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Arkema is strongly positioned for the future

Our CSR roadmap is reflected in an **ambitious** climate plan and a carbon trajectory that is among the industry's most challenging. In July 2022, Arkema set a new target for reducing its greenhouse gases, aligned with the Paris Agreement, which aims to cap this century's global temperature rise at 1.5°C from pre-industrial levels. In April 2023 we moved our goal forward, and we are now targeting a 48.5% reduction in our Scopes 1 and 2 greenhouse gas emissions and a 54% reduction in our Scope 3 emissions by 2030. These new objectives have been approved by the Science-Based Targets initiative (SBTi)⁽¹⁾.

It also showcases our human resource management assets. Because to attract and retain employees, the Group must not only adhere scrupulously to our CSR and climate commitments; we must also be able to convince and motivate our workforce. We can do that by giving employees the opportunity to work on meaningful projects in an exciting, friendly environment, and by launching initiatives in workplace quality of life, philanthropy and sponsorships that reflect the Group's values, so as to foster a sense of belonging. Arkema is therefore working to **promote** its HR assets!

What **actions** are we going to implement to reduce greenhouse gas emissions from our plants? What **solutions** are we developing for our customers to support their sustainable business growth and address the major social, environmental and energy challenges we face?

AMBITION, ACTION, SOLUTIONS, PROMOTION

ARE THE FOUR MAJOR THEMES OF THIS 2022 ANNUAL REPORT.

This 2022 annual report describes the concrete measures we are taking in our plants worldwide to reduce our carbon footprint, and highlights examples of materials solutions developed for our customers that combine performance and sustainability.

We hope you enjoy it and learn something new!

⁽¹⁾ Launched in June 2015, the Science-Based Targets initiative (SBTi) is a consortium of the world's largest international organisations combating climate change: the Carbon Disclosure Project (CDP), the World Resources Institute (WRI), the World Wildlife Fund (WWF) and the United Nations Global Compact. Its goal is to encourage businesses to set targets for greenhouse gas (GHG) emissions reduction that are aligned with the recommendations of the scientific community.

01. AMBITION

“Arkema is stepping up its commitment to decarbonisation and to pursuing further progress in CSR.”

“With our high-performance materials and sustainable products, we’re helping our customers meet the challenges of the world ahead.”

THIERRY LE HÉNAFF, CHAIRMAN AND CEO OF ARKEMA,
SHARES HIS PERSPECTIVE ON 2022, THE GROUP’S STRENGTHS AND ITS OUTLOOK FOR THE FUTURE.



2022: STAYING ON COURSE IN A VOLATILE ENVIRONMENT

2022 was a challenging year for everyone, and held its share of surprises. The year was marked by sharp, widespread inflation, exceptionally high prices for raw materials, supply chain obstacles and product shortages – not to mention the war in Ukraine, lockdowns in China and an energy crisis in Europe. The two halves of the year were quite different: we were supported in the first six months by strong demand and our ability to raise prices, while the latter half of the year brought lower sales volumes in several regions, particularly at year’s end. In that volatile environment, we can take pride in our financial performance, our best ever, with EBITDA of €2.1 billion and growth in all three Specialty Materials segments. With those excellent results, we have the tools to deliver on our ambitious growth strategy.

ADAPTING WITH CONFIDENCE

With the slowdown in the world’s economy, 2023 is likely to prove more difficult. To meet that new challenge, we will need to respond in two ways. In the short term, we must continue to



“The past few years have opened up a host of opportunities in fields such as batteries, new energies, more eco-friendly paints, and building energy efficiency, as well as in the markets for sport and electronics. Our innovations have enabled us to seize those opportunities.”

adapt, via our pricing policy at a time of high inflation, and by maintaining strict control over our costs, inventories, and investments. At the same time, we will resolutely press ahead with our growth strategy in Specialty Materials. That strategy is primed to succeed, thanks to our leading-edge innovation focused on sustainability and decarbonisation, our investments in support of our customers in growth markets, and our policy of high added-value acquisitions.

In 2023 the Group will reap the benefits of our major expansion projects, such as the start-up of production at the new bio-based polyamide 11 plant in Singapore, the hydrofluoric acid unit in the US with our partner Nutrien, and the fluoropolymer facilities in China and France, plus our enlarged production capacity for Sartomer® UV resins in China and Pebax® thermoplastics in France. We also plan to capitalise on the growing strength of the former Ashland performance adhesives business. Given those circumstances, Arkema anticipates EBIDTA of €1.5 to 1.6 billion in 2023 – above pre-Covid levels, despite a weaker economy.

INNOVATING FOR SUSTAINABILITY

Arkema's tagline – “Innovative materials for a sustainable world” – forcefully conveys our strategy for helping to tackle the world's major social and environmental challenges. Sustainable development is driving our growth. Our vision is that in order for the world to change, its materials must change as well, in terms of their performance, sustainability, sourcing (including more renewable and recycled raw materials) and circularity. More than ever, innovation will continue to make a difference. The past few years have opened up a host of opportunities in fields such as

batteries, new energies, more eco-friendly paints, and building energy efficiency, as well as in the markets for sport and electronics. Our innovations have enabled us to seize those opportunities. I met with many of our major customers in 2022, and they all were enthusiastic about the technological solutions we provide.

More than 90% of our patents are connected to sustainable development. That truly sets Arkema apart! And with nearly €300 million allocated to R&D annually and €700 million devoted to our industrial projects, we have never invested so extensively in the Group's future growth.

THE CHALLENGE OF DECARBONISATION

In tandem with the sustainable products we offer, we need to take action to reduce our carbon footprint. Consistent with the Paris Agreement, which targets a global temperature rise of no more than 1.5°C by the end of the century, Arkema had set an ambitious objective of our own in July 2022 using the Science-Based Targets methodology: to reduce our greenhouse gas emissions by 46% between now and 2030. In April 2023 that near-term goal was brought forward, and we are now targeting a 48.5% reduction in our Scopes 1 and 2 greenhouse gas emissions and

Investment of
€400
million in our plants by 2030
to meet the challenge of
decarbonisation.



“Innovation is part of who we are. More than 90% of our patents are directly connected with sustainable development.”

a 54% reduction in our Scope 3 emissions by 2030. These new objectives have been validated by the Science-Based Targets initiative (SBTi). To meet our target for Scope 1 and 2 emissions reduction, one priority is to switch to renewable energy sources to power our plants. Our agreement with ENGIE to supply renewable biomethane is helping to shrink the carbon footprint of our bio-based materials in France even further; it's a major success. We are also investing in processes at our plants worldwide to reduce their emissions. Our capital spending on those decarbonisation projects could total €400 million by 2030.

AN APPEALING, INCLUSIVE GROUP

Once again, our continuing progress in our CSR performance has been recognised by outside organisations: we were ranked third in our category in the Dow Jones Sustainability Index World for 2022, and we have been listed on the CAC 40 ESG since it was created in 2021. We take pride in the high rankings we continue to receive each year, since they play an important role in attracting the best talent. Moreover, a company's success can be measured by the level of employee support for the corporate mission, and I believe our workforce is genuinely dedicated to the Group. Our low turnover rate is a testament to that commitment, further evidence of which was shown by the Arkema Cares opinion survey last spring. That dedication is also nurtured by new working arrangements and procedures being gradually brought

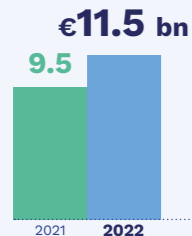
online: over the past three years we have offered the option of remote work wherever possible, implemented in a thoughtful, balanced way. That confidence in the Group is reflected in our employee shareholding as well, which now represents 7% of Arkema's capital.

Every year, we welcome more than 2,000 new hires from every country and background, drawn by Arkema's corporate purpose, the strength of our values, and the career opportunities we offer for men and women, young and not so young alike. In our view, diversity, inclusivity and equality of opportunity are genuine commitments, which we spotlighted this year with the publication of our global Inclusion and Diversity policy.

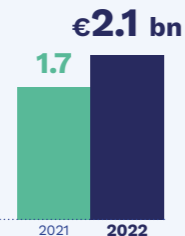
Those same values inform our philanthropic activities. Wherever the Group operates, we have chosen to support initiatives and organisations dedicated to the goals we stand for, such as education, and inclusivity, and inclusivity. Those actions are helping to make Arkema a model employer. To cite one example, Forbes magazine ranks us among the best employers in the world, and third among companies in the Chemicals sector. Performance, innovation, commitment, appeal: we can be proud of our strengths. They give me real confidence in our future. ■

Strong results and a well-balanced profile

REVENUE



EBITDA



NET INCOME

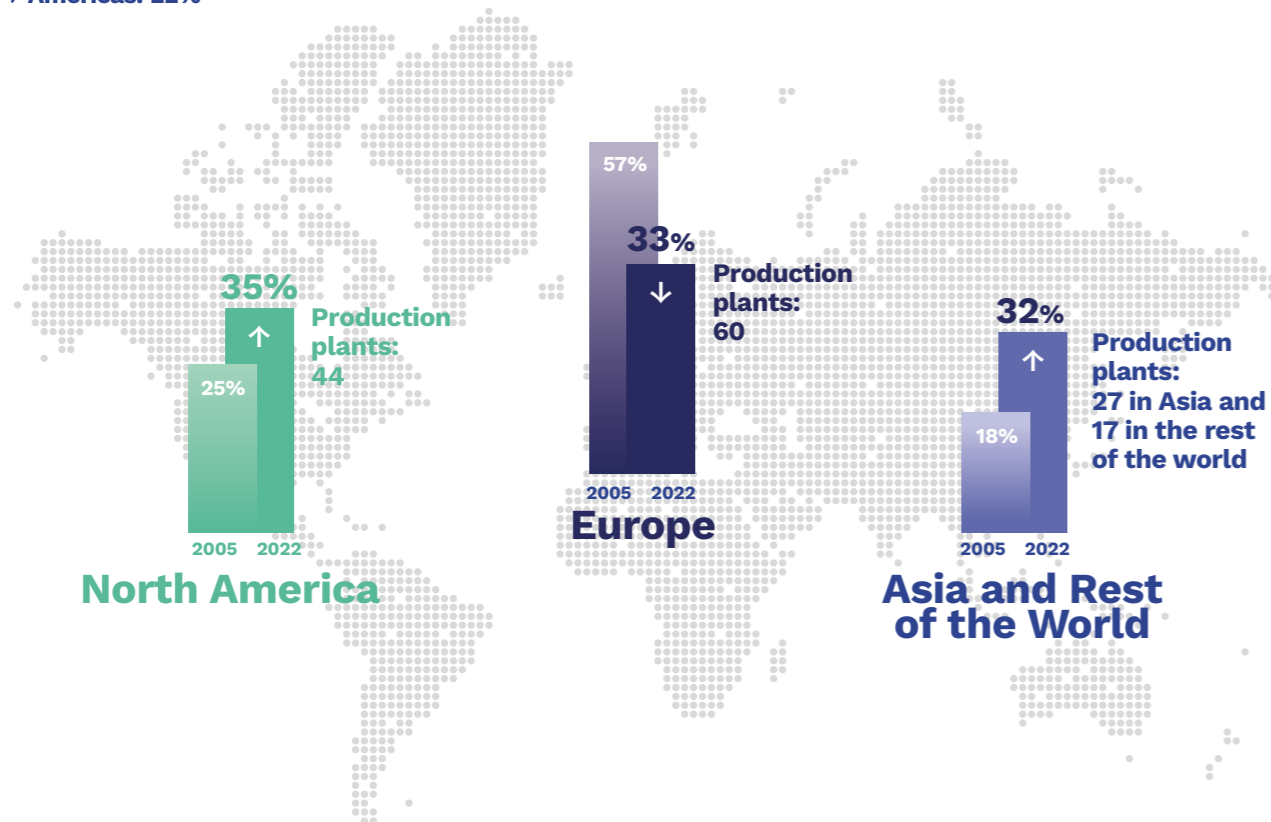


BALANCED GLOBAL OPERATIONS

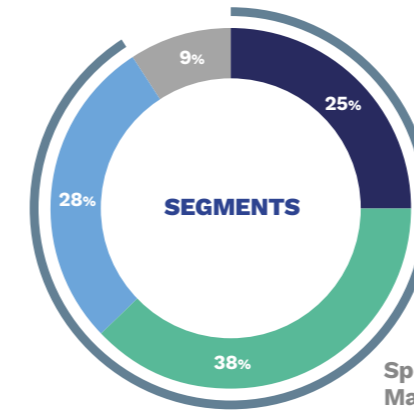
Revenue by region

- 21,100 employees**
- Operations in 55 countries**
- 148 production plants**

- Europe, Middle East, Africa: 55%
- Asia: 23%
- Americas: 22%

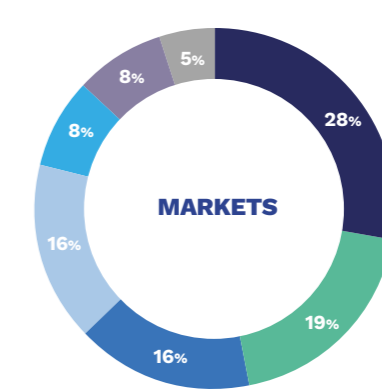


REVENUE



Specialty Materials 91%

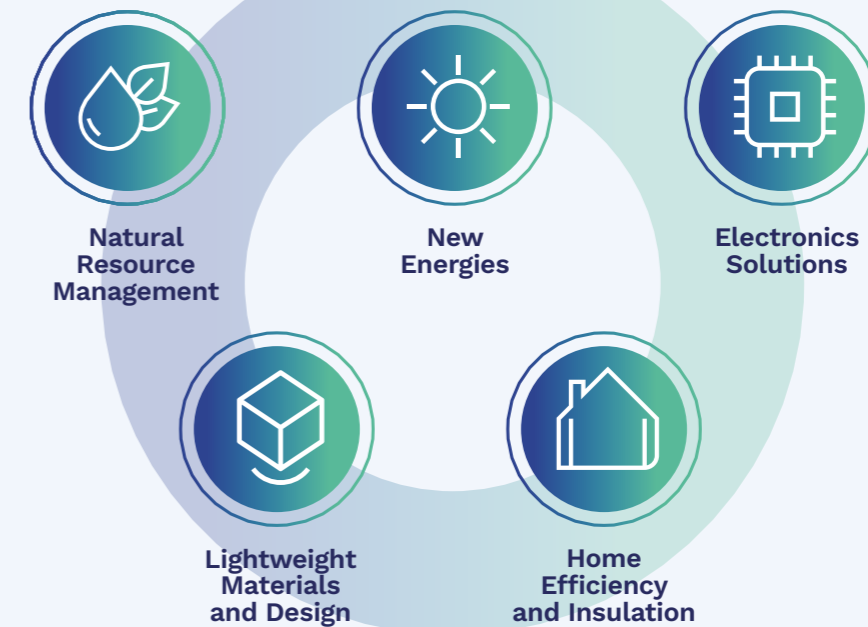
- Adhesive Solutions
- Advanced Materials
- Coating Solutions
- Intermediates



