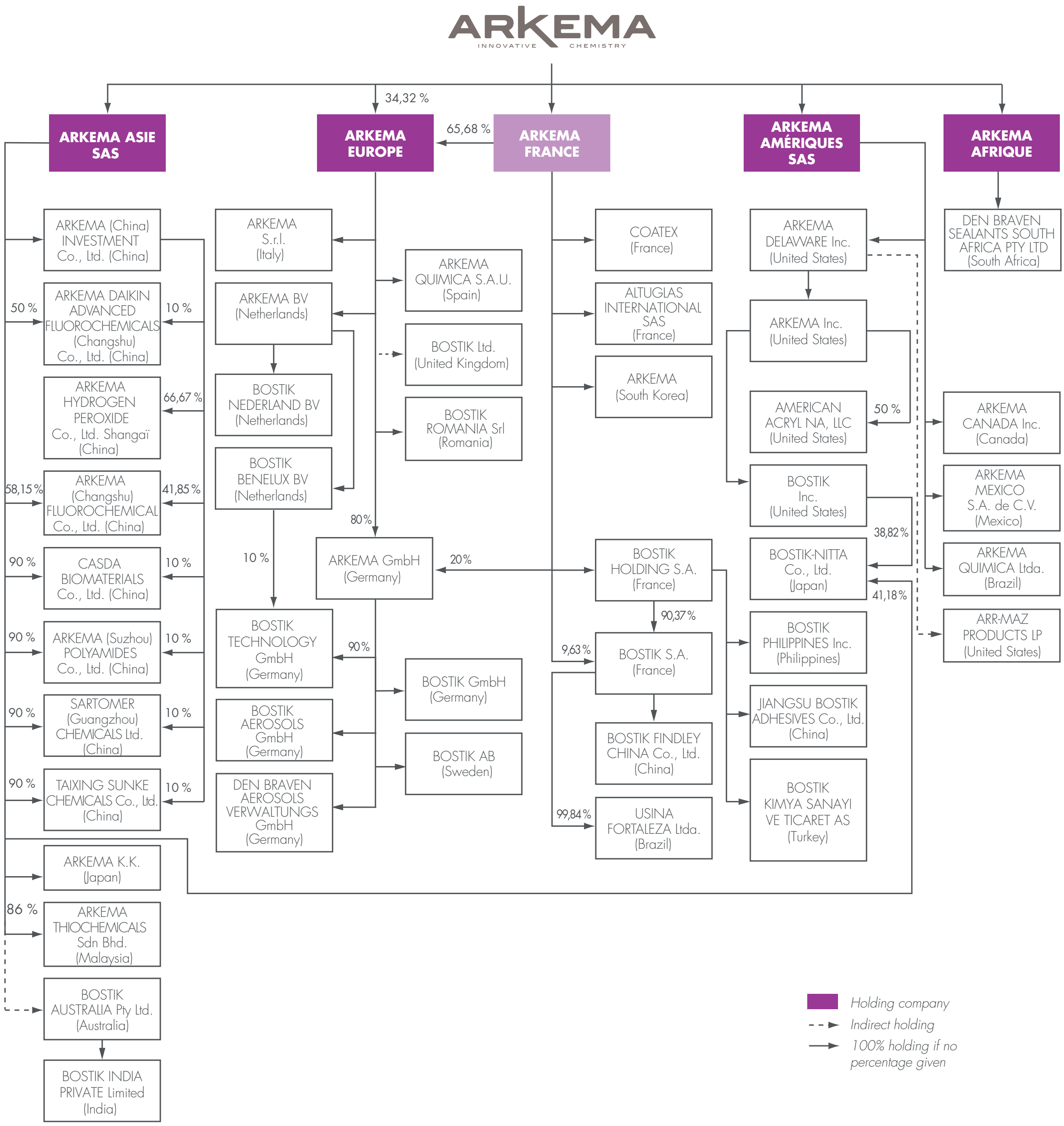
The Company is the Group's ultimate parent company. It is also the head of the French tax group put in place between companies subject to French corporation tax.

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 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 is given in section 1.2 of this document. The results of each division are presented in 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 note 28 to the consolidated financial statements at 31 December 2019 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 2019, the Company's share capital was €766,242,200 divided into 76,624,220 fully paid-up shares of the same class, with a par value of €10 per share. At that date, 131,028 shares were held in treasury. At 1 January 2019, the Company's share capital was made up of 76,581,492 shares.

In 2019, the number of shares increased by 42,728 resulting from the exercise of stock options.

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	Capital increase	Share premium
30 June 2017	€757,738,650	75,773,865	Exercise of stock options	55,918	€559,180	€1,329,706.94
31 December 2017	€758,705,060	75,870,506	Exercise of stock options	96,641	€966,410	€3,500,423.61
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	51,545	€515,450	€1,278,107.85
31 December 2018	€765,814,920	76,581,492	Exercise of stock options	49,036	€490,360	€2,742,093.12
30 June 2019	€766,242,200	76,624,220	Exercise of stock options	42,728	€427,280	€2,389,349.76

6.2.3 Pledges, guarantees, securities

At 31 December 2019, existing pledges on the Company's direct registered shares and administered registered shares respectively concerned 147 shares held by two shareholders, and 20,939 shares held by four shareholders, representing 0.0001% 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 December 2019, the Company directly held 131,028 treasury shares.

This section includes (i) a review of the share buyback program authorized in 2019, 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 21 MAY 2019 (2019 SHARE BUYBACK PROGRAM)

The combined annual general meeting of 21 May 2019 authorized the Board of Directors to implement a share buyback program capped at 10% of 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 18 May 2018, was granted for an 18-month period from the annual general meeting of 21 May 2019, i.e., until 20 November 2020. It is therefore still in force at the date of this document.

The maximum amount of funds to be allocated to the implementation of the share buyback program may not exceed €135 million.

At its meeting of 26 February 2019, the Board of Directors decided to implement the share buyback program subject to the authorization of the combined annual general meeting of 21 May 2019.

TRANSACTIONS CARRIED OUT AS PART OF THE 2019 SHARE BUYBACK PROGRAM

At 21 May 2019, when the annual general meeting approved the 2019 share buyback program, the Company held, directly or indirectly, 460,536 treasury shares.

The following tables give a summary of the transactions carried out as part of the 2019 share buyback program.

Summary statement at 31 January 2020	
Number of shares comprising the Company's share capital at 21 May 2019	76,624,220
Treasury shares held directly or indirectly at 21 May 2019	460,536
Number of shares purchased between 21 May 2019 and 31 January 2020	261,000
Weighted average gross price of shares purchased *(in euros)*	81.40
Number of treasury shares at 31 January 2020	131,028
Number of shares canceled in the last 24 months	None
Book value of portfolio *(in euros)*	10,889,643
Market value of portfolio *(in euros)* based on closing price at 31 January 2020, i.e., €83.02	10,877,945

	Aggregate gross movements		Open positions at 31 January 2020	
Summary of transactions carried out through the program between 21 May 2019 and 31 January 2020	**Purchases**	**Sales/transfers**	**Open buying positions**	**Open selling positions**
Number of shares	261,000	590,508	-	-
Average price of transaction *(in euros)*	81.40	-	-	-
Amounts *(in euros)*	21,245,478	-	-	-

BREAKDOWN OF TREASURY SHARES BY OBJECTIVE

At 31 January 2020, the Company's 131,028 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 2020 (2020 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 2020 to cancel the eleventh resolution voted by the combined annual general meeting of 21 May 2019, for its unused portion, and to authorize the implementation of a new share buyback program in accordance with the provisions of European Parliament and Council regulation no. 596/2014 dated 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 article 241-2 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 2020 share buyback program

As part of the 2020 share buyback program that is submitted to the combined annual general meeting of 19 May 2020, 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 *et seq.* of the French Commercial Code;
- offering employees the opportunity to acquire shares, whether directly or *via* a company savings plan (*Plan d'épargne 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.

Purchased shares may be canceled under the 12th resolution approved by the annual general meeting of 21 May 2019 which will remain in force until 20 May 2021.

Maximum portion of share capital to be bought back and maximum number of shares that may be acquired under the 2020 share buyback program

The maximum portion of the share capital that may be bought back under the 2020 share buyback program shall be 10% of the total number of shares making up the Company's share capital (i.e., 76,624,220 shares at 31 January 2020).

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 €100 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 31 December 2019, the theoretical amount that may be dedicated to this share buyback program may not exceed €766,242,200.

Terms and conditions for the 2020 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 2020 share buyback program

In accordance with the resolution to be submitted for the approval of the combined annual general meeting of 19 May 2020, the 2020 share buyback program would be authorized for a period of 18 months from the date of its approval, i.e., until 18 November 2021.