- Industry
- Paints & coatings
- Building & construction
- Nutrition & water
- Electronics & energy
- Automotive & transportation
- Fast-moving consumer goods

INNOVATION, A CORE FOCUS OF OUR BUSINESS PURPOSE

Five R&D platforms dedicated to sustainable development



2.3%
of revenue allocated to R&D

1,600
researchers at 16 regional R&D centres

205
new patents in 2022, over 90% of which relate to sustainability

€400
million in new revenue projected for 2024 linked to our sustainable innovations (compared to 2019)

€1.5
billion by 2030

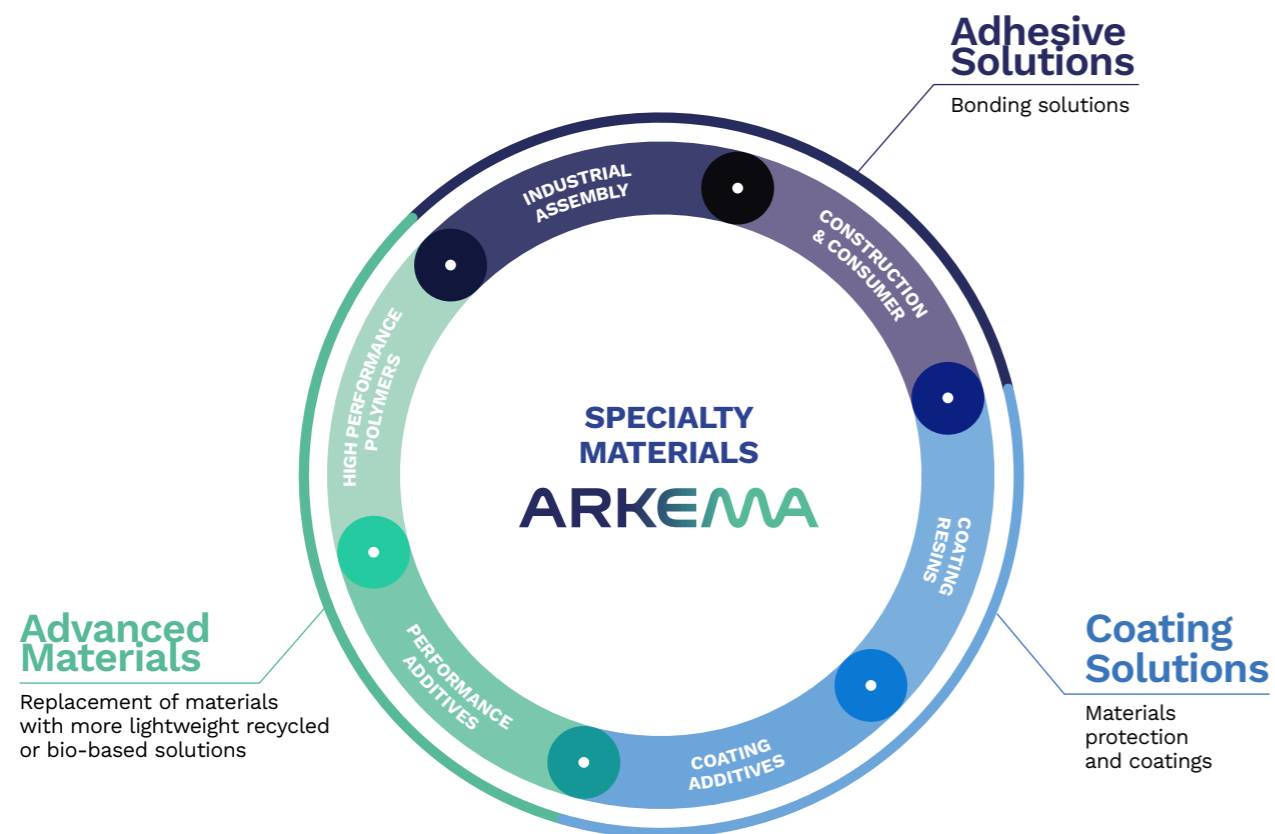
To change the world, we must change its materials.

Boasting unique expertise in materials science, high-performance innovations, and the ability to meet customers' needs in diverse markets with attractive growth potential thanks to an extensive and complementary product range spanning our three segments, Arkema is a world leader in Specialty Materials.

1 Unique expertise in materials science

Over the years, Arkema has developed or acquired a set of skills in materials, additives, coating resins, and adhesives that is unmatched in the world. Those skills have made Arkema an expert in materials science, polymerisation, formulations and application know-how. Backed by our expertise, we can offer customised, high-performance solutions that meet the technical and sustainability standards of our customers in the major industrial sectors.

We have organised those skills into three coherent, complementary segments: Adhesive Solutions, Advanced Materials and Coating Solutions. We are a global leader in each of those segments, ranked first, second or third in each product range. Those three segments make up the Specialty Materials foundation on which Arkema is building its future.



2 Innovation, at the heart of our growth

With 205 patents filed in 2022 – 90% of which bring us closer to the Sustainable Development Goals – and annual R&D investment totalling €270 million, along with 1,800 researchers and multiple technological partnerships, Arkema is now among the top 10 French firms in the annual ranking compiled by the European Patent Office. Innovation is at the heart of our growth,

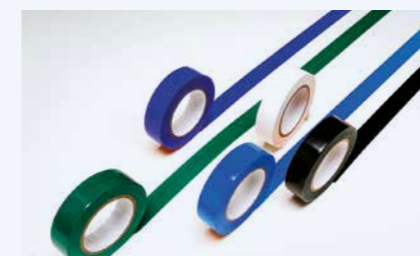
boosting our financial performance: products introduced in the last five years account for 15% of our sales, and our current innovations are expected to generate an additional €1.5 billion in turnover in 2030. Innovation is at the centre of our strategic plan and our tagline: “Innovative Materials for a Sustainable World”.

3 Product offerings that span multiple segments to meet the needs of fast-growing markets

Our three segments (Adhesive Solutions, Advanced Materials and Coating Solutions) give us the ability to create internal synergies in generating both innovation and sales potential. To rise above competitors in fast-growing markets, we offer a portfolio of complementary solutions and technologies to serve our customers more effectively.

Whether it's 3D printing, coatings and paints, electric batteries, cool roofing, or pressure-sensitive adhesives – all markets posting annual growth of 3% to 5% – Arkema stands out with the most extensive array of offerings on the market. Here are just a few examples.

Making consumer goods more sustainable with our adhesives



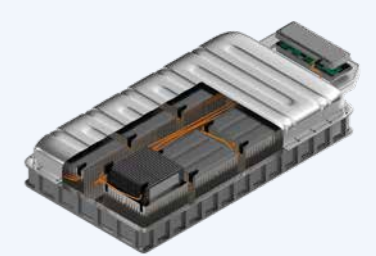
We market an integrated, leading range of pressure-sensitive adhesives with four industry-leading technologies: hot-melt, water-based, UV adhesives and specialty acrylics.

Cool roof solutions for more responsible buildings



We offer Coating Solutions resins and additives used to make white paints for rooftops that reflect UV light and regulate interior temperature, as well as Kynar Aquatec® PVDF resin for a protective overlayer that preserves roof reflectance for up to twenty years longer. That reduces the need for air conditioning in buildings, cutting energy use by 15% to 30%.

More sustainable, higher-performance electric batteries thanks to our materials



In the electric battery market, we offer a unique range of specialised products, from polymers and adhesives to coating resins and electrolyte salts, designed to handle specific bonding, protection and conductivity needs. Some are used inside battery cells (Kynar® PVDF resins, Incellion™ acrylic resins, Foranext® LiFSI electrolyte salts) while others come into play outside the cell, in modules or the battery pack (Rilsan® polyamide 11, Piezotech® polymers, Bostik adhesives and Sartomer® UV resins).

02. ACTION

“Our climate plan is backed by industrial investments of up to €400 million by 2030.”

“Our climate plan is at the heart of our growth strategy.”

AN INTERVIEW WITH EMMANUELLE BROMET, SUSTAINABLE DEVELOPMENT VICE PRESIDENT



Arkema’s climate plan, unveiled in July 2022 and made more ambitious in April 2023, includes ambitious commitments in the fight against climate change. Over the next few years, this positive trajectory will influence every aspect of the Group’s business, from our energy procurement policy to industrial innovation, our portfolio of solutions and the dissemination of a “climate mindset”. We hear more from Sustainable Development Vice President Emmanuelle Bromet.

How is your new climate plan especially ambitious?

EMMANUELLE BROMET: The Group has committed to a path of greenhouse gas reduction that allows us to keep the global temperature rise this century below 1.5°C. In other words, we have stepped up the pledge we made in the wake of the Paris Climate Change Conference in 2015, which aimed to keep global warming “well below 2°C”. For Arkema, that expanded near-term ambition means that by 2030, we intend to reduce our Scopes 1 and 2 greenhouse gas emissions by 48.5%, and Scope 3 emissions connected with our business by 54%, from our 2019 baseline. We take special pride in noting that those new objectives have been validated by the Science-Based Targets initiative (SBTi).

“In 2023 we will be launching a sizeable in-house campaign to educate employees and raise awareness about our climate plan.”

The goal we have set is especially ambitious for GHG emissions in Scopes 1 and 2, since we had already reduced those emissions sharply, by 25%, between 2012 and 2019.

A commitment of that kind means the Group will have to mobilise on a truly major scale over the next few years. How do you intend to make that happen?

E. B.: With every tool at our disposal! We can only follow that carbon trajectory – currently one of the most ambitious of any major chemicals company – with a coordinated, planned campaign focusing on each of our three main scopes of greenhouse gas emissions (see chart on page 14). Scope 1 corresponds to direct emissions from our sites themselves – for example, burning natural gas in boilers to produce steam. Scope 2 refers to indirect emissions generated in producing the energy we purchase, while Scope 3 emissions encompass the carbon footprint of our entire value chain, both upstream and downstream, from the raw materials to the use of our products and their end-of-life disposal. The entire initiative is backed by a total investment package of about €400 million over eight years.

The reduction in Scopes 1+2 will come from the Group’s industrial sites, which already have a longstanding commitment to improving energy efficiency and decarbonising their energy purchases. Where is there still room for improvement?

E. B.: We need to slash our Scope 1 and 2 emissions from our 2019 total of 3,704,000 tonnes to 1,908,000

tonnes of CO₂ equivalent by 2030. The roadmap we’ve established to reach that goal calls for markedly increasing the proportion of steam and low-carbon electricity (wind, solar and nuclear power) used at our sites, notably by signing long-term power purchase agreements (PPAs) with producers. At the same time, we’re also going to curb our CO₂-equivalent emissions through ongoing improvements in our processes and energy efficiency at our facilities. We initiated multiple projects along those lines in 2022: we signed a major agreement with Engie to supply biomethane for our polyamide 11 units in France; we installed a next-generation catalyst for nitrogen oxide emissions at our Lacq site; we’re capturing steam generated from urban waste treatment and replacing oil-fired boilers with boilers powered by natural gas (see pages 16-23).

To what degree will the Group’s sustainable offerings help fulfil those objectives?

E. B.: They play an essential role. To give you some background, in 2022 our Scope 3 emissions amounted to more than 78 million tonnes of CO₂ equivalent. Our goal of a 54% reduction in our Scope 3 emissions is wholly consistent with the commitment to sustainable products that has been at the heart of Arkema’s strategy for many years. That commitment includes our systematic pursuit of solutions that further the UN’s Sustainable Development Goals, our development of bio-sourced materials, our active role in building polymer recycling networks and more. In that respect, our campaign to evaluate our portfolio of solutions using the Archimedes programme (see pages 25-27),

New targets for reducing greenhouse gas emissions from their 2019 baseline by 2030⁽¹⁾:

-48.5%
for Scopes 1 and 2

-54%
for Scope 3



⁽¹⁾ Approved by the SBTi.

“Our carbon trajectory is currently one of the most ambitious in our sector.”

which continued apace in 2022, serves as an invaluable tool for guiding our actions, and prioritising solutions with the most positive impact. Similarly, for our upstream Scope 3 emissions, we are working very closely with our suppliers to obtain feedstock with a smaller carbon footprint.

What role can the Group’s 21,100 employees expect to play in making this climate plan a success?