6.2.5 Summary of authorizations and their application

At 31 December 2019, 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 shareholders' 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	Use at 31 December 2019 (unless otherwise specified)
Capital increase*	Issue shares in the Company and/or securities giving access to shares in the Company **with** preferential subscription rights	18 May 2018	26 months	€379 million €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, **without** preferential subscription rights but with a priority period of at least three days	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018 €1 billion (debt securities)	None

Type of authorization	Description	Date of annual general meeting	Duration of authorization	Maximum authorized nominal amount	Use at 31 December 2019 (unless otherwise specified)
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, via an offering referred to in article L. 411-2 I of the French Monetary and Financial Code (*Code monétaire et financier*) (A)	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018 €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 (B)	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018	None
Capital increase*	Issue shares in the Company, within the limit of 10% of the share capital, as compensation for contributions in kind (C)	18 May 2018	26 months	10% of the Company's share capital at 18 May 2018	None
Capital increase*	In the event of a capital increase with or without preferential subscription rights, increase the number of shares to be issued	18 May 2018	26 months	15% of the initial issue, subject to the limit stated in the resolution authorizing the issue	None
Capital increase*	Overall limit of authorizations to increase the Company's share capital immediately and/or in the future	18 May 2018	26 months	€379 million and 10% of the Company's share capital at 18 May 2018 for authorizations (A) + (B) + (C)	None
Capital increase*	Carry out share issues reserved for members of a company savings plan	18 May 2018	26 months	€13.5 million	See section 6.2.7 of this chapter
Share buyback*	Carry out a share buyback program	21 May 2019	18 months	€135 per share €135 million (up to 10% of the share capital at any time)	Use at 31 January 2019: see section 6.2.4 of this chapter
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)
Capital reduction	Reduce the share capital by canceling shares	21 May 2019	24 months	10% of the share capital	None

* *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 2020.*

** *This number could be increased to 436,531 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.

Additional information on the stock option and performance share plans put in place by the Group is given in section 3.5 of this document as well as in note 29 to the consolidated financial statements for the year ended 31 December 2019 set out 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, 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.

Consequently, in accordance with the delegation of authority granted by the annual general meeting on 18 May 2018, by delegation of the Board of Directors on 20 January 2020, the Chairman and Chief Executive Officer decided on 3 March 2020 to carry out a share capital increase reserved for employees. The share capital increase took place in 30 countries in which the Group is present, from 6 to 19 March 2020 inclusive.

The subscription conditions were as follows:

- subscription price of €68.56, corresponding to the average opening price quoted in the 20 trading days preceding 3 March 2020, to which a 20% discount was applied;
- for employees of Group companies outside France, allocation of one free share for every four subscribed, up to a maximum of 25 free shares, with a vesting period of four years, with no holding period required, except in Italy and Spain where the shares will vest after three years, followed by a three-year holding period;
- for employees of French companies, possibility of subscribing to the capital increase using sums from the incentive scheme or the profit-sharing scheme, supplemented, as the case may be, by the employer; and
- possibility of spreading payment for the shares over 24 months.

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 2019:

Date of transaction	Name and position	Nature of operation	Shares concerned	Unit price	Amount of transaction
1 March 2019	Michel Delaborde, member of the Executive Committee of the Arkema Group	Exercise of stock option	Arkema shares	65.92	€263,680.00
1 March 2019	Michel Delaborde, member of the Executive Committee of the Arkema Group	Transfer	Arkema shares	87.90	€351,600.00

Date of transaction	Name and position	Nature of operation	Shares concerned	Unit price	Amount of transaction
5 March 2019	Thierry Le Hénaff, Chairman and Chief Executive Officer	Transfer	Arkema shares	91.09	€407,172.30
14 March 2019	Michel Delaborde, member of the Executive Committee of the Arkema Group	Exercise of stock option	Arkema shares	65.92	€375,744.00
14 March 2019	Thierry Le Hénaff, Chairman and Chief Executive Officer	Exercise of stock option	Arkema shares	65.92	€659,200.00
5 April 2019	Michel Delaborde, member of the Executive Committee of the Arkema Group	Exercise of stock option	Arkema shares	65.92	€197,100.80
5 April 2019	Michel Delaborde, member of the Executive Committee of the Arkema Group	Transfer	Arkema shares	87.80	€262,522.00
11 June 2019	Thierry Le Hénaff, Chairman and Chief Executive Officer	Vesting of free shares	Arkema shares	0	€0.00
11 June 2019	Michel Delaborde, member of the Executive Committee of the Arkema Group	Subscription	FCPE units	76.32	€83,877.50
11 June 2019	Thierry Le Hénaff, Chairman and Chief Executive Officer	Subscription	FCPE units	76.32	€162,024.79
12 November 2019	Bernard Boyer, member of the Executive Committee of the Arkema Group	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Thierry Le Hénaff, Chairman and Chief Executive Officer	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Christophe André, member of the Executive Committee of the Arkema Group	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Marc Schuller, member of the Executive Committee of the Arkema Group	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Luc Benoit-Cattin, member of the Executive Committee of the Arkema Group	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Vincent Legros, member of the Executive Committee of the Arkema Group	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Nathalie Muracciole, director representing employees	Vesting of free shares	Arkema shares	0	€0.00
12 November 2019	Jean-Marc Bertrand, director representing shareholder employees	Vesting of free shares	Arkema shares	0	€0.00
13 November 2019	Nathalie Muracciole, director representing employees	Transfer	Arkema shares	96.38	€9,638.00

6.3 SHARE OWNERSHIP

6.3.1 Breakdown of share ownership and voting rights at 31 December 2019

The breakdown of the share capital was established on the basis of a total number of 76,624,220 shares at 31 December 2019, carrying 86,506,631 voting rights (including double voting rights and after deduction of treasury shares), the threshold disclosures made to the AMF or the Company, and an analysis carried out by the Company based on identifiable bearer shares (*Titres au Porteur Identifiable* – TPI). TPI procedures were carried out at the end of 2019, 2018 and 2017.

To the best of the Company's knowledge, the breakdown of Arkema's share ownership and voting rights at 31 December 2019 was as follows:

	% of share capital	% of voting rights	% of theoretical voting rights*
Main shareholders owning at least 5% of the share capital and/or voting rights:			
Employee share ownership**(1)	6.3	10.0	9.9
Fonds Stratégique de Participations(2)	6.2	11.0	11.0
BlackRock Inc.	5.0	4.5	4.4
Treasury shares	0.2	0.0	0.2
Public	82.3	74.5	74.5
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 5.4% of the Company's share capital at 31 December 2019, representing 9.1% 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 Kem One (a business divested in 2012).

(2) Fonds Stratégique de Participations (FSP) is a member of the Board of Directors and is represented by Isabelle Boccon-Gibod (see section 3.2.1.2 of this document).

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 2019, 1,214,122 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 2019 was 4,821,673, representing 6.3% of the share capital and, taking into account double voting rights, 10.0% of the voting rights. This may be broken down as follows:

Shares held by Group employees within the Arkema Actionnariat France FCPE	2,725,868
Shares held by Group employees within the Arkema Actionnariat International FCPE	372,832
Direct registered shares held within a group savings plan *(Plan d'Épargne Groupe)*	328,931
Shares arising from the exercise of stock options and held as direct registered shares within a group savings plan	231,331
Free shares	1,162,711
TOTAL EMPLOYEE SHARE OWNERSHIP	**4,821,673**

6.3.5 Legal threshold disclosures

The following legal threshold disclosures were made to the AMF in 2019 and up to the date of this document:

Company	Date threshold crossed	Threshold crossed
BlackRock Inc.	24 July 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	26 July 2019	exceeded the 5% voting rights threshold
BlackRock Inc.	5 August 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	6 August 2019	exceeded the 5% voting rights threshold
BlackRock Inc.	20 August 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	21 August 2019	exceeded the 5% voting rights threshold
BlackRock Inc.	23 August 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	2 September 2019	exceeded the 5% voting rights threshold
BlackRock Inc.	5 September 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	6 September 2019	exceeded the 5% voting rights threshold
BlackRock Inc.	9 September 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	26 September 2019	exceeded the 5% voting rights threshold
BlackRock Inc.	5 November 2019	dropped below the 5% voting rights threshold
BlackRock Inc.	11 December 2019	dropped below the 5% share capital threshold

Company	Date threshold crossed	Threshold crossed
BlackRock Inc.	12 December 2019	exceeded the 5% share capital threshold
BlackRock Inc.	13 December 2019	dropped below the 5% share capital threshold
BlackRock Inc.	16 December 2019	exceeded the 5% share capital threshold
BlackRock Inc.	18 December 2019	dropped below the 5% share capital threshold
BlackRock Inc.	20 December 2019	exceeded the 5% share capital threshold
BlackRock Inc.	24 December 2019	dropped below the 5% share capital threshold
BlackRock Inc.	27 December 2019	exceeded the 5% share capital threshold
BlackRock Inc.	21 January 2020	dropped below the 5% share capital threshold
BlackRock Inc.	23 January 2020	exceeded the 5% share capital threshold
BlackRock Inc.	31 January 2020	dropped below the 5% share capital threshold
BlackRock Inc.	4 February 2020	exceeded the 5% share capital threshold
BlackRock Inc.	7 February 2020	dropped below the 5% share capital threshold
BlackRock Inc.	12 February 2020	exceeded the 5% share capital threshold
BlackRock Inc.	26 February 2020	dropped below the 5% share capital threshold

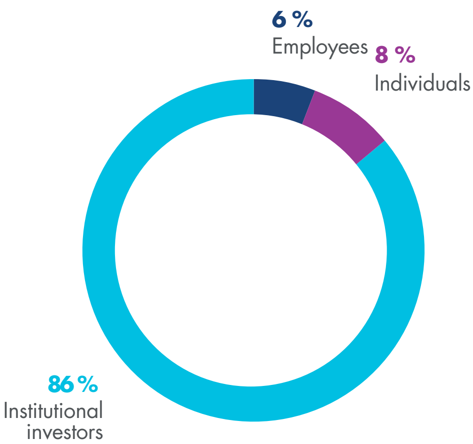
6.3.6 Breakdown of share ownership and voting rights

To the best of the Company's knowledge, Arkema's estimated share ownership at 31 December 2019, 2018 and 2017 was as follows [1]:

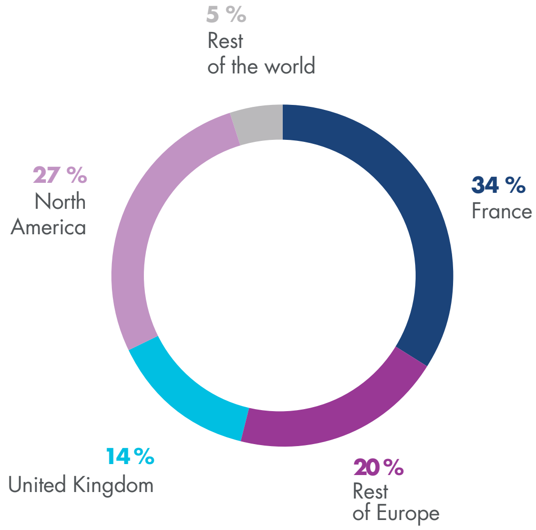
	31 December 2019		31 December 2018		31 December 2017	
	% of share capital	% of voting rights	% of share capital	% of voting rights	% of share capital	% of voting rights
Fonds Stratégique de Participations	6.2	11.0	6.2	11.0	6.3	11.1
BlackRock Inc.	5.0	4.5	9.8	8.8	5.9	5.2
Other institutional shareholders	74.5	66.0	70.6	62.7	76.5	67.8
Individual shareholders	7.8	8.5	7.1	8.0	6.2	7.3
Employee share ownership	6.3	10.0	5.9	9.5	5.1	8.6
Treasury shares	0.2	0.0	0.4	0.0	0.0	0.0
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**
Number of shares/voting rights	76,624,220	86,506,631	76,581,492	86,162,135	75,870,506	85,632,241

(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 2019)



BREAKDOWN OF SHARE OWNERSHIP BY REGION (AT 31 DECEMBER 2019)



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;
- SBF 120;
- Euro Stoxx Chemicals; and
- MSCI.

ARKEMA SHARE PERFORMANCE

	2019	2018	2017
Market capitalization at year-end *(in billions of euros)*	7.3	5.7	7.7
Performance since 1 January *(situation at 31 December)*	+26.3%	-26.2%	+9.3%
Last closing price of the year *(in euros)*	94.70	74.96	101.55
Average of last 30 closing prices *(in euros)*	94.91	80.13	103.12
Highest price of the year *(in euros)*	97.54	112.00	110.60
Lowest price of the year *(in euros)*	73.32	72.96	87.69

ARKEMA SHARE HISTORICAL DATA SINCE 1 JANUARY 2019

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 2019	5,905,902	480.29	85.50	72.88
February 2019	5,246,129	443.76	89.84	79.16
March 2019	5,883,044	519.25	94.00	83.38
April 2019	4,824,223	444.68	95.62	86.60
May 2019	6,829,924	549.51	91.02	74.00
June 2019	6,008,360	472.33	83.78	73.44
July 2019	6,748,263	554.75	87.10	75.60
August 2019	6,057,453	472.48	86.78	72.24
September 2019	5,955,293	499.37	88.66	78.00
October 2019	7,472,041	658.17	94.84	79.86
November 2019	6,269,331	601.70	98.50	91.24
December 2019	4,629,328	438.41	98.28	91.14
January 2020	6,306,298	554.45	95.66	82.68
February 2020	6,258,478	540.96	93.36	82.46

(1) Source: Euronext monthly statistics.

ARKEMA SHARE PRICE CHANGES SINCE 1 JANUARY 2016

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 and presentations, and minutes of annual general meetings are available in the "Investor Relations" section on the Group's website (www.finance.arkema.com). 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.finance.arkema.com). A French version of this Universal Registration Document is also available on the Group's website.

Arkema will provide a strategic update on 2 April 2020. Therefore, please also refer to the documents (presentation and press release) that will be presented on this occasion for the most recent information regarding the Group's organization.

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. 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 in 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 with the financial community is hosted by the Chairman and Chief Executive Officer or by the Chief Financial Officer.

In 2019, the Group held some 500 meetings and took part in a number of industry conferences, notably in Paris and London.

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. In 2019, Arkema also participated in the Investor Day in Paris and attended meetings with individual shareholders in the Paris region and across France.

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.

Presentations, interviews, reports and shareholder newsletters are available in the "Individual shareholders" section of the Group's website (www.finance.arkema.com).

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 71 29 81 70 (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)

Email address: paris_bp2s_arkema_actionnaires@bnpparibas.com

6.4.7 Dividend policy

Dividends are a key component of the Group's shareholder return policy. Therefore, the Company aims to pay a stable to growing dividend each year.

Taking into account this policy and the Group's performance in 2019, the Board of Directors decided, at its meeting on 26 February 2020, after closing the financial statements at 31 December 2019, to propose to the annual general meeting of 19 May 2020 the payment of a cash-only dividend of €2.70 per share, up 8% compared to 2018. This decision reflects the confidence of the Board of Directors in the Group's development prospects and solid cash flow generation.

Shares will be traded ex-dividend on 25 May 2020 and the dividend will be paid as from 27 May 2020.

	2019 (1)	2018	2017	2016	2015
Dividend per share *(in euros)* (2)	2.70	2.50	2.30	2.05	1.90
Payout ratio (dividend per share/adjusted net income per share)	33%	26%	29%	37%	45%

(1) In 2019, dividend proposed to the annual general meeting of 19 May 2020.
(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 around 11% a year.

6.5 EXTRACT FROM THE ARTICLES OF ASSOCIATION

6.5.1 General meetings (articles 16, 17.1 and 17.2 of the Articles of Association)

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 seven 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 holding the account 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.* 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 of the Articles of Association)

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 of the Articles of Association)

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 8.2 of the Articles of Association)

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

7

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7.2 PROPOSED AGENDA AND PROPOSED RESOLUTIONS SUBMITTED TO THE ANNUAL GENERAL MEETING AFR **368**

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7.4 STATUTORY AUDITORS' REPORT ON THE ISSUANCE OF ORDINARY SHARES AND/OR MARKETABLE SECURITIES RESERVED FOR EMPLOYEES SUBSCRIBING TO A COMPANY SAVINGS PLAN AFR **385**

7.5 STATUTORY AUDITORS' REPORT ON THE ISSUE OF SHARES AND/OR VARIOUS SECURITIES WITH OR WITHOUT CANCELLATION OF PREFERENTIAL SUBSCRIPTION RIGHTS AFR **386**

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 AND COMMITMENTS

This is a free translation into English of the statutory auditors' special report on related-party agreements and commitments 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.

KPMG Audit
Département de KPMG S.A.
Tour EQHO
2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre

Statutory auditor
Member of the "Compagnie
Régionale de Versailles

Ernst & Young Audit
Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre

Statutory auditor
Member of the "Compagnie
Régionale de Versailles

Arkema

Annual General Meeting held to approve the financial statements for the year ended December 31, 2019

Statutory auditors' report on related party agreements and commitments

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 and commitments.

We are required to inform you, on the basis of the information provided to us, of the terms and conditions of those agreements and commitments 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 and commitments. 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 and commitments 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 2019, of the agreements and commitments 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 and commitments submitted for approval to the Annual General Meeting

We hereby inform you that we have not been notified of any agreements or commitments authorized during the year ended 31 December 2019 to be submitted to the Annual General Meeting for approval in accordance with Article L.225-38 of the French Commercial Code (Code de commerce).

Agreements and commitments previously approved by the Annual General Meeting

We hereby inform you that we have not been notified of any agreements or commitments previously approved by the Annual General Meeting, whose implementation continued during the year ended 31 December 2019.

In addition, we have been notified that the following agreement, which was approved by the Annual General Meeting in prior years, was not implemented during the year ended 31 December 2019.