E. B.: Each of us truly needs to contribute to Arkema’s commitment to this path. With that in mind, in 2023 we’ll be launching a large-scale campaign to train and educate the workforce. That process will include the Climate Fresk, in which all of our employees worldwide, at every level, will be taking part. The Climate Fresk is an interactive, team-based card game designed by the former president of The Shift Project⁽¹⁾. It gives players an opportunity to talk about climate issues, learn more about the current situation and devise concrete actions that can be taken both across the Group and individually. The game was tested by a group of nearly 500 Bostik employees, and the feedback was positive. We plan to have a majority of our employees take part between now and 2025. Our campaign to raise awareness also includes a set of e-learning modules focusing on climate and the environment, as well as events, awards and much more. It’s a long-term undertaking: in much the same way that we built a strong safety culture at Arkema, we now need to instil a real “climate and environment culture” across the entire company, one that reflects the Group’s goals and ambitions. ■

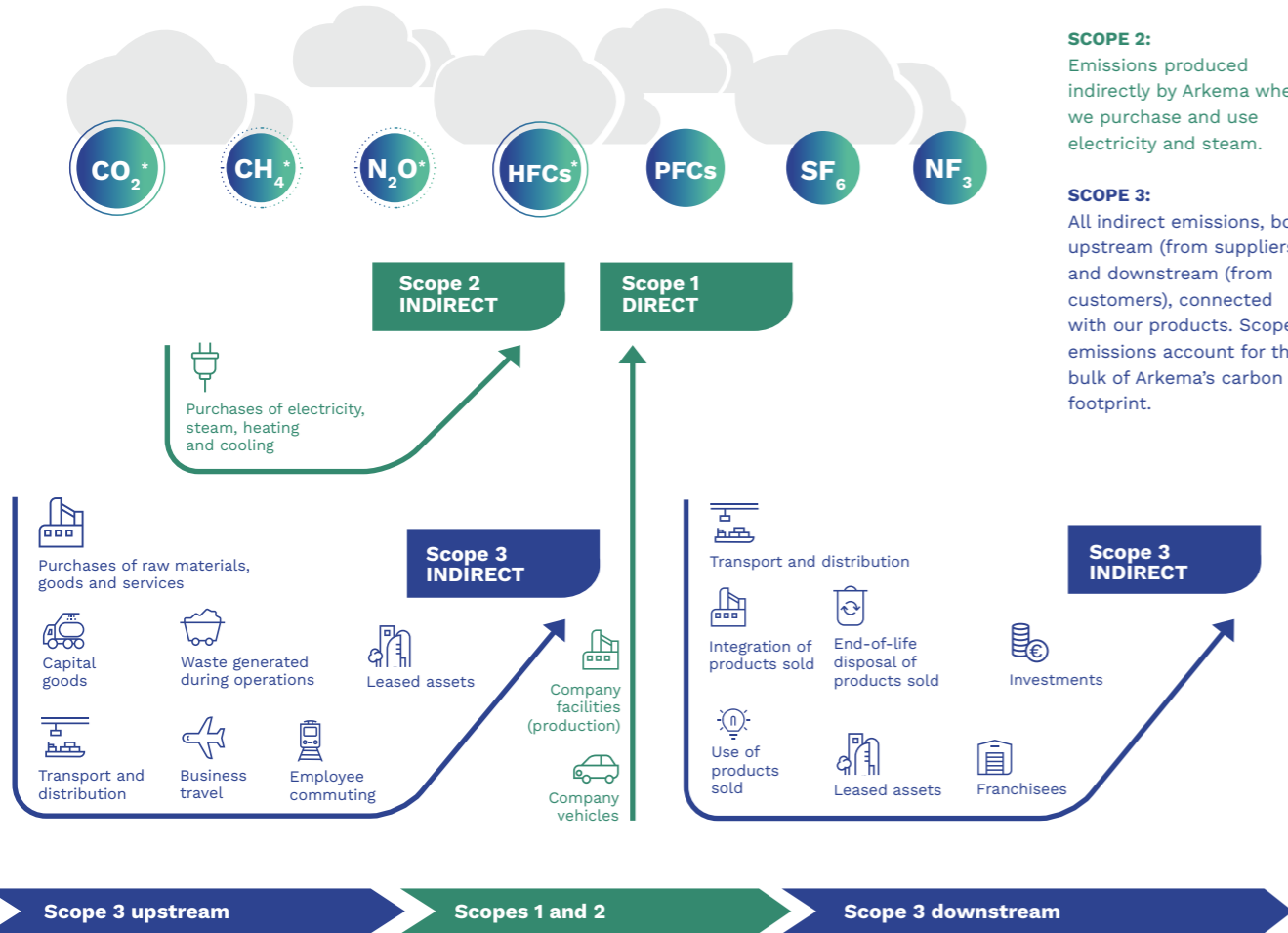


⁽¹⁾ The Shift Project is a non-profit think tank working to create an economy that is no longer carbon-dependent.

A better understanding of greenhouse gas emissions and our climate plan

The Greenhouse Gas (GHG) Protocol defines a global, standardised framework for carbon accounting. It groups the various sources of a company's greenhouse gas emissions (often simply referred to as carbon) into three major categories: Scopes 1, 2, and 3. The protocol is based on a partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). Businesses can use the protocol to measure their primary sources of direct and indirect GHG emissions and identify more targeted measures for reducing those emissions. How are those various scopes defined? What do they mean for Arkema? Here's a closer look at those emissions and their role in our climate plan.

Our ambition: to reduce greenhouse gas emissions across our entire value chain



*Principal GHGs for Arkema



In 2022, **61%** of our electricity came from low-carbon sources

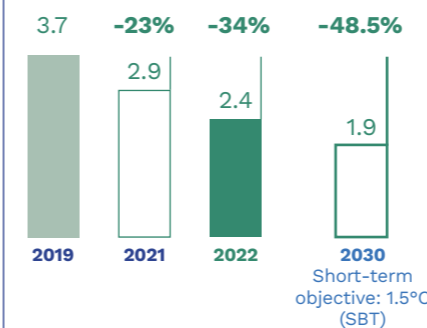
A climate plan that is among the industry's most ambitious

Aligned with the objectives in the Paris Agreement, which aims to cap the global temperature rise from pre-industrial levels at 1.5°C by the end of the century. After previously strengthening our climate plan in July 2022, Arkema set a new and even more ambitious target, approved by the SBTi, in April 2023: to reduce our Scope 1 and 2 greenhouse gas emissions by 48.5%, and our total Scope 3 emissions by 54%, from our 2019 baseline by 2030.

GREENHOUSE GAS EMISSIONS

Scopes 1 and 2

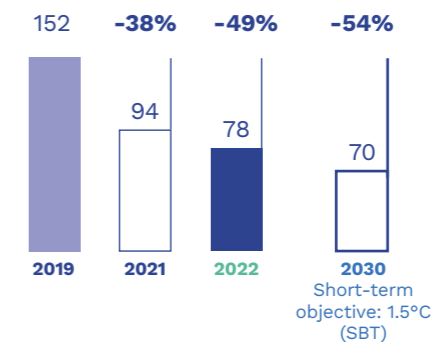
(in millions of tonnes of CO₂e)



-16% reduction in Scope 1 and 2 GHG emissions in 2022 (from 2021 levels)

Scope 3

(in millions of tonnes of CO₂e)



-17% reduction in Scope 3 GHG emissions in 2022 (from 2021 levels)

We plan to implement our climate plan by:

• SCOPES 1 AND 2:

- making our sites more energy efficient,
- increasing our purchases of low-carbon energy,
- investing in ways to decarbonise our production processes,
- expanding our knowledge and use of breakthrough decarbonisation technology.

• SCOPE 3 (UPSTREAM):

- encouraging and monitoring the commitment by our suppliers to reduce their emissions.

• SCOPE 3 (DOWNSTREAM):

- reducing our most emissions-intensive activities,
- marketing product solutions that help to reduce our customers' greenhouse gases.

DECARBONISATION: A TOUR OF OUR FACTORIES AROUND THE WORLD

Around the world, our industrial sites are implementing an action plan to reduce their carbon footprint. We are replacing or adapting our processes with new, cleaner ones. We are signing electricity contracts with green suppliers and installing photovoltaic arrays. Here's our review of the measures implemented at our sites to reduce emissions and meet the Group's target of reducing greenhouse gas emissions on scopes 1 and 2 by 48.5% by 2030.



The Lacq site has used an innovative process to reduce its total emissions by 28%

A new-generation SCR (selective catalytic reduction) treatment unit, installed at the Lacq site (France) in 2022, has significantly reduced the site's nitrogen oxides and nitrous oxide emissions. This is a major step forward in the site's decarbonisation process and goes well beyond regulatory requirements.

The EkiNOx project, launched by the Group in 2020 and completed in 2022, has reduced the total carbon footprint of the Arkema platform at Lacq-Mourenx by 6,300 tonnes of CO₂ equivalent per year, or nearly 28%. The operation took place in the nitrosyl sulphate production unit, which emits nitrogen oxides (NOx) and nitrous oxide (N₂O), a colourless gas with a high global warming potential (one tonne of N₂O is equivalent to 300 tonnes of CO₂). "The EkiNOx project takes advantage of the tightening of legislation on NOx emissions to implement a solution that also reduces N₂O, which is not subject to any regulatory limit," explains Laurent Désert, Industrial Manager at the High Performance Polymers Business Unit. This is a very precise specification that cannot be met by conventional SCR (selective catalytic reduction) processes, which are only effective on NOx.

75% reduction in N₂O

In response, Arkema turned to a next-generation solution, jointly developed by Prossergy and Enercat, two French companies specialising in the treatment of industrial emissions. "It works by passing the flue gases over an iron zeolite catalyst, which converts NOx and N₂O into water and nitrogen," says Laurent Désert. The heat released by the reaction is recovered to preheat the gases

to be treated." This reduces NOx by 95% and N₂O by 75%. Although the technology is mature, it still needed to be adapted to the set-up of each industrial site. In 2021, Arkema and its partners built an experimental pilot unit at the Lacq site to determine the size of system needed and ensure it would work. After several months of preparation, the catalytic unit was commissioned in autumn 2022 and fully meets its objectives. The total cost was €3.5 million, about a third of which was subsidised by the ADEME as part of the France 2030 investment plan. This project is an example of the Group's commitment to using the best available solutions to drastically reduce its greenhouse gas emissions. ■



The new EkiNOx facility within the nitrosyl sulphate production unit.

The new process has reduced emissions of:

nitrogen oxide by

95%

nitrous oxide by

75%

Decarbonised energy: Engie and Arkema shape the future of the French biomethane industry

A long-term partnership between the two groups provides for the supply of 3 TWh of biomethane from agricultural waste to the Rilsan® polyamide 11 units in Marseille and Serquigny over 10 years.

Biomethane emits only 44g CO₂/kWh compared to 227g CO₂/kWh for natural gas.

Source: Carbone 4

The agreement was signed in January 2023 after months of preparation. The Engie Group has committed to supplying Arkema with 300 GWh of biomethane per year for 10 years, making it one of the largest private purchase contracts in Europe for this decarbonised energy. The gas will be used in the production of Rilsan® polyamide 11 at the Marseille and Serquigny sites. "It will replace fossil natural gas in the boilers at our two factories without the need to modify the process," explains Jérémy Assayag, who managed

the project at Arkema's Energy Purchasing department. "This development will lead to an annual reduction of 55,000 tonnes of carbon equivalent in the production of our bio-sourced polyamide and further reduce its carbon footprint." It is a historic contract in terms of its duration and the volumes involved, representing around 5% of all biomethane currently available in France. But above all, it is historic in terms of the care that both parties have taken to optimise the conditions for producing this green energy.



Sustainable production policy

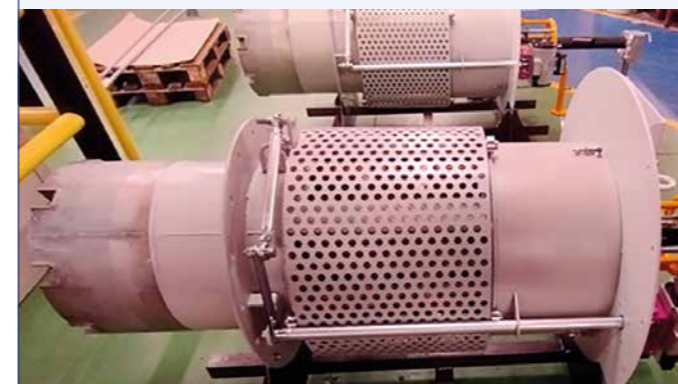
More than 90% of the biomethane supplied by Engie comes from organic agricultural waste. It is supplied by a group of seventeen small- to medium-sized methanation units (capacities ranging from about 5 to 30 GWh) owned by farming groups in France, mainly in Normandy, whose production is purchased by the French energy company. Arkema has worked closely with its partner to define the quality and environmental responsibility standards of this fledgling sector.

"We want to contribute to the development of a truly sustainable French industry, and we are taking all necessary precautions to avoid reproducing in France what is happening elsewhere, where biomethane is being produced in competition with arable land," says Jérémy Assayag. To this end, the Group is working with Engie to develop a sustainable production policy similar to the best practices it already implements under the Pragati programme, with the farmers from whom it buys the castor oil used to produce polyamide 11. The price difference between this biomethane

and fossil natural gas is justified by the environmental benefits, one of the reasons why Arkema decided to use its French biogas for Rilsan® polyamide 11. This polymer was already 100% bio-sourced from a plant-based raw material produced according to best environmental practices. It is now produced using decarbonised energy, also derived from a sustainable plant-based raw material. ■



A crane installing the superheater boiler at the Marseille site through the roof of the boiler room



The two new burners are impressive in size

The Marseille factory is upgrading a boiler and reducing its emissions by 4,400 tonnes of CO₂ equivalent.

Arkema is investing €5.8 million to upgrade and improve the performance of one of its boilers at its Marseille production unit for amino 11, the monomer used to make polyamide 11, and is improving its performance by replacing the pipe bundles, installing an energy-saving system and changing the insulation. Another major change is that the factory, which used to run on fuel oil, will now run on gas. This investment, supplemented by a public grant of €800,000 as part of the decarbonisation component of the France Relance plan, will reduce the site's annual emissions by 4,400 tonnes of CO₂ equivalent: the combined result of an improvement in energy efficiency (by almost ten points) and the lower emissions from natural gas compared to fuel oil. It should be noted that this boiler also burns bioresins from the production of amino 11: the recovery of a carbon-neutral industrial by-product will of course be maintained with the switch to gas fuel. Work began in February 2023, with commissioning scheduled for the end of May.

Electricity purchases: priority for solar and wind

Arkema is fully committed to decarbonising its energy sources and is seizing opportunities to sign wind or photovoltaic power supply contracts in Europe, the United States and Asia. We made progress in this area in 2022 in Texas, China and the Netherlands.

Between now and 2030, Arkema will continue to reduce annual emissions from electricity use at its sites, in line with our climate plan objectives. In 2022, 61% of our energy already came from low-carbon sources (solar, wind, nuclear). Our ambition is to shift the Group's purchasing policy even further towards renewable electricity. "Purchasing opportunities in these sectors are closely linked to the situation in each country, depending on the operators in the market, the climate and the regulations in force," explains Loïc de Bergh, Group Energy Purchasing Director. "We all keep a close eye on local opportunities, and sign supply contracts as soon as possible, preferably on a long-term basis."