- With Mr Thierry Le Hénaff, Chief Executive Officer of your Company

In its meeting held on March 2, 2016, your Board of Directors decided to renew the commitment relating to the termination indemnity of the duties of Mr Thierry Le Hénaff, Chief Executive Officer of your company, in the event of a forced departure. In accordance with Article L. 225-42-1 of the French Commercial Code (Code de commerce), the granting of this indemnity was submitted for the approval of your Annual General Meeting , held on June 7,2016.

The Chief Executive Officer of your company shall only benefit from a departure indemnity in the event of a forced departure, regardless of the form this departure takes, notably in the event of removal before the end of his term or non-renewal of his term as Chief Executive Officer at the end thereof, relating to a change in control or strategy. The indemnity shall not be due in the event of gross or wilful misconduct.

The amount of this indemnity shall not exceed two years' total annual gross remuneration (fixed and variable), it being specified that the basis for calculating the latter shall be the fixed remuneration for the year during which the forced departure occurs, and the average of the last two amounts of variable annual remuneration paid prior to the departure.

The methods for calculating this indemnity are specified in our report on related party agreements and commitments dated March 11, 2016.

Paris La Défense, February 26, 2020

The Statutory Auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

Eric Dupré
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

7.2 PROPOSED AGENDA AND PROPOSED RESOLUTIONS SUBMITTED TO THE ANNUAL GENERAL MEETING

7.2.1 Proposed agenda for the annual general meeting of 19 May 2020

RESOLUTIONS SUBMITTED TO THE ORDINARY GENERAL MEETING

- Approval of the Company's financial statements for the year ended 31 December 2019.
- Approval of the consolidated financial statements for the year ended 31 December 2019.
- Allocation of profit for the year ended 31 December 2019 and distribution of dividends.
- Statutory auditors' special report on related-party agreements and commitments referred to in articles L. 225-38 *et seq.* of the French Commercial Code (*Code de commerce*).
- Reappointment of Thierry Le Hénaff as a member of the Board of Directors.
- 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.
- Approval of the information provided for in the report on corporate governance relating to the remuneration of executive officers (Article L. 225-37-3 I of the French Commercial Code).
- Approval of the components of compensation paid in or awarded to the Chairman and Chief Executive Officer for the year ended 31 December 2019.
- Reappointment of KPMG Audit as statutory auditor.
- 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 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 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 issue shares in the Company as compensation for contributions in kind.
- Authorization granted to the Board of Directors to increase the number of shares to be issued with or without preferential subscription rights, in the event of a capital increase pursuant to the five foregoing resolutions.
- 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 entreprise*) without preferential subscription rights.
- Amendment of articles 8, 10.1.4, 10.2, 10.3 and 12 of the Company's Articles of Association.
- Powers to carry out formalities.

7.2.2 Proposed resolutions submitted to the annual general meeting of 19 May 2020

RESOLUTIONS SUBMITTED TO THE ORDINARY GENERAL MEETING

First resolution

(Approval of the Company's financial statements for the year ended 31 December 2019)

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 2019, 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 formally notes that no expenses or charges referred to in article 39-4 of said code were incurred during the past financial year.

Second resolution

(Approval of the consolidated financial statements for the year ended 31 December 2019)

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 2019, 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 2019 and distribution of dividends)

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 2019 show a profit of €164,980,613.38, plus prior retained earnings of €1,904,744,218.24, decides, as recommended by the Board of Directors, to allocate the profit for the financial year as follows:

Source	
Profit for the period	€164,980,613.38
Prior retained earnings	€1,904,744,218.24
Distributable profit	€2,069,724,831.62

Allocation	
Legal reserve	€1,042,728
Dividend distribution [(1)]	€206,885,394
Retained earnings	€1,861,796,709.62

(1) The total dividend distribution is calculated on the basis of the number of shares carrying dividend rights at 1 January 2019 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.

Accordingly, the annual general meeting decides to pay a dividend of €206,885,394 with regard to the 76,624,220 shares carrying dividend rights on 1 January 2019 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions, corresponding to a distribution of two euros and seventy cents (€2.70) 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 25 May 2020 and the dividend for the 2019 financial year will be paid as of 27 May 2020.

The dividend is 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 French Tax Code.

The dividend paid for the last three financial years was as follows:

Financial year	2019	2018	2017
Net dividend per share *(in euros)*	2.70 [(1)]	2.50 [(1)]	2.30 [(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.

Fourth resolution

(Approval of the statutory auditors' special report on related-party agreements and commitments 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, in which no new agreement is identified, duly notes the information relating to the agreements entered into and the commitments made during the financial year and prior financial years and approved by the annual general meeting.

Fifth resolution

(Reappointment of Thierry Le Hénaff 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 and noting that the term of office as director of Thierry Le Hénaff expires on the date of this meeting, decides to reappoint him for a term of four (4) years expiring at the close of the annual general meeting to be held in 2024 to approve the financial statements for the year ending 31 December 2023.

Sixth 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. 225-37-2 II of the French Commercial Code.

Seventh 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. 225-37-2 II of the French Commercial Code.

Eighth resolution

(Approval of the information provided for in the report on corporate governance relating to the remuneration of executive officers (Article L. 225-37-3 I 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 corporate governance report referred to in article L. 225-37 of the French Commercial Code, approves the information provided for in article L. 225-37-3 I and presented in sections 3.4.1.2 and 3.4.2.2 of this document, in compliance with article L. 225-100 II of the French Commercial Code.

Ninth resolution

(Approval of the components of compensation paid in or awarded to the Chairman and Chief Executive Officer for the year ended 31 December 2019)

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 2019 to Thierry Le Hénaff, as presented in section 3.4.2.2 of this document, in compliance with article L. 225-100 III of the French Commercial Code.

Tenth resolution

(Reappointment of KPMG Audit as statutory auditor)

The annual general meeting, voting in accordance with the quorum and majority requirements for ordinary general meetings, and having noted that the term of office of KPMG Audit as statutory auditor is due to expire at the close of this meeting, decides to reappoint it for a term of six (6) financial years, i.e. until the ordinary general meeting to be held in 2026 to approve the financial statements for the year ending 31 December 2025.

Eleventh resolution

(Authorization granted to the Board of Directors for a period of 18 months 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. 225-209 *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 €100 per share.

However, the Board of Directors may adjust the 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 December 2019, the theoretical amount that may be dedicated to this share buyback program may not exceed €766,242,200;

(iii) under no circumstances can 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;

(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, 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 *et seq.* of the French Commercial Code;

(vi) offering employees the opportunity to acquire shares, whether directly or *via* a company savings plan (*Plan d'épargne 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 annual general meeting of 21 May 2019 in its 11th resolution.

RESOLUTIONS SUBMITTED TO THE EXTRAORDINARY GENERAL MEETING

Twelfth resolution

(Delegation of authority granted to the Board of Directors for a period of 26 months, to issue shares in the Company and/or securities giving immediate or future 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. 225-129-2, L. 225-132, and L. 228-91 *et seq.*:

(i) authorizes the Board of Directors to carry out one or more capital increases via the issue, with preferential subscription rights, in France or any other country, of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, in the proportion and at the times that it deems appropriate, including warrants, issued against payment or free of consideration, which can be subscribed either in cash or by offsetting receivables;

(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 18th 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 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 (1) billion euros 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 12th to 17th 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 corresponding 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;

(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 annual general meeting of 18 May 2018 in its 15th resolution.

Thirteenth resolution

(Delegation of authority granted to the Board of Directors for a period of 26 months, to issue shares in the Company and/or securities giving immediate or future 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, without preferential subscription rights but with a minimum three-day 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. 225-129-2, L. 225-135, L. 225-136, and L. 228-91 *et seq.*:

(i) authorizes the Board of Directors to carry out one or more capital increases via the issue, without preferential subscription rights, in France or any other country, of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, in the proportion and at the times that it deems appropriate, by means of a public offering (other than those referred to in article L. 411-2 1° of the French Monetary and Financial Code), which may be subscribed either in cash or by offsetting due and payable receivables;

(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 article L. 225-135 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 18th 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 (1) billion euros 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 12th to 17th 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 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 on the conditions provided for in article L. 225-148 of the French Commercial Code;

(x) 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;

(xi) 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 annual general meeting of 18 May 2018 in its 16th resolution.

Fourteenth resolution

(Delegation of authority granted to the Board of Directors for a period of 26 months, to increase the share capital via the issue of shares in the Company and/or securities giving immediate or future access to shares in the Company, without preferential subscription rights, in the context 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, and L. 228-91 *et seq.*:

(i) authorizes the Board of Directors to carry out one or more capital increases via the issue, without preferential subscription rights, in France or any other country, of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, in the proportion and at the times that it deems appropriate, in the context of a public offering referred to in article L. 411-2 1° of the French Monetary and Financial Code, which may be subscribed either in cash or by offsetting receivables;

(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 18th 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 is one (1) billion euros 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 12th to 17th 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;

(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 annual general meeting of 18 May 2018 in its 17th resolution.

Fifteenth resolution

(Authorization granted to the Board of Directors for a period of 26 months, in the event of the issue of shares in the Company 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 article L. 225-136 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 13th and 14th resolutions, 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:

- the 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 was 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, where appropriate, in either case a maximum discount of 10%,

- the 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 above,
- the maximum nominal amount of capital increases resulting from the implementation of this resolution is 10% of the share capital over a 12-month period, and will be included in the limit provided for in the 13th or 14th resolutions as applicable and in the overall limits provided for in the 18th 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 authorization granted for the same purpose and in particular that given by the annual general meeting of 18 May 2018 in its 18th resolution.

Sixteenth resolution

(Delegation of authority granted to the Board of Directors to issue shares in the Company, within the limit of 10% of the total share capital, 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' special report, in accordance with the provisions of the French Commercial Code, and in particular article L. 225-147:

(i) gives full powers to the Board of Directors to carry out one or more capital increases via the issue of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, as compensation for contributions in kind granted to the Company in the form of shares or securities carrying rights to shares in another company, when the provisions of article L. 225-148 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 14th resolution of this annual general meeting;

(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 resolution;

(iv) 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;

(v) 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 annual general meeting of 18 May 2018 in its 19th resolution.

Seventeenth 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 12th to 16th 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;

(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 annual general meeting of 18 May 2018 in its 20th resolution.

Eighteenth 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:

- 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 12th to 17th resolutions at 50% of the share capital on the date of this annual general meeting;
- 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 14th to 16th resolutions at 10% of the share capital on the date of this annual general meeting;

on the understanding 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.

Nineteenth 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 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. 228-92, 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 or securities giving access to existing shares or shares to be issued 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, 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 (13,500,000) euros. 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 of the Arkema share's Euronext Paris trading prices 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;

(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 of 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 of 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 of 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;
- 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 annual general meeting of 18 May 2018 in its 22nd resolution.

Twentieth resolution

(Amendment of articles 8, 10.1.4, 10.2, 10.3 and 12 of the Company's Articles of Association)

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 delete article 8.1 of the Articles of Association and, accordingly, to amend the title of article 8 as follows: *"Article 8. Threshold disclosures"* and delete the title of article 8.2, pursuant to the provisions of article 198 of French Law no. 2019-486 of 22 May 2019 on the action plan for business growth and transformation, which introduces a legal framework for identifying holders of bearer shares in the Company.

  The remainder of article 8 remains unchanged.
- to amend article 10.1.4 of the Articles of Association as follows, in accordance with the provisions of article 185 of French Law no. 2019-486 of 22 May 2019 on the action plan for business growth and transformation, which has eliminated the concept of "directors' fees" and the new article L. 225-37-2 of the French Commercial Code as amended by Order no. 2019-1234 of 27 November 2019:

  "10.1.4 Compensation

  In accordance with the compensation policy for directors approved each year by the shareholders' meeting under the conditions provided for in article L. 225-98 of the French Commercial Code, the Board grants the directors compensation according to the practical methods set out in the policy and subject to the maximum aggregate amount set by the shareholders' meeting.

  The compensation policy for directors proposed by the Board to the shareholders' meeting must respect the Company's interests and contribute to its sustainability and commercial strategy.

  Expenses incurred by the directors in the performance of their duties shall be reimbursed by the Company upon the presentation of supporting documents."
- in accordance with the provisions of article L. 225-23 of the French Commercial Code, as amended by French Law no. 2019-486 of 22 May 2019,
  - to amend article 10.2 of the Company's Articles of Association as follows:

    1. to replace the first paragraph with the following provisions:

    "If the report presented by the Board of Directors to the annual general meeting pursuant to article L. 225-102 of the French Commercial Code shows that the number of shares held by employees of the Company and companies related to it within the meaning of article L. 225-180 of said Code represent more than 3% of the share capital, a director representing shareholder employees shall be appointed by the ordinary general meeting in accordance with the provisions of the applicable laws and regulations and with the provisions of these Articles of Association."

    2. to replace the final paragraph with the following provisions:

    "The provisions of article 10.1.1 referring to the number of shares that must be held by a director do not apply to directors representing shareholder employees. However, the director representing shareholder employees, must hold, individually or through a company mutual fund (Fonds Commun de Placement d'Entreprise – FCPE) governed by article L. 214-164 of the French Monetary and Financial Code, 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."

    The remainder of article 10.2 remains unchanged;

- to amend article 10.3 of the Articles of Association as follows to establish the terms and conditions for appointing a second director representing employees, having considered the favorable opinion of the Group's Works Council and in accordance with the provisions of article L. 225-27-1 of the French Commercial Code, as amended by French Law no. 2019-486 of 22 May 2019:

  "10.3 Director representing employees

  In accordance with the provisions of article L. 225-27-1 of the French Commercial Code, the number of directors representing employees on the Board of Directors is determined by the number of directors appointed by the ordinary general meeting.

  The director or directors representing employees are appointed as follows:

  - *the Group Works Council provided for in article L. 2331-1 of the French Labor Code (whose functions are assured by the French delegation of the European Group Works Council in compliance with the agreement establishing Arkema's European Group Works Council on 21 March 2007) appoints the director representing employees;*
  - *if the number of directors appointed by the ordinary general meeting is more than eight, a second director representing employees is appointed by the European Works Council in compliance with article L. 2343-1 of the French Labor Code (whose functions are assured by all of the members of the European Group Works Council in compliance with the agreement establishing Arkema's European Group Works Council on 21 March 2007).*

  Candidates for the position of director representing employees are put forward by the trade unions represented in the French delegation of the European Group Works Council (or the European Group Works Council if a second director representing employees is appointed). All candidates must meet the legal and regulatory requirements for appointment.

  Having been informed of the proposed appointment of the director or directors representing employees, the trade unions referred to above must provide the Chairman of the European Group Works Council with a list of candidates no later than fifteen days prior to drafting the agenda for the European Group Works Council meeting scheduled to appoint said director or directors along with a document outlining the career history of each candidate.

  The director representing employees is appointed by simple majority vote, held by secret ballot, of the members of the French delegation of the European Group Works Council and, for a second director, all of the members of the European Group Works Council. In the event of a tie, a second round of voting takes place involving candidates that obtained the highest number of votes. If there is a second tie, a third round of voting will take place involving candidates that participated in the second round. If there is still a tie at the end of the third round, the candidate who has been employed by Arkema for the longest period of time will be appointed.

  The duration of the term of office of a director representing employees is the period provided for in article 10.1.2 above. This term of office expires at the end of the European Group Works Council meeting held to decide whether to renew the term or appoint a new director during the year in which the term expires. This renewal or appointment of a new director takes place during the European Group Works Council's first ordinary meeting following the Company's annual general meeting. However, a director representing employees is 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 established on French soil.

  If, for whatever reason, the position of director representing employees falls vacant, his or her replacement will take place in compliance with the terms and conditions set out above. He or she will carry out his or her duties for the remainder of the predecessor's term of office. Up to the replacement date, the Board of Directors may meet and legitimately deliberate.

  The director(s) representing employees is/are not taken into account when establishing the minimum and maximum number of directors provided for in article 10.1 above nor when applying the first paragraph of article L. 225-18-1 of the French Commercial Code.

  The provisions of article 10.1.1 relating to the number of shares that must be held by a director do not apply to the director(s) representing employees.

  If at the end of the financial year, the provisions of article L. 225-27-1 of the French Commercial Code no longer apply to the Company, the term of office of the director or directors representing employees expires at the end of the Board of Directors' meeting acknowledging that this is the case.";
- to add the following paragraph after paragraph 6 of article 12, in accordance with the provisions of article L. 225 37, 3 of the French Commercial Code, as amended by French Law no. 2019-486 of 22 May 2019:

  "Article 12. Meetings of the Board of Directors

  (…)

  The Board of Directors may also take decisions that come under its authority, as defined in the third paragraph of article L. 225-37 of the French Commercial Code, by written consultation."

  The remainder of article 12 remains unchanged.

Twenty-first 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 ANNUAL GENERAL MEETING OF 19 MAY 2020

The Board of Directors proposes to submit the resolutions described below to the vote of the shareholders at the annual general meeting of 19 May 2020.

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 for the year ended 31 December 2019, respectively.

In the **1st resolution**, the Board recommends that you approve the Company's financial statements for the year ended 31 December 2019 as presented in the Board of Directors' management report, as well as all the transactions reflected or described therein. You are also asked to acknowledge that no expenses or charges referred to in article 39-4 of the French Tax Code were incurred during the past financial year. In the **2nd resolution**, in accordance with the provisions of article L. 225-100 of the French Commercial Code, the Board recommends that you approve the consolidated financial statements for the year ended 31 December 2019, as well as all the transactions reflected or described therein.