The site at Bayport, US, supplies all of its electricity from wind power.



Long-term contracts at Bayport and Clear Lake

The favoured option for this type of contract is the Power Purchase Agreement (PPA), whereby an electricity reseller reserves specific production capacity at a renewable facility for its customer for a period of between eight and 15 years. This is done in Bayport (Texas), where American Acryl, the joint venture between Arkema and Nippon Shokubai, signed a PPA with EDF Renewables North America at the end of 2022 for the supply of wind power. Under the agreement, which runs for more than eight years, the site, which specialises in the production of acrylic monomers, will receive all of its electricity from the King Creek 1 wind farm, operated by the French energy company. This will allow Arkema to reduce its carbon equivalent emissions by 12,000 tonnes per year.

Also in Texas, another agreement signed in 2021 had already allowed the Clear Lake platform, where Arkema has acrylic acid and acrylic ester units, to decarbonise part of its electricity supply using solar energy from Calpine Energy Solutions. "This contract provides for the supply of 45 MW of peak solar capacity for fifteen years for the entire Clear Lake platform. It represents about 142,000 MWh of renewable energy per year, which is equivalent to taking approximately 14,500 cars off the road," says Loïc de Bergh. "This amounts to 33% of the site's annual electricity needs and about 65% of its daily use during the summer months."



The Clear Lake site in the United States gets a third of its electricity from solar power.

Decarbonisation through RECs in the Netherlands and China

This type of long-term partnership, which is much sought after by industry, is not always available as it is based on a relatively high threshold of electricity consumption. If a PPA is not possible, Arkema uses another type of contract to decarbonise its purchases: the Renewable Energy Certificate (REC), which guarantees that the electricity supplied is

renewable and is usually signed on a yearly rolling basis. Arkema has implemented this option for its seven production sites in the Netherlands, where 100% of electricity purchases have been covered by RECs since 2022, with most of the electricity coming from offshore wind. A similar mechanism has been used at Arkema's Taixing site in China. At this factory, the Group's largest acrylic monomer production unit, 5-10% of electricity

purchases are now certified renewable, a proportion that will gradually increase. In addition to green power supply contracts, the Group is also looking to produce its own energy wherever possible, and installed a small solar power array on the roof of the Serquigny site (France) in 2009. "The growth of photovoltaic technology is leading to a scramble for available space (roofs, car park canopies, unused land), and our industrial sites offer opportunities to install solar panels without encroaching on woodland or agricultural land," says Loïc de Bergh, who investigates every opportunity for the Group to generate its own power. A solar array covering a few thousand square metres of land can save up to 500 tonnes of CO₂ equivalent per year. When it comes to decarbonisation, small-scale projects can add up to big results. ■



In Lannemezan, Arkema is working with the local economy

Alongside Dalkia and PSI Environnement, the Group will install a solid recovered fuel (SRF) boiler and build a local waste recycling unit at its Lannemezan site. This exemplary partnership will allow the site to significantly reduce its dependence on gas, with the direct benefit of a 15% reduction in its carbon footprint.

The Arkema factory in Lannemezan, which produces hydrazine hydrate and its by-products⁽¹⁾, is a major consumer of steam: around 320,000 tonnes per year, currently partly produced from fossil natural gas by a cogeneration plant built in 2000 with Dalkia (EDF group).

As the facility nears the end of its life, the site is focusing on energy transition by turning to a locally available resource: solid recovered fuels (SRFs), the non-recyclable part of waste generated by business activities, waste collection and waste disposal. To this end, Arkema, Dalkia and PSI Environnement, a local company specialising in waste recovery, launched an innovative two-part project in 2016. For the first part, Dalkia will build and commission a steam boiler unit to be powered by SRFs on a 24,000 m² site adjacent to the

factory. "This boiler, on which work will start in early 2024, will produce 200,000 tonnes of steam per year, or two-thirds of our needs," says Pierre-Henri Chrétien, Director of the Lannemezan factory. Arkema will buy all the production for a period of 20 years.

€55 million investment, some twenty direct jobs created

The second part of the project concerns preparation of the fuel, which will be carried out by PSI Environnement. The company is in charge of the design, construction and operation of a waste sorting and preparation plant (paper, cardboard, wood, etc.) near the factory, capable of supplying 43,000 tonnes a year of SRFs to the required standards.

This waste, currently buried in a storage centre, comes from a radius of 80 to 100 km around Lannemezan. All the SRFs it produces will be used to power Dalkia's new boiler. The whole programme should be operational by the end of 2025. It represents a total investment of around €55 million, including €40 million for the boiler unit (financed by Dalkia with the help of ADEME and the Occitanie region) and €15 million for the SRF production unit (financed by PSI Environnement with the help of ADEME). This will create 24 jobs (excluding the construction phase) in the SRF production unit and boiler unit. The two-part project is exemplary in several respects. "By developing this local sector, we are significantly reducing our dependence on gas and providing an outlet for a hitherto unused resource," says Pierre-Henri Chrétien. The site's carbon footprint will be significantly reduced owing to the lower emissions of SRFs compared to fossil natural gas. By the end of 2025, Lannemezan will have saved 8,000 tonnes of CO₂ equivalent per year, or 15% of its total emissions. ■

⁽¹⁾ Hydrazine hydrate and its by-products are used for water treatment in nuclear power plants and in the agrochemical, pharmaceutical and electronics markets.



3D views of the future fuel preparation unit and the future boiler unit



The Villers-Saint-Paul site generates energy from the town's waste

The Villers-Saint-Paul site in Picardy has a very short energy supply chain. For more than ten years, the factory, which produces photocurable resins, has enjoyed a rewarding partnership with the local waste management operator (Syndicat mixte des déchets de l'Oise / SMDO), which has an energy recovery unit a few hundred metres away. "We buy steam from them that comes from waste incineration

in the Oise region," explains Vincent Festino, Director of the Villers-Saint-Paul site. This energy is therefore local and renewable, and Arkema wants to increase the proportion of renewable energy it uses. The steam produced by SMDO, which already accounted for 55% of the site's needs in 2016, now covers almost 75%. This is a win-win situation for the two neighbours, which are linked by a 1.5 kilometre pipeline. "We also plan to purchase electricity produced by cogeneration and cover 100% of our steam needs by 2025. This will secure our supply and reduce our carbon footprint, while guaranteeing supply volumes and a purchase price for our supplier," explains Vincent Festino. The steam from the incinerator reduced the site's CO₂ equivalent emissions by around 6,000 tonnes in 2022 (compared to steam from a gas boiler), with a further 3,000 tonnes of CO₂ equivalent expected to be saved within two years through the purchase of carbon-free electricity.





03. SOLUTIONS

“Most of the solutions and materials we offer contribute to meeting the sustainable development goals.”

The Archimedes programme: evaluating and developing a portfolio of solutions that are more positive and sustainable

Since 2018, Arkema has been systematically evaluating all of our solutions using the Archimedes programme, which examines their sourcing, production processes, life cycle analysis, recyclability and more. This goes well beyond regulatory compliance: the Group conducts a region-specific analysis of whether each product/application pair reflects the market’s medium- and long-term CSR expectations and whether it contributes to the United Nations Sustainable Development Goals. As a management tool, Archimedes ensures that the solutions we offer are aligned with the market’s demands for sustainability.

Between 2020 and 2022, the Archimedes team at Arkema conducted more than 300 meetings within the Group’s various BUs. The goal was to work with the relevant R&D manager(s), sales representative and regulatory expert for each solution or family of solutions to identify its potential sustainability risks and opportunities. On the basis of that analysis, made using a formal decision tree, each solution was placed in one of three major categories: “Challenge”, for solutions found to pose a specific level of risk; “Neutral or with potential for improvement”, for solutions that neither pose a risk nor make a significant positive contribution, or that pose a fairly minor risk that can be eliminated in a reasonably short time; and “ImpACT+”, for solutions that fit seamlessly into the Group’s range of sustainable offerings. “This systematic assessment process is a genuinely helpful tool for managing our solutions portfolio,” says Noël Zilberfarb, Sustainable Offer Manager and Archimedes project leader. “It offers a consistent, objective template to clarify our industrial decision-making and sales strategy, anticipate potential problems and prevent greenwashing” (see also pages 28-29).

65%
of solutions were rated
“ImpACT+” in 2030

Introduced in 2018, the Archimedes process has already been successfully deployed on 86% of the Group’s solutions. “We’re on track to screen the entire portfolio by the end of 2024,” says Noël. But Archimedes will continue to play a role at the company even beyond that time: solutions rated “ImpACT+” currently account for 53% of Arkema’s sales, but the Group hopes to increase that figure to 65% by 2030. As for the remaining 35%, they will largely fall into the “Neutral” category by then, thanks to action plans adopted for solutions classified as “Challenge”. ■

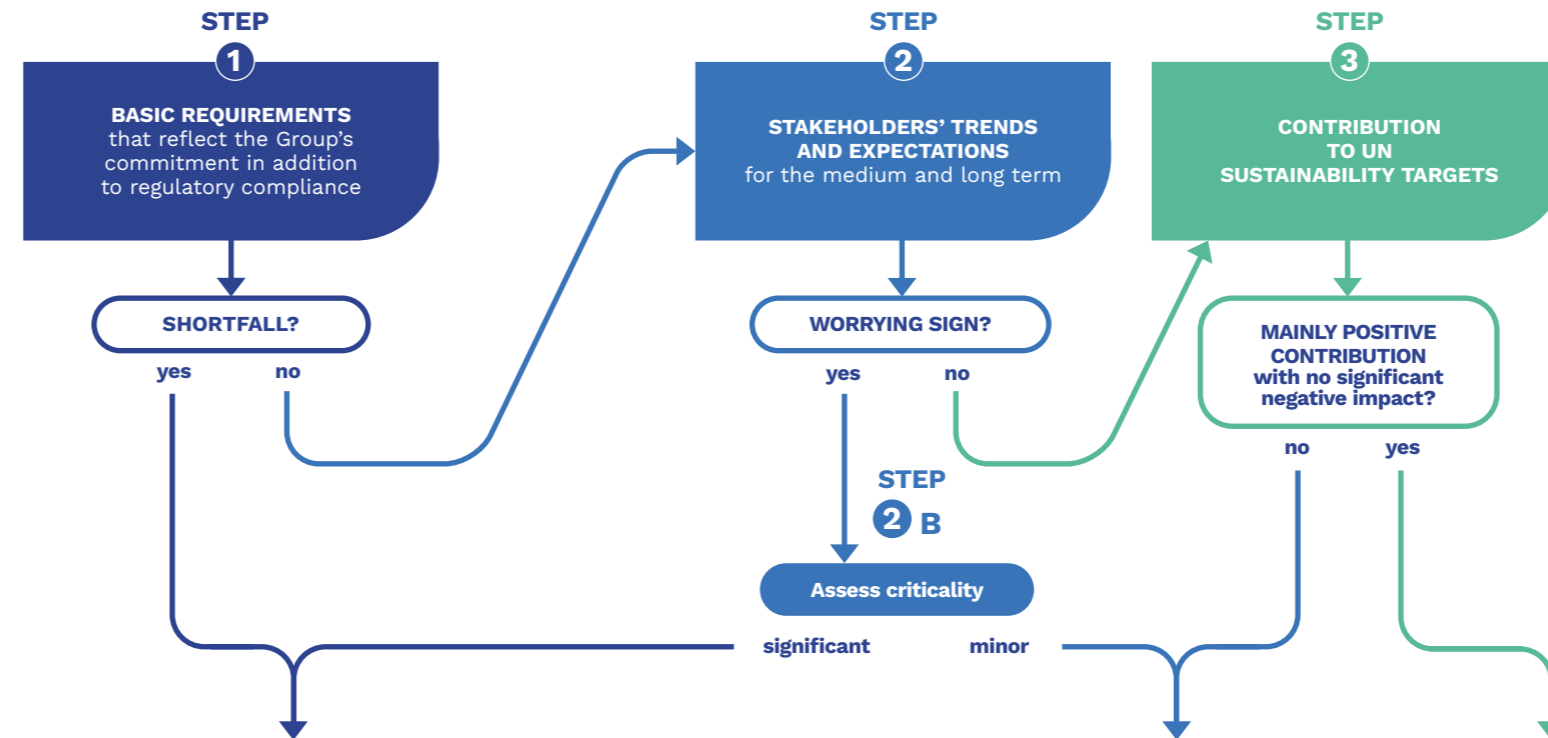


An assessment methodology aligned with the world's highest standards

The Archimedes process, which was defined by the CSR team, draws on the Chemical Industry Methodology for Portfolio Sustainability Assessments, developed by the World Business Council for Sustainable Development (WBCSD). A team of auditors from KPMG has verified proper compliance with the methodology since 2020. The three-step assessment reviews each solution's entire value chain to the best of the assessor's knowledge, including its raw materials, production processes, carbon footprint, the use made of the product, and end-of-life management.

1 BASIC REQUIREMENTS

Each solution is first evaluated from a regulatory standpoint. That means ensuring that each chemical used in the product complies with current regulations as well as foreseeable regulatory changes in the future. This initial step – soon to be partially automated, thanks to an algorithm now being developed with IBM – draws on the forward-looking analyses that the Group conducts based on public regulatory data. If any of the chemicals used poses a significant risk, the solution is classified as a “Challenge”. If not, the solution advances to the second step. During the first step, the solution is also reviewed for ethical risks and risks to Arkema's social and environmental commitments across the entire value chain, and its economic viability is scrutinised as well.



2 STAKEHOLDER TRENDS AND EXPECTATIONS

The second step is to meet with R&D, and the business and sales managers to decide whether a solution meets market expectations and responds to market trends over the medium and long term. If a worrying sign is identified, a criticality assessment is performed (Step 2a). Examples of a worrying sign include a major market player announcing its intention to discontinue use of a substance or process involved in our solutions by a given date, or if carbon footprint performance were to become a base criterion in a given market segment and we believe this poses a risk to certain product ranges. Otherwise the solution moves on to the third stage of analysis.