Allocation of profit and distribution of dividends (3rd resolution)

The purpose of the **3rd resolution** is to decide the allocation of the Company's profit for the year ended 31 December 2019 of €164,980,613.38, as presented in the Company's financial statements, plus prior retained earnings of €1,904,744,218.24 The Board of Directors recommends that the profit be allocated as follows:

Source	
Profit for the period	€164,980,613.38
Prior retained earnings	€1,904,744,218.24
Distributable profit	€2,069,724,831.62

Allocation	
Legal reserve	€1,042,728
Dividend distribution (1)	€206,885,394
Retained earnings	€1,861,796,709.62

(1) The total dividend distribution is calculated on the basis of the number of shares carrying dividend rights at 1 January 2019 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 payment of the dividend of €206,885,394 with regard to the 76,624,220 shares carrying dividend rights at 1 January 2019 and existing on the date of the Board of Directors' meeting adopting the proposed resolutions, would correspond to a distribution of two euros and seventy cents (€2.70) per share.

The shares would be traded ex-dividend as of 25 May 2020 and the dividend for the 2019 financial year would be paid as of 27 May 2020.

The 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 French Tax Code.

The dividend paid for the last three financial years was as follows:

Financial year	**2019**	**2018**	**2017**
Net dividend per share *(in euros)*	2.70 (1)	2.50 (1)	2.30 (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.

The distribution of this two euros and seventy cents (€2.70) per share dividend would represent an increase of 8% compared with 2018 and would reaffirm the importance of dividends as a key component of the Group's shareholder return policy. The recommendation reflects the Board of Directors' confidence in the Group's growth prospects and in its solid cash flow generation.

Approval of the agreements and commitments 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 years and implemented in the year ended 31 December 2019. It noted that (i) the only agreement entered into and authorized during previous years and implemented in the year ended 31 December 2019 is the commitment related to the early termination of the Chairman and Chief Executive Officer's term of office, and that (ii) no new agreements or commitments that had not already received the approval of the annual general meeting were entered into during the 2019 financial year. In the **4th resolution**, you are invited to duly note the information relating to the agreements entered into and the commitments made during the 2019 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.

Reappointment of Thierry Le Hénaff as a member of the Board of Directors (5th resolution)

At its meeting on 26 February 2020, the Board of Directors noted that the term of office of Thierry Le Hénaff was due to expire at the close of the annual general meeting to be held on 19 May 2020. Accordingly, on the recommendation of the Nominating, Compensation and Corporate Governance Committee, in the **5th resolution**, the Board of Directors recommends that you reappoint Thierry Le Hénaff as director for a term of four years expiring at the close of the annual general meeting to be held in 2024 to approve the financial statements for the year ending 31 December 2023. Information concerning Thierry Le Hénaff is set out in sections 3.2.1.2 and 3.2.1.3 of this document.

At the close of the annual general meeting, and subject to approval of this resolution, six of the thirteen members of the Board of Directors will be women, i.e., 42% (excluding the director representing employees).

Approval of the compensation policy for directors and the Chairman and Chief Executive Officer (6th and 7th resolutions)

In the **6th resolution**, and in accordance with article L. 225-37-2 of the French Commercial Code as amended by French Law no. 2019-486 of 22 May 2019 (the "Pacte" law), 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 **7th 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 26 February 2020 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.

Approval of the information provided for in the report on corporate governance relating to the remuneration of executive officers (Article L. 225-37-3 I of the French Commercial Code) (8th resolution)

Pursuant to article L. 225-100 II of the French Commercial Code, the purpose of the **8th 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. 225-37-3 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 in or awarded to each of the Company's executive directors for the year ended 31 December 2019 (9th resolution)

Pursuant to article L. 225-100 III of the French Commercial Code, the purpose of the **9th 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 or awarded for the year ended 31 December 2019. Payment of the variable compensation due for the past financial year is subject to the approval of this resolution.

The Board of Directors recommends that you approve the components of the fixed, variable and exceptional compensation and benefits of any kind paid in or awarded for the year ended 31 December 2019 to Thierry Le Hénaff, Chairman and Chief Executive Officer and the only executive director of the Company. These components are set out in detail in section 3.4.2.2 of this document.

Reappointment of the Statutory Auditors (10th resolution)

In the **10th resolution**, the Board of Directors invites you to duly note that the term of office of KPMG Audit as statutory auditor is due to expire at the close of the annual general meeting and recommends that you reappoint it for a term of six financial 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.

Share buyback (11th resolution)

Until 31 January 2020, the Company acquired 261,000 shares in the Company under the authorization to trade in the Company's shares granted by the 11th resolution of the annual general meeting of 21 May 2019. The shares were purchased to cover employee free share plans and ensure that performance shares could be awarded without a dilutive effect on the share capital.

As the authorization granted to the Board of Directors by the annual general meeting of 21 May 2019 is due to expire shortly, in the **11th resolution**, the Board of Directors recommends that you renew its authorization 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 **€100** per share.

This authorization would enable the Board of Directors to acquire a number of shares **representing up to 10% of the Company's share capital**. Based on the share capital at 31 December 2019, the theoretical amount that may be dedicated to this share buyback program may not exceed €766,242,200.

These share purchases could be made for any purpose permitted by law and the resolution submitted to the annual general meeting, and would primarily be allocated for the purpose of covering the Company's employee performance share plans.

This new authorization would render ineffective, from the date of this annual general meeting, the unused portion of the 11th resolution of the annual general meeting of 21 May 2019.

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 granted to the Board of Directors to issue shares in the Company and/or securities giving access to shares in the Company, with or without shareholders' preferential subscription rights (12th to 19th resolutions)

As the delegations of authority and authorizations granted to the Board of Directors by the annual general meeting on 18 May 2018 are due to expire on 17 July 2020, 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 issue 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 **12th to 16th 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 (12th resolution)

The purpose of the **12th resolution** is to grant the Board of Directors a delegation of authority to carry out capital increases in the proportion and at the times that it deems appropriate, via the issue, **with preferential subscription rights**, in France or any other country, of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, such as 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 the shares that may result from the securities 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 18th resolution, and which would include all the issues decided pursuant to the 12th to 17th resolutions described below.

The **maximum nominal amount of debt securities giving immediate or future access to shares** in the Company that may be issued pursuant to this delegation of authority would be **one (1) billion euros** 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 12th to 17th 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 (13th to 16th 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 **13th resolution**, it is recommended that you grant the Board of Directors a delegation of authority to carry out capital increases, in the proportion and at the times that it deems appropriate, via the issue, **without preferential subscription rights**, in France or any other country, of shares or securities giving immediate or future access by any means to existing shares or shares to be issued 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**. Your approval would entail the waiver by the shareholders of their preferential rights to subscribe for the shares that may result from the securities issued pursuant to this resolution. However, the shareholders would benefit, in accordance with the provisions of article L. 225-135 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 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 18th resolution.

The **maximum nominal amount of debt securities** that may be issued pursuant to this resolution would be **one (1) billion euros** 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 (1) billion euros** for the issue of debt securities pursuant to the 12th to 17th 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. 225-148 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 **14th resolution**, it is recommended that you grant the Board of Directors a delegation of authority to carry out capital increases, in the proportion and at the times that it deems appropriate, via the issue, without preferential subscription rights, in France or any other country, of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, **by means of an offering referred to in article L. 411-2 1° of the French Monetary and Financial Code**.

These issues may only be carried out in order to (a) directly or indirectly finance an external growth transaction, (b) issue convertible bonds, or (c) 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 18th resolution.

The **maximum nominal amount of debt securities** that may be issued pursuant to this resolution would be **one (1) billion euros** 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 (1) billion euros for the issue of debt securities pursuant to the 12th to 17th 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.

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 15th **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 13th and 14th 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 is set, less, in either case, 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 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 12th or 13th resolutions, as applicable, and in the overall limits provided for in the 18th resolution below.

This authorization would be granted for a period of **twenty-six (26) months** from the date of this annual general meeting.

Finally, pursuant to the terms of the **16th resolution,** it is recommended that you grant the Board of Directors a delegation of authority to carry out one or more capital increases via the issue of shares or securities giving immediate or future access by any means to existing shares or shares to be issued in the Company, as compensation for contributions in kind granted to the Company in the form of shares or securities carrying rights to shares in another company, when the provisions of article L. 225-148 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 14th 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.

Increase in the number of shares to be issued with or without preferential subscription rights in the event of a capital increase (Greenshoe option) (17th resolution)

In the **17th 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 12th to 16th 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 initial issue and within thirty days of the close of the subscription period for the initial issue, subject to compliance with the limit provided for in the resolution authorizing the issue and the overall limits provided for in the 18th 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 (18th resolution)

The purpose of the **18th 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 12th to 17th resolutions described above.

The maximum nominal amount of capital increases mentioned in the 12th and 17th resolutions would be **50% of the Company's share capital at the date of this annual general meeting**.

This 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.

The maximum nominal amount of capital increases mentioned in the 14th and 16th resolutions would be **10% of the Company's share capital at the date of this annual general meeting**.

Delegation of authority to carry out capital increases reserved for members of a company savings plan (19th resolution)

In the **19th 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, 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 the future from all the issues carried out pursuant to this delegation of authority would be **13.5 million euros**, 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.

Amendment to the Articles of Association (20th resolution)

The **20th resolution** involves various amendments to the Articles of Association arising from the enactment of French Law no. 2019-486 of 22 May 2019 on the action plan for business growth and transformation (the "Pacte" law) and French Law no. 2019-744 of 19 July 2019 on the simplification, clarification and modernization of Company law:

- elimination of article 8.1 of the Articles of Association relating to the identification of holders of shares in bearer form, following the introduction of a new legal framework by the Pacte law set out in the new article L. 228-2 of the French Commercial Code. Consequently, article 8 of the Company's Articles of Association is amended as follows: "Article 8. Threshold disclosures" and article 8.2 is deleted;
- amendment of article 10.1.4 of the Articles of Association to comply with article L. 225-45 of the French Commercial Code, as amended by the Pacte law, which replaces the concept of "directors' fees" with that of "compensation"and article L. 225-37-2 of the French Commercial Code, as amended by Order no. 2019-1234 of 27 November 2017, subjecting the compensation policy for directors to the approval of the shareholders' meeting;
- amendment of article 10.2 of the Company's Articles of Association to comply with the provisions of the Pacte law that abolished the dispensation from appointing shareholder employee representatives when the Board of Directors already has one or more directors appointed from among the members of the Supervisory Board of the Company mutual funds (FCPE) representing employees or one or more directors freely elected by the employees. This amendment will not have any impact on Arkema, which already appoints a director representing shareholder employees in compliance with the law and the Articles of Association;
- amendment of article 10.3 of the Articles of Association to set out the method of appointing the directors representing employees, after a favorable opinion from the Group's Works Council (French delegation of the European Group Works Council) and in accordance with the provisions of article L. 225-27-1 of the French Commercial Code, as amended by the Pacte law, which reduced the number of directors beyond which a second director representing employees must be appointed from twelve to eight;
- amendment of article 12 of the Company's Articles of Association to allow for a limited number of decisions set out in the regulations to be taken by written consultation among the directors, namely appointments of directors in case of vacancy due to death or resignation, authorizations to grant guarantees and other collateral, amendments to the Articles of Association to comply with legislative and regulatory provisions, and calling general meetings.

Powers to carry out formalities

In the **21st 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 free translation into English of a report issued in French and is provided solely for the convenience of English speaking readers. 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
Département de KPMG S.A.
Tour Eqho
2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre
Statutory auditor
Member of the Compagnie Régionale de Versailles

Ernst & Young Audit
Tour First
TSA 14444
92037 Paris-La Défense Cedex
S.A.S. à capital variable
344 366 315 R.C.S. Nanterre
Statutory auditor
Member of the Compagnie Régionale de Versailles

Arkema S.A.
Registered office: 420, rue d'Estienne d'Orves – 92700 Colombes, France

Statutory auditors' report on the issuance of ordinary shares and/or marketable securities reserved for employees subscribing to a company savings plan

Combined general meeting of 19 May 2020 – nineteenth resolution

To the annual general meeting of Arkema,

In our capacity as statutory auditors of your Company and in accordance with the terms of the engagement defined by articles L. 228-92 and 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 a capital increase, in one or more occasions, by issuing ordinary shares or marketable securities giving access to existing shares or shares to be issued 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 nominal amount of €13,500,000, an operation upon which you are called to vote.

This capital increase 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, on the basis of its report, to delegate thereto, for a period of twenty-six months, the authority to decide in favor of one or several capital increase operations and to cancel your preferential subscription rights to the ordinary shares or marketable securities giving access to existing shares to be issued. Where applicable, the Board of Directors shall definitely set the conditions of these issues.

It is the responsibility of your Board of Directors 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 express an opinion on whether the information issued from the financial statements is fairly stated, on the proposal to cancel the preferential subscription right, and on various others information dealing with the issuance, provided in this report.

We 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 for determining the subscription price of the shares to be issued.

Subject to our further examination of the conditions of the share capital increase that may be decided, we have no matters to report on the methods used for determining the subscription price of the shares to be issued provided in the Board of Directors' report.

As the final conditions of the proposed share capital increase have not yet been determined, we do not express any opinion on the final conditions and, accordingly, on the proposal to cancel the shareholders' preferential subscription right.

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 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, 26 February 2020
The Statutory Auditors

KPMG Audit
Department of KPMG S.A.

Bertrand Desbarrières
Partner

Eric Dupré
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

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 free translation into English of a report issued in French and is provided solely for the convenience of English speaking readers. 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
Département de KPMG S.A.
Tour EQHO
2, avenue Gambetta
92066 Paris-La Défense Cedex
775 726 417 R.C.S. Nanterre

Commissaire aux comptes
Membre de la Compagnie Régionale de Versailles

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Commissaire aux comptes
Membre de la Compagnie Régionale de Versailles

Arkema

Combined General Meeting of May 19, 2020

Twelfth to seventeenth 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)*, 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, (twelfth resolution);
  - the issue, with cancellation of your preferential subscription rights and *"délai de priorité obligatoire"*, 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, (thirteenth 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, (fourteenth resolution).
- it be authorized, under the fifteenth resolution, within the scope of the implementation of the delegation of authorization referred to in the thirteenth and fourteenth 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 (sixteenth 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 twelfth to seventeenth 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 thirteenth, fourteenth and sixteenth 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 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 twelfth to seventeenth resolutions.

These ceilings 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 twelfth to sixteenth resolutions, in accordance with Article L.225-135-1 of the French Commercial Code *(Code de commerce)*, if you adopt the seventeenth 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 thirteenth, fourteenth and fifteenth resolutions.

Moreover, as the methods used to determine the issue price of the capital securities to be issued, in accordance with the twelfth 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 thirteenth, fourteenth and fifteenth 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, February 26, 2020

The Statutory Auditors

French original signed by

KPMG Audit

Department of KPMG S.A.

Bertrand Desbarrières
Partner

Eric Dupré
Partner

ERNST & YOUNG Audit

Denis Thibon
Partner

INFORMATION ABOUT THE UNIVERSAL REGISTRATION DOCUMENT

8

8.1 PERSON RESPONSIBLE FOR THE UNIVERSAL REGISTRATION DOCUMENT AND PERSONS RESPONSIBLE FOR AUDITING THE FINANCIAL STATEMENTS **390**

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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, having taken all reasonable care to ensure that such is the case, that the information in this Universal Registration Document is, to the best of my knowledge, in accordance with the facts and contains no omission likely to affect its meaning.

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 396 and 397 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, 25 March 2020.

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. Represented by Bertrand Desbarrières and Eric Dupré Tour EQHO, 2, avenue Gambetta, CS 60055 92066 Paris-La Défense Cedex – France Appointed at the annual general meeting of 15 May 2014. Current term expires following the annual general meeting to be held to approve the financial statements for the year ended 31 December 2019.	**Ernst & Young Audit** Represented by Denis Thibon Tour First, TSA 14444 92037 Paris-La Défense Cedex – France 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**
KPMG Audit IS 2, rue Gambetta, 92400 Courbevoie – France Appointed at the annual general meeting of 15 May 2014. Current term expires following the annual general meeting to be held to approve the financial statements for the year ended 31 December 2019.	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 221 *et seq.*, 287 *et seq.*, and 354 of the reference document for the year ended 31 December 2018 granted visa number D. 19-0308 by the *Autorité des marchés financiers* on 11 April 2019;
- 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 201 *et seq.*, 267 *et seq.*, and 340 of the reference document for the year ended 31 December 2017 granted visa number D. 18-0216 by the *Autorité des marchés financiers* on 29 March 2018.