2 A CRITICALITY ASSESSMENT

If there is a worrying sign from the market for a given solution, the Archimedes team and the relevant BU personnel identify the criticality level by, first, assessing the BU's level of exposure to the identified risk and, second, estimating how much work will be required of the relevant teams to reduce that risk (e.g. substituting different ingredients, adopting new processes, replacing the solutions on the market, etc.) If the identified problem could potentially become a critical risk to the business and/or CSR, the solution is classified as a “Challenge”. If the issue seems minor, the solution is classified as “Neutral”.

3 CONTRIBUTIONS TO THE SDGs

The final step involves evaluating how the solution contributes to the UN's Sustainable Development Goals (SDGs) over its entire life cycle. This analysis is conducted using the best available data (such as data on current or future recycling networks). It primarily focuses on ten of the seventeen SDGs that have been identified as most relevant to Arkema's business sector. If the solution has a substantially positive impact on at least one of those SDGs and does not adversely affect the others, it is classified as “ImpACT+”. If, however, its contribution to the SDGs is unfavourable on balance, it is considered “Neutral” or a “Challenge”.

Thousands of solutions for analysis

The Archimedes assessment is conducted at the most granular level: it is applied to each “solution”, meaning potential product/customer pair in a given region. Group-wide, that represents thousands of solutions to be screened for sustainability.

“CHALLENGE” SOLUTIONS



A prospective action plan

For solutions that pose a risk of regulatory non-compliance or that may not reflect medium-term market expectations, the Group can take a range of corrective measures, such as withdrawing the portfolio, changing the chemical formulation, or seeking out safer alternative substances or processes. The BUs play an active role in this process, and by 2022 an action plan had been developed for 85% of solutions in the “Challenge” category.

“NEUTRAL” SOLUTIONS



On the right track!

“Neutral” solutions – those that meet regulatory standards and are aligned with market trends and expectations but don't materially contribute to the SDGs – are an integral part of Arkema's portfolio. We aim to improve their sustainability score over time to ensure they stand out in their market segment, by improving their chemical composition, the processes used in their production (industrial efficiency, decarbonised energy) or their sustainable benefits for users and end customers.



The advantages of sustainable growth

These solutions represent the Group's most valuable tools for pursuing its strategy of innovation and sustainable growth. The progress set in motion with the Archimedes programme is showing the way forward: by year-end 2022 “ImpACT+” solutions already represented 53% of Arkema's sales, and that share will gradually increase to a target of 65% by 2030.

Fair Communication platform: did you say “sustainable”?

In the chemical industry, where CSR concerns are especially prominent, greenwashing poses a genuine risk that we must guard against at all costs. To avoid the trap of greenwashing, which can tarnish a company’s reputation for many years, we must choose our words carefully and offer proof for the promises we make. That’s the goal behind the Responsible Communications platform, a toolkit that Arkema developed in 2022 for its workforce, and sales and marketing employees in particular.

Sustainable development, green energy, recyclability, biodegradability, the circular economy, bio-sourcing, products with low carbon impact: amidst a climate and environmental crisis, these terms and many others permeate corporate discourse to such a degree that they sometimes lose all meaning. “When manufacturers don’t manage their communications effectively, they can quickly be charged with greenwashing and see their entire campaign discredited,” says Corporate Sustainable Offer Manager Noël Zilberfarb. At Arkema, where our growth and innovation strategy has long been focused on finding solutions to environmental challenges (as with our Archimedes portfolio management programme; see pages 25-27), we need to choose the right words if we are to uphold an exemplary standard. With that in mind, in 2022 the Group adopted a “sustainability glossary” available to all Arkema employees via the company intranet. Noël adds: “This evolving lexicon, which already includes nearly 70 terms and their definitions, provides our Business Units with the basic, standardised terminology they need to promote their substantive work more effectively and communicate even more rigorously and objectively about the sustainability benefits



of their solutions.” The glossary is part of Arkema’s new Responsible Communications platform, the outgrowth of a working group formed in late 2021 with members from the Legal Department, corporate communications, the sustainable development unit and the BUs themselves. The platform also offers webinars and e-learning modules about greenwashing and the risks it poses, as well as a promotional toolkit designed specifically for sales personnel.

Golden rules for avoiding greenwashing

“Communications that make improper use of environmental claims can do real damage to your reputation, as some companies have learned to their misfortune in recent years,” says Noël Zilberfarb. A growing number of organisations, including non-profits as well as official bodies such as the French Agency for Ecological Transition (ADEME), do important work in both

“When manufacturers don’t manage their communications effectively, they can quickly be charged with greenwashing and see their entire campaign discredited.”

↓ No claims about a product’s attributes without proof!

The benefits or attributes that can be associated with Arkema brands or products have been grouped into five areas, each symbolised by a pictogram. Proof or evidence must always be provided whenever any attribute associated with one of those five areas is highlighted in our advertising, websites, brochures, packaging or other promotional materials.

raising awareness of greenwashing and shaming those who practice it. The consequences can be painful, particularly if social media gets involved. “Our platform offers tips and supporting examples to show how greenwashing works and how you can protect yourself by following some best practices for communications and marketing pitches.”

One golden rule is to avoid absolute generic claims and make relative statements instead: don’t simply call a solution “sustainable”, for example, but say it is “more sustainable than” another product. Another rule is to provide factual evidence – backed by data, if possible – for every argument you make on behalf of a solution or process. Terms need to be chosen carefully based on conclusive analyses, such as a life cycle analysis, that demonstrate a product’s “sustainability” benefits and can be made available to customers. In order for a solution to be deemed recyclable, for example, it’s not enough to say that its recyclability has been confirmed in a laboratory; an industrial recycling system for the solution must already be in place, or at least clearly on the horizon.

Similarly, solutions cannot be described as sustainable on the basis of one criterion if they have a negative impact according to other criteria, unless those countervailing examples are explicitly identified. “The work we do in the Archimedes programme, evaluating our solutions, is consistent with those principles,” notes Noël. “And when a solution is classified as “ImpACT+”, we have a strong basis for being able to promote that product from a sustainability standpoint.” This attitude of sincerity and objectivity is one that the Group adopts not just towards its own workforce, but towards its customers and partners as well. ■



Pictogram	Attribute/Theme	Specific Rule for Use	Generic Rule for Use
	Circularity	Proof must be given for any of the following claims: - Bio-sourced, - Recycled, - Recyclable, - Compostable, - Conducive to recycling.	Explicit definition of the icon’s scope Explicit data showing compliance with the definition.
	Climate	Proof must be given for any of the following claims: - Reduces “cradle-to-grave” impact (compared to an explicit benchmark), - Contributes to reducing “cradle-to-grave” impact compared to an explicit benchmark (including use or end-of-life).	
	Product safety	Contains no relevant hazardous substances compared to the (explicit) market benchmark, beyond compliance.	
	Downstream benefits/Enabler	Offers sustainable development benefits for our customers or value chain during the use or end-of-life stage (e.g. additives or adhesives to improve the recycling process).	
	Sustainability	Offers proven benefits for protecting materials or prolonging their usable life.	

Mapping our sustainable solutions

Archimedes is the process we use to evaluate our portfolio of solutions. It assesses the entire value chain of a product in its application, from raw materials to end-of-life, including manufacturing processes. The analysis covers three criteria: the products do not pose a risk to health or the environment, they meet high market expectations, and they make a significant contribution to the ten Sustainable Development Goals (SDGs) selected by Arkema. If a product meets these three criteria, it is classified as an ImpACT+ product. Below are a number of examples of our ImpACT+ products in different growth areas that demonstrate tangible benefits in response to the SDGs.



SOURCING BIO-SOURCED

Mass balance: a more sustainable approach to sourcing to reduce our products' carbon footprint in many markets

It is now possible to replace some fossil resources with plant-based or recycled raw materials without changing manufacturing facilities using the principle of mass balance, or the bio-based and circular (recycled) approach. This approach is in line with the UN Sustainable Development Goals and makes a significant contribution to the reduction of CO₂ emissions. It allows us to attribute a natural or recycled resource to our finished products, thanks to International Sustainability and Carbon Certification PLUS (ISCC+) certified traceability throughout the value chain. This system allows us to gradually increase the amount of renewable or recycled carbon in production. The percentage of certified raw material can vary from 15% to 60% depending on customer requirements. Arkema adopted this approach in 2022 for its acrylic acid, the first link in the production chain of specialty acrylic resins and additives for various markets including paints, coatings and water treatment. This mass balance approach has also been adopted for the production of ethylene oxide (ethoxylated surfactant range) and Kynar® CTO PVDF grade. By replacing fossil-based raw materials with bio-based or recycled materials, Arkema's customers can meet their climate change targets by reducing their Scope 3 greenhouse gas emissions.

ARCHIMEDES IN 2022 AND TARGETS

The assessment covered **86%** of sales compared to 85% in 2021.

The percentage of sales from ImpACT+ solutions was **53%** compared to 51% in 2021.

In 2024, **100%** of the sales portfolio will be assessed.

65% of sales must be ImpACT+ certified by 2030.



DECARBONISED TRANSPORT/MOBILITY

There would be no high-performance electric battery without our Kynar® PVDF!

The challenge with electric batteries is their output, charging time, range and most of all their longevity. They must be able to maintain their performance over time and use in order to compensate for their manufacturing costs. Our Kynar® PVDF, a high-performance fluoropolymer, meets these requirements.

Although used in small quantities in the formulation of the electrodes of each battery cell, Kynar® PVDF plays an essential role as a binder thanks to its high electrochemical resistance to electrolyte salts, the liquid in which the components are immersed and through which the current flows. This high-performance polymer is used to bind active particles (metals for the cathode, graphite for the anode) to the electrodes, which attract and capture ions during charging and discharging while the vehicle is in operation. The Kynar® PVDF binder is so effective that very little is needed, leaving more space for the active particles. Depending on the direction of motion, this improves either the battery's charging time or its energy efficiency and range. Kynar® PVDF's resistance to high voltages and to the electrolyte's solvent make it an excellent material for protecting the film separating the two electrodes, which is subjected to high stress during charging and discharging. It significantly extends battery life while reducing energy losses and charging times by promoting optimised circulation of the ions and electrons in the electrolyte.



More compact means better performance

Arkema is constantly improving the performance of its Kynar® PVDF grades to reduce the quantities required in the cell, which have gradually fallen from 8% to 1.5% of the formulation today. This allows manufacturers to increase the amount of active particles on the electrodes, which in turn increases the battery's performance and energy density.

Bio-based solutions for hydrogen tank liners and winding

Our Rilsan® polyamide 11, a 100% bio-based high-performance polymer, has the properties required to form the lining of high-pressure tanks for hydrogen

vehicles, withstanding 700 bar (700 kg per cm²). It is impervious to hydrogen, resistant to cold shock (the temperature of the tank can drop to -50°C when the hydrogen expands rapidly), not very sensitive to temperature variations and easy to use, even for large parts such as truck tanks. Already used by several manufacturers, it also offers a new-generation solution for the production of carbon fibre composite tapes pre-impregnated with Rilsan® fine powder.

This makes it possible to use hot winding to form a tank shell, which also acts as a liner. It is a preferred option for manufacturers because it does not require curing after winding and uses less carbon fibre (the biggest cost factor in tanks) than epoxy for the same strength.



SPORTS & LEISURE

Our Elium® resin and Bostik adhesive for recyclable boat hulls

The marine industry is facing the problem of recycling boat hulls made from thermoset resin composites that cannot be melted to be recycled. The new First 44e from the Beneteau group, a global marine specialist, is the first production yacht made entirely from our Elium® resin for recyclable composites. Brunswick in the United States has also focused on recycling, using Elium® resin for the hulls of its powerboats.

To reduce the marine industry's environmental impact, Beneteau has chosen to innovate and recycle. Their new yacht, unveiled at the 2022 Nautic de Paris, is a good example: the First 44e is the first production boat made entirely from our recyclable thermoplastic resin, Elium®, and powered by a hybrid engine. This yacht is an industrial coup for a production boat. It is made from Elium® resin using the traditional infusion process. Its hull is fully recyclable thanks to a thermolysis process that separates the fibreglass from the Elium® resin when the boat is



dismantled. The latter can then be reused to make new parts. This puts the resin in a virtuous cycle, minimising the need for raw materials, reducing waste and significantly improving the vessel's lifecycle.

An adhesive compatible with composite recycling

US recreational boat manufacturer Brunswick Corporation has also partnered with Arkema to produce motor boats with recyclable structural parts and a hull

made from Elium® composite. This project has the advantage of Bostik's expertise in developing a methyl methacrylate structural adhesive for assembly that is compatible with the recycling process. What is more, it is made from 70% bio-based raw materials!

The Cyclon™ running shoe in polyamide 11 is a big step towards the circular economy

Lightweight, stylish and designed for speed, the Cyclon™ running shoe, launched in 2020 by Swiss manufacturer On Running, is also the first trainer in the world to be 100% recyclable. In fact, you don't even buy them. Instead, you rent a pair from the Swiss manufacturer, who takes them back once they have worn out! Eco-designed in partnership with Arkema, the Cyclon™ shoe is made entirely from Rilsan® polyamide 11, our polyamide derived entirely from castor oil. Every part, from the sole to the tongue and even the adhesive, can be melted down at the end of its life and reused to make new shoes.



NEW ENERGIES

AMS-LC for producing biodiesel from recycled raw materials

World biodiesel production continues to grow. In 2022, the amount produced covered 4-5% of global diesel demand. Arkema offers innovative sulphur-based solutions that enable manufacturers to produce the highest quality biodiesel safely and cost-effectively. Low-corrosion methanesulphonic acid (LC MSA) is a strong acid that can be used as an acidifier, neutraliser or as a

(trans) esterification catalyst to improve yields for biodiesel producers. LC MSA allows the use of advantageous feedstocks such as used cooking oil or animal fat

waste from the food industry while significantly reducing corrosiveness to stainless steel materials.



Our high-performance materials for photovoltaic panels

Photovoltaic cells use a number of high-tech, robust materials to protect the silicon layer from environmental damage and guarantee performance for around twenty years. Arkema has many innovations on the market that contribute to photovoltaic panels' longevity.

- Apolhya® grafted polyolefins for encapsulating and protecting photovoltaic cells;
- Luperox® organic peroxides for making transparent films for encapsulating photovoltaic cells;
- Kynar® fluoropolymers in films for protecting the back of the panels;
- Bostik Vitel® polyester adhesives for assembling the back layers of the panels.

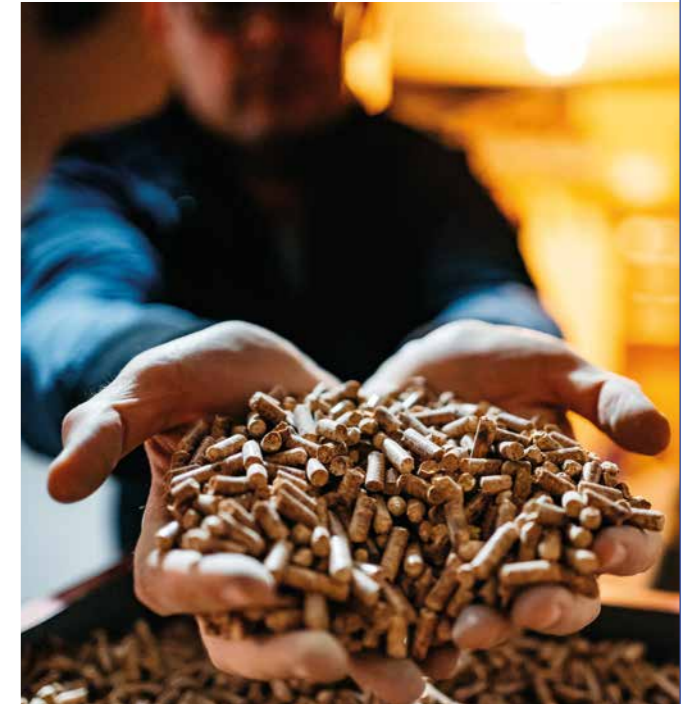


Elium® resin helps solve wind turbine recycling problem

Several thousand wind turbines are produced worldwide each year, an average of more than 600,000 tonnes of composite materials used to make the blades. These composites are currently manufactured using a thermosetting resin that is very difficult to recycle, so what happens to the wind turbines at the end of their life in twenty years? In this fast-growing global market, Arkema is making a real difference with its Elium® liquid resin for the manufacture of large recyclable wind turbine blades. This thermoplastic resin can be used to manufacture composite parts in the same way as thermosetting resins. The difference is that these parts can be ground and depolymerised, and ultimately the resin can be reused with its original properties, reducing the carbon footprint compared to a blade made from virgin resin. In addition, the light weight, strength and durability of the material coupled with short curing times at room temperature deliver significant productivity gains. Manufacturers recognise this, and the first recyclable wind farms are expected to come on stream in the next few years. Several partnerships with major players in the sector have enabled us to assess production processes and optimise the recycling process.

Additives to improve the performance of wood pellets for fuel.

Wood pellets are becoming increasingly popular as a heating fuel for economic and environmental reasons. Made entirely from wood residues (sawdust and wood chips), pellets are a carbon-neutral renewable energy source that is strictly regulated. Our new PelleMax® additive provides a sought-after lubricating effect for pellet manufacturers. Integrated into their process, it increases productivity and lowers production costs by reducing the energy required for pellet formation. For users, the pellets retain their integrity (no disintegration) and do not produce dust, improving the user experience. This liquid product is 100% bio-based and is not produced in competition with the food chain.



CONSTRUCTION

A portfolio of surfactants specifically designed for decarbonised roads

Combating global warming and reducing greenhouse gas (GHG) emissions are key elements of the ecological transition. Decarbonising the road infrastructure is an important means of reducing greenhouse gas emissions. In France, as in many other countries, the Fédération Nationale des Travaux Publics (FNTP) is proposing to contribute to a 40% reduction in GHG emissions as part of the National Low Carbon Strategy (Stratégie Nationale Bas-Carbone / SNBC).

Arkema has developed expertise in this field and a wide range of additives, known as surfactants, that are more than 50% bio-based and contribute significantly to these SNBC objectives:

- Cecabase RT® additives reduce the production temperature of road bitumens by 40°C, significantly reducing energy demand and greenhouse gas emissions. The widespread use of warm asphalt improves working comfort for operators who are less exposed to heat. In addition, the use of Cecabase

RT® makes roads more resistant to adverse weather, reducing the need for road repairs.

- Polyram® and Stabiram® surfactants allow cold mix technology to be used on all road surfaces. They can be applied at room temperature with very low CO₂ emissions.
- Additives from the Revive® and Cecabase® RWI ranges enable higher recycling rates for road demolition materials without loss of quality. They significantly improve the properties of the coating at low temperatures.
- The high-performance cold-application additives Emulsaline®, Coldgrip™ and Dinoram® actively contribute to the road network maintenance strategy. They are used to provide long-lasting protection for existing roads and to fill potholes and cracks at lower cost. This maintenance strategy delivers a 35% to 75% reduction in CO₂ emissions compared to full resurfacing projects.



PAINTS AND COATINGS

Resins and additives for paints that improve our lives

Arkema has developed Synaqua® resins to help accelerate the ecological transition and meet public demand. The basic components of water-based paints and decorative coatings, these resins all contain high levels of bio-based materials – 42% to 74% of total carbon depending on the grade. But the latest addition to the range goes much further: Synaqua® 4856 contains over 97% bio-based materials, mainly paper industry by-products, sourced from sustainably managed European pine forests that do not compete with food production. Already used by the world's leading paint manufacturers, this indoor resin has been shown in laboratory tests to have very low emissions of volatile organic compounds. There is no compromise on the quality on the finish – hardness, water resistance, colour intensity, gloss – when the paint is applied.



Arkema also offers performance additives. Coapur™ thickeners, made from 90% and 93% bio-based materials, are used to improve the smoothness and opacity of decorative paints. Coadis™ acrylic thickeners and dispersants, made from 60% to 100% bio-based materials, help reduce the carbon footprint of paints.

Bio-based rheology additives for longer-lasting and higher-performance paints

Based on castor oil derivatives, Crayvallac® Organic Powders are a range of high-performance rheology modifiers. Manufactured from 70% to 100% bio-based materials depending on the grade, they have exceptional rheofluidification properties

that improve the stability, drip-resistance and coverage of coatings for optimum film thickness. These solutions help coatings do more with less by reducing the number of coats required. An excellent alternative to fumed silica technologies,

Crayvallac® additives are safer for the health of professionals who manufacture and handle paints.



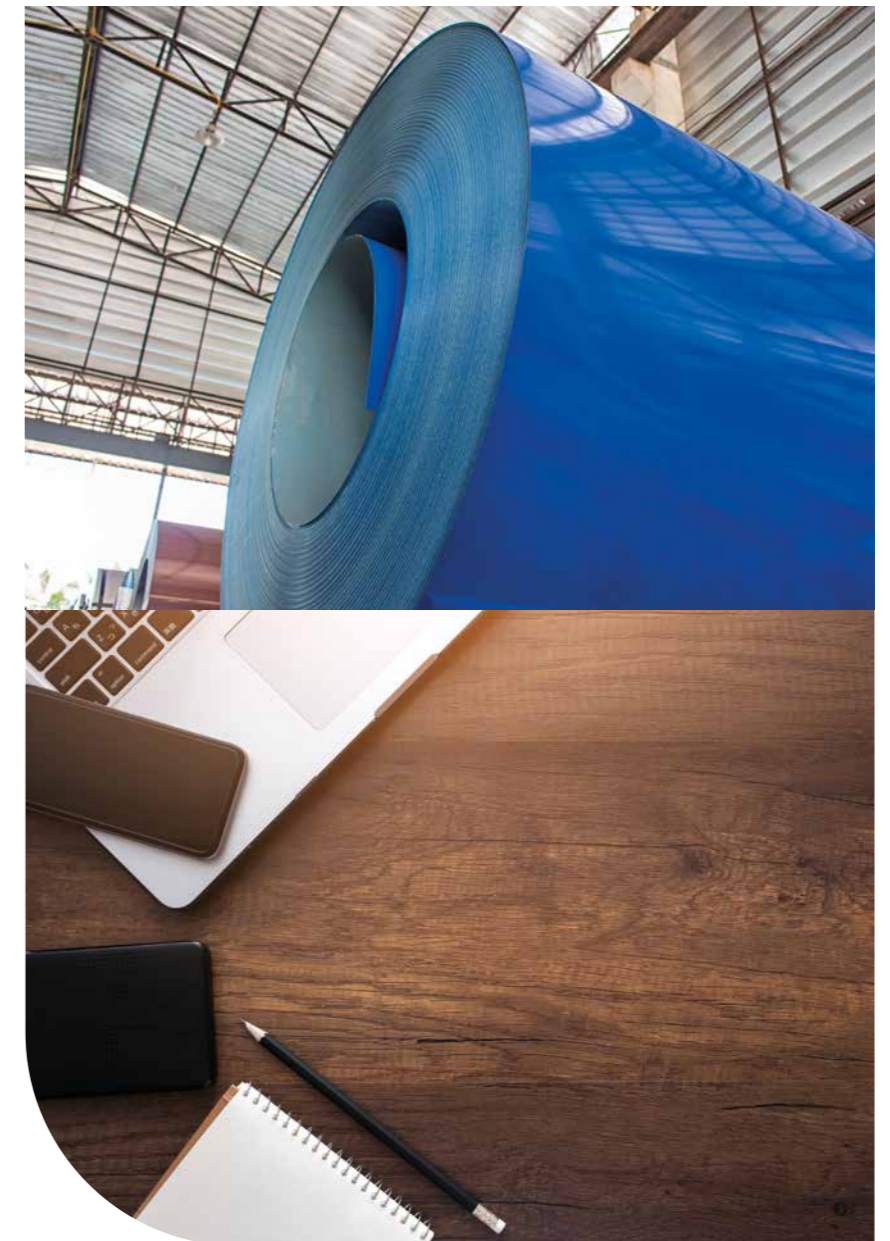
More sustainable, VOC-free, energy-efficient UV and powder coating technologies

Fluctuating energy costs, stricter regulations on volatile organic compound (VOC) emissions and a general desire to adopt greener manufacturing practices are driving many coating professionals to explore more sustainable curing technologies. Arkema, with its long history of expertise and one of the widest ranges of materials for curing technologies, is helping its customers make the transition to more energy-efficient technologies.

This is the case with the application of UV/EB coil coatings. Pre-coated metal has aesthetic and economic benefits that make it the substrate of choice for a wide range of building applications. The advantage of UV/EB technology is that the coating is cured, or hardened, by the chemical reaction caused by UV/LED radiation or by accelerated electrons (electron beam or EB), rather than by the evaporation of volatile substances. With UV/EB curing there are no VOC emissions and no need for a space- and energy-consuming drying oven. Coil coating operators are promoting UV/EB coating technology as an important means of decarbonising their industry. According to the European Coil Coating Association (ECCA), UV/EB drying technology has the potential to reduce energy consumption by at least 60% compared to conventional technologies. Arkema supports this transition with a complete range of high-performance, VOC-free UV/EB solutions designed to meet the needs of the coil coating industry.

Another area of our expertise is powder coatings for the protection of wood and wood fibre boards. In the coatings industry, powder resin technology is recognised as one of the most advanced technologies in terms of toughness, efficiency and durability, with no VOC emissions or waste generated during application. By developing new solutions for lower drying temperatures, this technology, previously used for metals, can now be applied to other substrates such as medium-density fibreboard (MDF) or wood. Under the Reafree® brand, Arkema offers

a wide range of powders that dry at very low temperatures, around 135°C. This means they reduce energy consumption and require only one coat (as opposed to several for liquid solutions) to achieve perfect coverage. We do more with less!



BUILDINGS AND ENERGY EFFICIENCY

Roofs painted white with our resins to save on air-conditioning

From primers to topcoats, Arkema has developed a complementary range of high-performance products to produce white reflective roofs that can reduce air-

conditioning costs by up to 30% in sunny countries. Our Encor® Flex high-performance acrylic elastomer emulsions are used to formulate durable, reflective and waterproof white coatings.

Our Coapur™ and Coadis™ performance additives are designed to maintain whiteness. Another product, unique to the market, is Kynar Aquatec® PVDF emulsion, specifically designed to provide long-term protection for these white coatings. The UV- and dirt-resistant Kynar Aquatec® topcoat extends the solar reflectivity of the coating to over twenty years, much longer than conventional paints, avoiding the need for costly renovation work. These white roofs contribute to energy savings and reduce the carbon footprint of new and existing buildings.



Certincoat® and Siliporite® for more efficient insulating windows

Arkema offers two complementary solutions that significantly improve the thermal insulation of double-glazed windows.

Siliporite® molecular sieves are tiny beads that can adsorb about a third of their mass in water. Window manufacturers use them to prevent condensation in double-glazed windows and keep moisture out. Placed in a perforated aluminium frame, the molecular sieves protect the window for years. Arkema has recently developed a new grade of powder sieves that can be added to the polymer used to make the inner seals on double-glazed windows. By reducing thermal bridging in the window frame, this solution offers much better energy performance than conventional double glazing and is a benchmark for low-energy buildings. They also have the advantage of optimising cost and manufacture time.

Intelligent, insulating glass

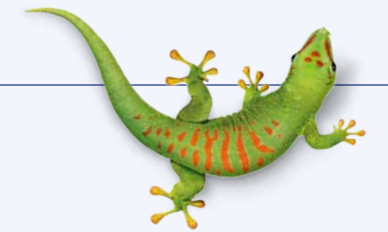
Intelligent insulating glass lets the sun's rays in and prevents heat escaping. Certincoat® low-emissivity glazing coatings are invaluable in cold climates. They improve window insulation and help save up to 30% on heating costs.

There is also a version for hot countries, with glazing coatings that limit penetration of solar heat and reduce the need for air-conditioning.



Bostik butyl sealing tape for safe and efficient buildings

This sealing tape offers a safe solution that is easy to use at room temperature to improve the insulation of a building throughout its lifetime. It creates a watertight, draught-proof seal around windows and doors, reducing the building's energy consumption while resisting moisture, UV, heat and low temperatures. It can replace metal welds or bitumen bonding, eliminating flame treatment and occupational exposure to heavy metals.



STIX A600 Evolution from Bostik, a floor adhesive with strong environmental credentials

This next-generation versatile solvent-free acrylic adhesive is suitable for all types of rubber, lino, PVC and carpet on walls and floors.