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**	**390-391**
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1.2	Declaration by those responsible for the Universal Registration Document	8.1 2	390
1.3	Person as an expert	None	
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2.2	Statutory auditors having resigned, having been removed, or having not been reappointed during the period covered by the historical financial information	None	
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4	**Information about the Company**	**6.1.1**	**344**
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5	**Business overview**	**Chapter 1**	**36-61**
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7	**Operating and financial review**	**5.1**	**238-249**
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10.2	Trends, uncertainties, demands, commitments or events that are reasonably likely to have a material effect on the Company's prospects for at least the current financial year	5.2	250
11	**Profit forecasts or estimates**	**None**	
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2.1	Names, business addresses and functions within the Company of the following persons and an indication of the principal activities performed by them outside of the Company: (a) members of the administrative, management or supervisory bodies; (b) partners with unlimited liability, in the case of a limited partnership with a share capital; (c) founders, if the Company has been established for fewer than five years; (d) any senior manager who is relevant to establishing that the Company has the appropriate expertise and experience for the management of the Company's business. The nature of any family relationship between any of those persons. In the case of each member of the administrative, management or supervisory bodies of the Company and of each person referred to in points (b) and (d) of the first subparagraph, details of that person's relevant management expertise and experience and the following information: (a) the names of all companies and partnerships where those persons have been a member of the administrative, management or supervisory bodies or partner at any time in the previous five years; (b) details of any convictions in relation to fraudulent offences for at least the previous five years; (c) details of any bankruptcies, receiverships, liquidations or companies put into administration for at least the previous five years; (d) details of any official public incrimination and/or sanctions involving such persons by statutory or regulatory authorities (including designated professional bodies) and whether they have ever been disqualified by a court from acting as a member of the administrative, management or supervisory bodies of an issuer or from acting in the management or conduct of the affairs of any issuer for at least the previous five years	3.2.1.2, 3.2.1.3, and 3.2.3	90, 93 and 103
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13	**Compensation and benefits**	**3.4**	**116-133**
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14	**Board practices**	**3.2 and 3.3**	**87-115**
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14.2	Information about members of the administrative, management or supervisory bodies' service contracts with the Company or any of its subsidiaries providing for benefits upon termination of employment, or an appropriate statement to the effect that no such benefits exist	3.2.3.4	103
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14.5	Potential material impacts on the corporate governance, including future changes in the board and committees composition	3.2 and 3.3	87-115
15	**Employees**	**4.4**	**189-214**
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	4.4.1	189-204
15.2	Shareholdings and stock options	4.4.1.5 and 6.2.6	201 and 351
15.3	Arrangements for involving employees in the capital of the Company	4.4.1.5 and 6.2.7	201 and 351
16	**Major shareholders**	**6.3**	**353-356**
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 that effect that no such person exists	6.3.1	353
16.2	Different voting rights or an appropriate statement to the effect that no such voting rights exist	6.3.3	354
16.3	Direct or indirect ownership or control over the Company	6.3.2	353
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	353
17	**Related party transactions**	**6.1.3**	**346**
18	**Financial information concerning the Company's assets and liabilities, financial position and profits and losses**	**5.3 and 5.4**	**252-342**
18.1	Historical financial information	Profile, ambition and strategy and 8.3.1	8 and 391
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	252, 320 and 391
18.1.2	Change of accounting reference date	None	
18.1.3	Accounting standards	5.3.3, 5.4.3 and 8.3.1	261, 328 and 391
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	252, 320 and 391
18.1.6	Consolidated financial statements	5.3.2	256-260
18.1.7	Age of financial information	5.3.2 and 5.4.2	256 and 324
18.2	Interim and other financial information	None	
18.3	Audit of historical annual financial information	5.3.1 and 5.4.1	251 and 320
18.3.1	Independent audit of historical annual financial information	5.3.1 and 5.4.1	251 and 320
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	360
18.5.1	Policy on dividend distributions or an appropriate negative statement	6.4.7	360
18.5.2	Dividend per share	6.4.7	360
18.6	Legal and arbitration proceedings	2.1 and note 22.2 to the consolidated financial statements	64-77 and 300
18.7	Significant change in the Company's financial position	None	
19	**Additional information**	**Chapter 6**	**343-363**

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)**
19.1	Share capital	6.2.1	346
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	346
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	347
19.1.4	Convertible securities, exchangeable securities or securities with warrants	6.2.6	351
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	347
19.2	Memorandum and Articles of Association	6.1.1 and 6.5	344 and 360-363
19.2.1	Register and entry number therein; Company's objects and purposes	6.1.1	344
19.2.2	Rights, preferential rights and restrictions attaching to each class of existing shares	6.5.3	362
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	361
20	**Material contracts**	**1.4**	**61**
21	**Documents available**	**6.1.1**	**344**

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	391-395
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 and L. 225-100-1 of the French Commercial Code (*Code de Commerce*), as amended by Law no. 2018-727 of 10 August 2018, articles L. 232-1 II, L. 233-16, L. 233-26 and R. 225-102, as well as article L. 225-102-1 as amended by Law no. 2018-938 of 30 October 2018 providing for the integration of non-financial (CSR) performance reporting, 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 required in the Board of Directors' report on corporate governance pursuant to article L. 225-37, as amended by Law no. 2019-744 of 19 July 2019, articles L. 225-37-2, and L. 225-37-3 of the French Commercial Code, as amended and created respectively by Order no. 2019-1234 of 27 November 2019, article L. 225-37-4, as amended by Law no. 2019-486 of 22 May 2019 and article L. 225-37-5 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 (CSR) 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 33 to the consolidated financial statements
8	Planned development	5.2
9	Research and development activities	1.1
10	Existing branches	Not applicable

No.	Information	Reference
11	Review of employee profit sharing 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 (CSR) performance reporting pursuant to the provisions of article L. 225-102-1 of the French Commercial Code	4.1.3
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 D 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 22.2.2 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
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])	None (see 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	4.1.4
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 32 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

No.	Information	Reference
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. 225-39 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
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. 225-29-1 of the French Commercial Code	3.4.1.1 and 3.4.2.1
13	Information, as provided for in article L. 225-37-3 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 31.2 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

(1) Except if this disclosure, other than where required by law, would have a significant negative impact on the Company's interests.

No.	Information	Reference
IV	OTHER DOCUMENTS	
1	Statutory auditors' special report on related-party agreements and commitments	7.1
2	Proposed agenda for the annual general meeting of 19 May 2020	7.2.1
3	Proposed resolutions submitted to the annual general meeting of 19 May 2020	7.2.2
4	Board of Directors' report to the annual general meeting of 19 May 2020	7.3
5	Statutory auditors' report on the issuance of ordinary shares and/or marketable securities giving access to the Company's share capital with or without preferential subscription rights	7.5
6	Statutory auditors' report on the issuance of ordinary shares and/or marketable securities giving access to the Company's share capital without preferential subscription rights reserved for employees subscribing to a Group Savings Plan	7.4
7	Declaration that the social and environmental information required in the management report has been properly disclosed in accordance with legal and regulatory commitments	4.5.6

GLOSSARY

Terme	Définition
Absolute indicator	An indicator expressed in absolute value (in tonnes of emissions, in millions of cubic meters or terawatt hours of consumption).
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 and adhesives.
Acrylic esters	Acrylic acid esters.
Adsorption	The retention of molecules of a gas or substance in solution or suspension on the surface of a solid.
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.
Amine	A compound obtained by substituting monovalent hydrocarbon radicals for one of the hydrogen atoms of ammonia.
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.
DMDS	Dimethyldisulfide.
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 C.1 to the consolidated financial statements in this document.
EBITDA to cash conversion rate	Free cash flow excluding exceptional capital expenditure, divided by EBITDA; the computation of which is detailed in note C.1 to the consolidated financial statements in this document.
EC regulation 1107/2009	Regulation (EC) no. 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the authorization, commercialization, use and control of plant protection products within the European Community.
ECHA	The European Chemicals Agency, which is responsible for overseeing the REACH system.
EFPI (Environmental Footprint Performance Indicator)	The relative 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 2025 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 C.1 to the consolidated financial statements in this document.
Free cash flow	Cash flow from operating and investing activities excluding the impact of portfolio management, the computation of which is detailed in note C.1 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 replace the various chemical classification and labeling standards used in different countries with a global system based on consistent criteria.
H2S	Hydrogen sulfide.
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.

Terme	Définition
Hot melts	Thermoplastic adhesives.
HPV	High Production Volume, an international ICCA program designed to deliver globally-harmonized data sets and initial hazard assessments for around 1,000 chemical substances.
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.
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.
Interface agents	Products used in the formulation of additives.
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) 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 by the selective adsorption of molecules.
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.
Oxygenated solvents	Substances such as alcohols, ketones and ethers that contain oxygen atoms and have the ability to dissolve other substances without modifying them chemically.
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 10 (PA10), polyamide 11 (PA11), and polyamide 12 (PA12)	Thermoplastic polyamides, whose monomers have 10, 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 Act no. 2003-699 of 30 July 2003 and the relevant application 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.
Processing aids	Products that improve the processability of polymers during molding and extrusion.
PSE	Process safety events.
PTFE	The ISO code for polytetrafluoroethylene.

Terme	Définition
PVC	The ISO code for vinyl polychloride or polyvinyl chloride.
PVDF	The ISO code for polyvinylidene fluoride.
RCMS	The Responsible Care® Management System.
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 C.1 to the consolidated financial statements in this document.
REBIT margin	Recurring operating income as a percentage of sales.
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 C.1 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.
Sodium perchlorate	Sodium salt used as a synthesis intermediate.
SOx	Sulfur dioxides.
Spin-Off of Arkema's Businesses	The transaction that is the subject of the prospectus which 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.
Unsaturated polyesters	Esters with high molecular weights produced by the linking of numerous ester molecules that have double bonds between carbon atoms.
VOC	Volatile organic compound.

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Infographics: Ben Fearnley – Portrait : David Despau

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Designed & published by LABRADOR INFORMATION DESIGN +33 (0)1 53 06 30 80

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