STIX A600 Evolution adhesive uses innovative glass bead technology: micro glass beads combined with specific dispersions and raw materials. This unique technology significantly reduces product density for higher performance: 30% more surface area covered for the same weight as a standard soft floor adhesive. The reason for this is the adhesive's consistency,

which provides smooth application and excellent ease of use. The adhesive also has very low VOC emissions which helps to protect indoor air quality. It is free of solvents, phthalates and isocyanates, and complies with green building rating systems such as LEED⁽¹⁾ and BREEAM⁽²⁾.

Made from 35% renewable materials, rosin and plant-based plasticisers, it reduces the use of petroleum products and the product's carbon impact over its life cycle.



⁽¹⁾ LEED® (Leadership in Energy and Environmental Design) is an assessment system recognised at the foremost international certification for sustainable buildings in over 132 countries.

⁽²⁾ BREEAM (Building Research Establishment Environmental Assessment Method) is a British certification standard for buildings' environmental quality. It is the most widely used international system.

PACKAGING

Bostik SF10M adhesive for easily recyclable packaging!

The use of mono-material packaging is considered a key means of promoting the circular economy for flexible packaging. For packaging to be truly circular, it must be made up of parts that allow easy and high-quality recycling. The recycled material can then be reused several times in flexible packaging without compromising food protection properties. Bostik was the first manufacturer to develop and obtain official approval for a laminating adhesive, designed for recycling mono-material polyethylene packaging, which is widely used in the food industry. It is RecyClass⁽¹⁾ approved and designed for the polyethylene

film recycling system. On the market, SF10M adhesive has proved to be equally effective for mono-material polypropylene packaging. It is solvent-free, easy to use and does not require any modification to conventional production lines, a key criterion for its adoption. Bostik worked with Nordmeccanica, a leading manufacturer of production systems, to confirm that the adhesive fully meets the packaging industry's requirements.

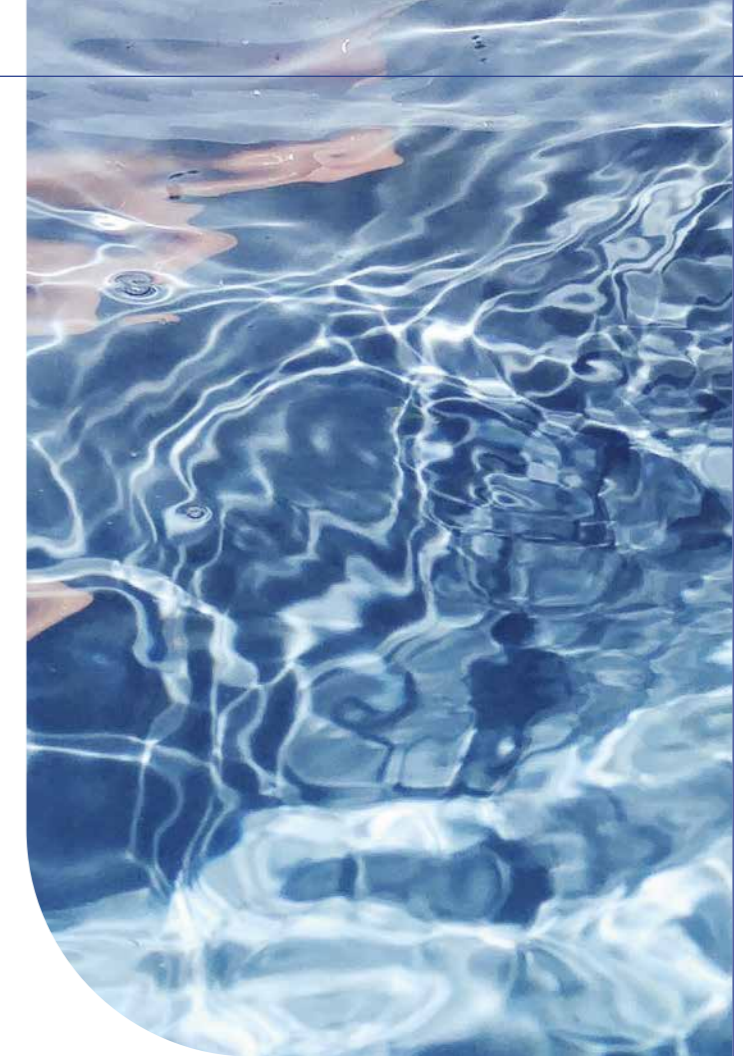


⁽¹⁾ RecyClass is a comprehensive cross-sector initiative that promotes the recyclability of plastic packaging through its design recommendations.

DETERGENTS AND THE ENVIRONMENT

Scaleva® MSA, an environmentally friendly solution for cleaning filtration systems

Methanesulphonic acid (MSA), derived from our sulphur chemistry and sold under the Scaleva® brand, is the solution for descaling applications in filtration systems including cooling towers, evaporative coolers, hot water boilers and water treatment membranes. Scaleva® MSA is readily biodegradable and has a better environmental profile than competing acids (nitric and phosphoric). Neutralised solutions can be safely discharged into water treatment plants because Scaleva® does not contain phosphorus or nitrogen, water pollutants that cause eutrophication (overgrowth of aquatic plants leading to wildlife destruction owing to lack of oxygen) in rivers, lakes and other bodies of water.



HEALTHCARE

Oxygen concentrators make breathing easier

Nitroxy® molecular sieves are changing the lives of hundreds of thousands of patients around the world. Designed to trap nitrogen molecules, these tiny porous beads filter the air to 93% oxygen concentration. They are the key component of oxygen concentrators, used by people with chronic respiratory diseases. While patients in Europe tend to use oxygen cylinders, oxygen concentrators are common in the United States and China. There are fixed models for home and hospital use, but portable models are becoming increasingly common. This steadily growing market has been boosted by the 2020 Covid-19 pandemic, which led to an increase in chronic respiratory failure. As the industry leader with 70% of the global market, Arkema is mobilising its industrial capacity to meet growing demand.

Nitroxy® Revolution is an innovation that changes lives

The growth of lighter, more compact oxygen concentrators, which has been a major technical challenge for manufacturers, meets a vital need for the people who depend on them every day. Recently, a new generation of truly portable, battery-powered devices weighing less than 3kg has enabled patients to regain mobility and independence and improve their quality of life. These miniaturised concentrators use a special type of molecular sieve, Nitroxy® Revolution, of which Arkema produces more than 100 tonnes a year at its Honfleur site in Normandy.

**SENSIO® range of bio-based surfactants for household cleaning products**

Traditional surfactants have the desirable property of diluting fats in water through dispersal. They alter the tension between two surfaces. This property makes

them essential in many industrial cleaning applications as well as in household detergents, shower gels and shampoos. Our new range of Sensio™ bio-based

surfactants offers many benefits to detergent formulations including reduced foaming, which improves cleaning performance. This unique combination allows us to develop detergents that are much more effective than standard products (hard surface cleaning, laundry, dishwasher, car wash, industrial and institutional cleaning) while reducing the impact on the environment, as Sensio™ is plant-based, derived from castor oil, free from palm oil and does not compete directly with the food chain. The range offers a unique sustainable alternative to traditional non-ionic surfactants. Sensio™ simple formula means the product label is easy to understand, including its environmental certifications.





04. PROMOTION

“Arkema has what it takes to attract candidates looking for meaningful work and personal fulfilment.”

“The high level of engagement among our employees enhances our appeal.”

THIERRY PARMENTIER, EXECUTIVE VICE PRESIDENT, HUMAN RESOURCES AND COMMUNICATION



Arkema is deeply concerned for well-being in the workplace, attentive to diversity and strongly committed to the Sustainable Development Goals, and strives to meet the expectations of our employees and new talent concerning the quality of working conditions and the quest for meaningful work.

How would you describe morale among Arkema employees worldwide?

THIERRY PARMENTIER: Morale is good overall, because we're a very healthy company. People are relieved about returning to a life without pandemic restrictions, although some habits are worth maintaining. Our teams were truly put to the test and showed an impressive ability to adapt. Obviously we see some trepidation about current geopolitical and macroeconomic issues. But despite all that turmoil, we had an exceptionally good year in 2022, and we're certainly still in a buoyant market.

How do you keep listening to your employees?

T. P.: Our aim is to provide our teams with a working environment that's as pleasant and caring as possible. To do that, we have to be consistent in the way we manage the company and apply our values. Our annual Arkema Cares survey of the entire workforce offers a way to assess employee support for our internal policies and our growth strategy, and hear how employees feel about their work environment and their work-life balance. With

“Through our materials, Arkema supports our customers in their end markets to meet the challenges of sustainable development. Those are exciting challenges that help us attract new talent all over the world.”

82.5% of our employees saying they're “fully committed”, the survey offers proof that the Group's men and women are strongly motivated to support its growth. It also shows their loyalty to the company: that satisfaction rate indicates that the majority of employees are willing to recommend Arkema to their friends and family members. That recognition is not something we take for granted; it inspires us to continue improving the organisation from top to bottom.

Does that include better Quality of Life in the Workplace?

T. P.: Absolutely. The well-being of our employees is essential for ensuring a collective work environment that's conducive to our growth. Improving workplace quality of life is a comprehensive task that we want to address collaboratively, by enlisting employees in local and regional initiatives of every kind, whether they involve upgrades to our facilities, ergonomics, working conditions, the needs of people with disability or psychological support, and by tackling issues such as bullying. In June 2022 we stepped up these efforts by establishing a global Well-Being at Work programme (see following pages), overseen by a special international steering committee backed by a network of volunteer Quality of Life Ambassadors in each country. Helping employees feel better about their jobs is essential to keeping those employees and also attracting new ones. It's a key selling point in this global battle to recruit skilled and talented workers. So we're delighted to have been certified a Top Employer again in early 2023, for the second year in a row. That distinction recognises the excellence of our HR practices in four countries (Brazil, China, the US, France) that are home to two thirds of our employees worldwide. We've noticed that younger workers have high standards when it comes to meaningful work, collegiality, inclusivity, interaction, training, work-life balance, flexible working hours... It's up to us to respond. Even though we have low turnover, we need to stay very attentive to our employees' expectations. They will stay with the company if we can



offer them a good salary and career opportunities, but also arrangements that promote their well-being and quality of life.

How?

T. P.: By showing that we are open-minded, and identifying smart solutions that are consistently more attentive to work-life balance and personal challenges. The broader adoption of remote work wherever possible, for example, offers added flexibility while also letting us

“Our workers have high standards when it comes to meaningful work, collegiality, inclusiveness, work-life balance... It's up to us to respond.”

Each year,
Arkema hires
about
2,000
people
worldwide

collaborate more smoothly anywhere on the planet. We have a hundred nationalities represented in the Group's workforce! That's an extraordinary asset for us to mine, and it's why inclusivity is one of our values. We are very proactive in that area, both internally and in our sponsorship. As a large employer, we want to assist those who don't enjoy easy access to education and culture, not to mention employment. In particular, we want to show young women that they truly have a role to play in our company and our industry.

Is that enough to attract and retain applicants in a very tight job market?

T. P.: Each year, we hire about 2,000 people worldwide. In a tight market, we mobilise all our resources to attract young talent, notably by forging close ties with major engineering and business schools. Arkema is a highly attractive company thanks to our reputation as a technological leader. Our expertise in specialty chemicals and advanced materials is a genuinely motivating factor. Especially with younger generations, it's important to explain that as a leader we provide solutions that will help hundreds of industries. We have a responsibility to help other industries in their efforts to tackle environmental challenges. Each year we invest nearly €700 million in our production infrastructure and about €300 million in R&D, the bulk of which goes to sustainable development. Ninety per cent of our patents are connected with sustainability! We want to educate and inform our employees more consistently about everything we're currently doing for sustainable development. We have countless positive examples to give, and our employees are our best ambassadors for attracting candidates from every background, whether they're new to the workforce or have years of experience. ■

Arkema wins top honours in HR rankings in France and worldwide

In 2022 and 2023 Arkema was once again named a Top Employer and scored exceptionally high on HR rankings, based on questionnaires given to employees and interns.

- For the second consecutive year, the Group was certified as a Top Employer, not just in France but in the United States, Brazil and China as well. That certification recognises the excellence of the Group's HR practices in those countries, from hiring to career management.



- In France, Arkema was ranked fifth in Capital Magazine's tally of the country's 500 best employers, and 37th in the 2022 Universum rankings of the most attractive employers among graduate business and engineering students, published in the financial newspaper *Les Echos*; moreover, for the fourth consecutive year Arkema has been awarded the HappyIndex® Trainees label, given to the companies that are rated most highly by their trainees and work-study students.



- Worldwide, the Group appears on the Forbes list of best employers, ranking 113th out of 800 businesses, ninth among French businesses on the list and third in our sector. Arkema also features in the Financial Times Diversity Leaders rankings, which appraises the performances of 850 international companies in terms of equality, diversity, and professional inclusivity.



Feeling good at work!

NATHALIE MURACCIOLE, SOCIAL DEVELOPMENT MANAGER, RESPONSIBLE FOR IMPLEMENTING THE WELL-BEING AT WORK PROGRAMME.



Arkema is committed to initiatives that promote well-being at Work and raise awareness of issues of importance to the Group. We want to create the conditions necessary for our employees to achieve a good work/life balance and to be able to work in a safe environment so that they can give their best, while supporting the Group's ambitions and making a commitment to the planet.

Arkema is stepping up its well-being at Work programme. Why have you decided to focus more on this area?

NATHALIE MURACCIOLE: "In a context where the expectations of existing and prospective employees are constantly evolving, we need to rethink in detail how we can create a caring work environment for our people so that everyone can feel good, thrive, and give their best. This is a powerful tool not only to engage support among employees but also to promote an attractive image of our Group to retain existing talent and attract new talent. It is also about aligning our actions with our words. We can't promote values such as solidarity, inclusivity or sustainability if we don't truly embody them."



Arkema has written its well-being at Work policy in ten languages. This poster setting out the policy has been translated into ten languages and is displayed at all our sites.

Well-being at Work explained

The aim of the well-being at Work programme is to launch a well-being drive and to promote personal and collective fulfillment at all levels of the Group, all around the world. It consists of a series of actions based directly on the opinions expressed by our employees. The programme is led by an international steering committee and supported by a network of volunteer ambassadors who take local initiatives at their sites to bring employees together. The programme is based on four areas: health and safety, human relations, the working environment and digital transformation. It includes a series of fun physical and mental challenges through the OuiLive and United Heroes apps (see following pages), as well as an e-learning programme to raise awareness of well-being, diversity and inclusivity at work. For 2023 we have added climate change. There is also a global helpline for all Group employees available in their local language, offering support with mental and emotional challenges and any harassment issues.



Arkema Cares: employees have their say

In 2022, for the fourth year in a row, our employees participated in the Arkema Cares internal survey, with a record response rate of 69%. This global employee survey allows us to monitor employee engagement and satisfaction with the Group through a set of indicators. It gives employees the opportunity to express themselves freely on all aspects of their professional life, their work/life balance, the quality and safety of their working environment and so on.



82.5% of employees are engaged and would recommend Arkema as an employer to others according to the Net Promoter Score (used to track engagement), which has risen steadily over the past four years.

Online challenges around the world!

While all our sites are working to create physical spaces and opportunities for social interaction and relaxation, we also use digital tools to help our employees connect at all times, even when working from home. Here are examples of two digital initiatives we launched in 2022.

WELL-BEING TOGETHER

Du 27 juin au 8 juillet

À l'occasion de la journée mondiale de la Qualité de Vie au Travail, Arkema propose de vous immerger dans un Challenge mondial rempli de bien-être, de cohésion d'équipe, de créativité et d'impact positif.

Pour participer, télécharger OUIlive & entrez le code : **arkema2022**

Disponible sur App Store
 Disponible sur Play Store

OUIlive

The OUIlive app, which can be downloaded to a smartphone and is available in nine languages, was our first opportunity to involve all Arkema Group employees worldwide in June 2022. We invited all employees to download the OUIlive app and form teams for the two-week global challenge on the theme of well-being at work. It was a way to bring people together and rally Arkema's global community in a time of social distancing through fun mental and physical challenges. There was no need to be particularly athletic or creative as the variety of challenges – walking targets,

questionnaires, interactive quizzes, knowledge tests, selfies and video sharing, etc. – meant that anyone could take part, either individually or with a team. The three winning teams and the ten top-scoring individuals all won fantastic prizes! Nearly 1,000 employees took part in the first year. The event will be repeated in 2023 with three challenges based on sport and health, climate and environment, and inclusivity and diversity. All three themes relate to the Group's own values and its awareness-raising programmes. The challenges allow the Group to promote important messages in these fields and are powerful internal communication tools.



The winners and highlights of our first global online challenge!

“I thought it was such a great cause and felt really motivated. I started walking every day, and when I’m not walking I’m on my bike. I track everything on my smartwatch which sends all my activity directly to the United Heroes app. You don’t have to be sporty, it’s not a competition, it’s an easy way to support good causes.”

Said Azm, Project Buyer – 1st place in the team ranking and 4th place in the overall H-Games ranking



In France, employees took part in team fitness challenges with the **United Heroes** app. In 2022, almost 1,700 employees from across our

French sites supported two good causes: Breast Cancer Awareness Month and parasports with the H-Games. These two campaigns enabled our employees to develop local ties and more generally a sense of pride, internally and externally: Arkema ranked highly in the inter-company league. Each employee can take part at their own pace through a physical activity of their choice (gardening, running,

walking, yoga, etc.) The app keeps scores for individual employees and teams. The higher the score, the more Arkema donates to a good cause related to cancer or disability, creating a collective incentive. United Heroes is more than an app, it’s a way for our employees in France to pull together and support the values we all believe in! ■



Arkema is coming soon to La Défense... the future place to work!

In 2022 Arkema ushered in a new chapter of our history with plans to move our headquarters to the heart of La Défense in early 2025. The Group will occupy an entirely renovated building that reaffirms our ambitions, our positioning and our new brand identity.



Computer-generated images of the interior and exterior of our future headquarters

This building will mark a new phase in the Group's growth, twenty years after it was founded. This is more than a simple relocation; the project will provide an opportunity to upgrade our operating methods, our working practices and our day-to-day interactions. Arkema is a company on the move that needs a friendly, modern space we can offer our customers, employees and partners, one that showcases the company's tagline – "Innovative

materials for a sustainable world" – as well as our values of inclusivity, solidarity, and performance.

Heading employees' expectations, a top priority

Over the course of 2022, the project team surveyed the needs of our headquarters community of 1,200 people in a variety of ways: experts in office and work

space design visited the current site in Colombes, interviews were conducted with managers from every department, task forces in each discipline compiled lists of specific professional needs, and the entire headquarters workforce was asked to complete a questionnaire. In addition to those conversations, a community of ambassadors was created to lead the project within each entity and serve as a voice for employees throughout the process.

A range of services for an enjoyable office life

The building's new architecture will be designed to promote interaction and well-being. The headquarters will feature two major architectural components: an immense atrium, bathed in light, where employees can cross paths, meet up with colleagues or hold informal briefings; and a lively interior street on the ground floor. There will be two staff canteens, a company restaurant designed to resemble a market, a restaurant with extended hours that focuses on healthy alternative options, and a fitness centre. In addition to these spaces envisioned by the building's owner, the Group plans to create a Campus space, modelled on our successful Campus in Colombes, as well as a showroom featuring our innovations that builds on our current Atelier 4.20. And nature-lovers will discover a variety of landscaped terraces. In 2025, the Arkema headquarters will truly be a great place to work!



Fabien Debaud,
director of the Arkema headquarters relocation project

"At a time when employees are reassessing their relationship with the workplace, the Group's values, our corporate culture and our intention to bring the Arkema and Bostik teams together offer fertile terrain for making this project a success. We will be drawing on the lessons we've learned from recent examples to create a workspace that is modern and welcoming and promotes well-being in the workplace."

A new headquarters in the United States to boost Arkema's regional profile

Arkema Inc. is also about to break ground on its new North American headquarters in Radnor, Pennsylvania, near King of Prussia, the site of its current head office and research centre. Featuring modern architecture and interior design and offering some 14,000 m² of office space, the headquarters will embody Arkema's new identity and new positioning. The site is ideally located near major roadways and rail lines, and there are many restaurants and hotels nearby. The move will take place during 2024. The buildings form a true campus, with a priority focus on wellness in the workplace. Occupants will enjoy abundant natural light, footpaths, tree-lined courtyards and gardens. The site will be tailored to new working methods and offer cutting-edge technology. Arkema's North American research and development facilities will remain at the King of Prussia site, where renovations are planned in response to the large number of R&D projects supporting future growth. ■



Tony O'Donovan,
President and CEO, Arkema Inc., and Regional Leader, Arkema North America

"This new headquarters is an investment in our employees and in Arkema's future in North America. Our working practices have changed, and we are going to create a workspace that promotes interpersonal connections and collaboration. This campus will offer an optimal environment for employee fulfilment and business growth."



Sports sponsorships that exemplify our values

Arkema has a taste for challenge, and sponsors sporting events worldwide, with a special focus on women's sport. These partnerships put people at the heart of our activities and reassert the values we share: solidarity, simplicity, performance, responsibility and inclusivity.

Breaking new ground in women's football



In 2019, Arkema lent its name to the top division in women's football in France, D1 Arkema. In 2022, the Group renewed its contract with the French Football Federation for an additional three years, ensuring that it will play a dominant role in the growth of women's football in France. That partnership is aligned with our ambition to boost the number of women in our workforce. Arkema is actively promoting the growth of women's sport worldwide, with local partnerships in the United States with the North Carolina Courage women's soccer team, in Brazil, in Poland with Bostik and in our host regions in France.



Arkema provides support to high-level French athletes

We are proud to be supporting four top-tier athletes in their quest to surpass their limits and succeed.



Pauline Déroulède, French wheelchair tennis champion
A tennis player since childhood, Pauline lost a leg in an accident in 2018, an event that prompted her to become a professional wheelchair tennis player with her sights set on the 2024 Paris Paralympics. A titleholder in 2021 and 2022, Pauline is a committed athlete who is also waging a relentless campaign for road safety.



Alexis Hanquiquant, triathlon gold medallist at the Tokyo Paralympic Games
Alexis had a leg amputated in 2013 following a serious accident at a masonry yard. A major athlete prior to his accident, he decided to begin training for the triathlon. Without a coach, he won second place in France's triathlon event in 2016, then joined the national paralympic team and claimed the European and international titles. He aims to win gold in Paris in 2024.



Clara Mateo, footballer and engineer
Clara is a young player in the D1 Arkema division's Paris FC club and the French national team, as well as a graduate of the Polytech Paris-Saclay engineering school and a business development engineer at Arkema since 2019. She is proving successful in both of her careers!



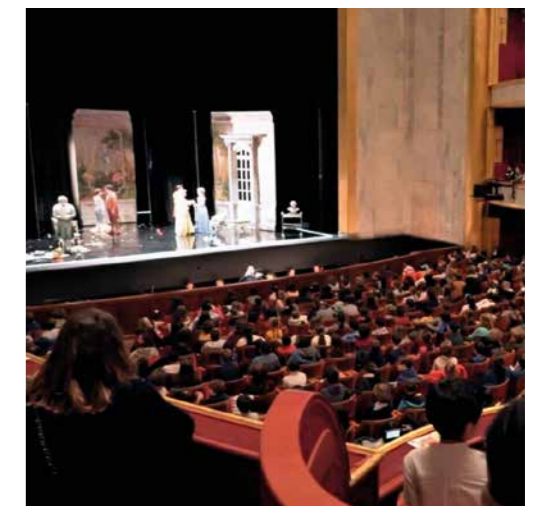
Gaëtane Thiney, accomplished footballer
A long-time professional player, Gaëtane began her career in the D1 women's division in 2000 at the age of 14. She's had a non-stop career ever since, winning a spot on the French national team on numerous occasions between 2007 and 2019 and serving as captain on the Paris FC team, which remains her club today.

Sponsorship that reflects our values

Arkema has chosen to support initiatives focused on education, inclusivity and diversity, and encourages its sites around the world to get involved in these areas. The Group also encourages its employees to volunteer. Here are some of the projects that Arkema supports on an ongoing basis.

Classical opera for all young people

For several years, Arkema's name has been associated with the Theatre des Champs-Élysées in Paris. The Group helps to finance initiatives that introduce young audiences to classical music and opera in a fun and educational way. Each year, more than 12,000 children from primary and secondary schools in Paris and the surrounding region are able to attend participatory performances. Every season includes performances for audiences who lack access to this type of cultural event. The theatre invites groups from schools in deprived areas and special schools for blind, visually impaired and autistic children. In 2022, Arkema enabled around 500 children from ten schools in the city of Colombes to take part in the project: a source of pride for us and a joy for them!



The Arkema Education Fund, financing projects led by our employees

Launched to mark Arkema's tenth anniversary in 2016, the Arkema Education Fund finances initiatives proposed by employees from all our sites around the world who, outside of work, are involved in a project that promotes education in disadvantaged communities or for people with disabilities. Every year, a large number of projects are submitted by employees and reviewed by an international committee that includes representatives from our HR and Communications departments and the Group's ethics mediator. Since its creation in 2016, the fund has supported 75 educational projects in 15 countries. Through these ventures and the work of thousands of volunteers taking part in educational and humanitarian projects in countries where Arkema operates, the Arkema Education Fund is helping to revitalise these regions.

Science Teachers: chemistry for teachers in the United States

By providing financial support to local community, cultural and educational organisations, the Arkema Inc. Foundation is improving the quality of life in its local communities. The Foundation focuses on supporting science education at all levels, and initiated the Science Teachers programme, which has benefited hundreds of teachers across the country since 1996. Teachers are supplied with science experiment kits and work directly with Arkema's engineers and researchers. The aim is to provide them with resources that make their science teaching, including chemistry, more effective and entertaining for thousands of primary and secondary pupils. In 2022, more than 25 teachers benefited from this module.



Scholarships in India's castor oil region

Arkema is one of the world's leading consumers of castor oil. With the vast majority of castor grown in the Gujarat region of western India, we are an active member of the Pragati project. This promotes sustainable castor cultivation in the region and strengthens our ties with the farming community, whose livelihoods depend solely on this crop. In recognition of this special relationship, Arkema launched a scholarship programme in 2021 for some 400 children in the community, with a drawing and writing competition on the subject of castor farming and sustainable development. A second campaign in 2022 was a great success and was attended by Arkema's key customers of our castor-based materials, who travelled to the region to present the awards. They were able to meet the students, their teachers and their families, and visit the local farms and castor grinding plants.



Broadening the horizons of students in China

In China, our employees regularly meet primary and secondary pupils from the communities around our sites. The Arkema ChemArt Green Innovation Class project, launched in 2016, promotes science education and career opportunities in industry while raising environmental awareness. Our volunteer employees organise a range of activities for schoolchildren and college students relating to CSR in areas such as innovation, safety and environmental protection. The ChemArt Green Innovation Class provides young people with more opportunities and resources and supports their overall development.



Arkema, a key partner of Sport in the City

Sport is an important issue at Arkema. The Group was already involved in women's football and wanted to do more to promote the integration of young people in deprived neighbourhoods. Since 2019, Arkema has been supporting Sport in the City (Sport dans la Ville), an organisation that promotes social and professional integration for young people from these areas. To date, more than 10,000 young people have benefited from the association's work through sports and cultural activities as well as help in finding training or employment. Arkema recently stepped up its support by becoming a major partner of the programme. This was a natural progression as the work is aligned with our beliefs and values of inclusivity and community. Through its partnership with the organisation, Arkema is particularly involved in the Job in the City programme for 14- to 25-year-olds, which coaches more than 2,300 young people each year to give them the best career opportunities. We introduce them to the types of careers available at Arkema during site visits, hold workshops to prepare students for the world of work, and give our employees the opportunity to sponsor a young person. We also give students access to our internship, work-study and international volunteer programmes.



Victoire Cuvelier,
Head of Private Sponsorship at Sport in the City

"The Job in the City programme was created to address the problem of unequal access to training and employment for young people from disadvantaged neighbourhoods, and to help prevent school dropout. By reaffirming its commitment to the organisation, Arkema has become a key partner on which young people can continue to rely to discover careers in science and industry, and access professional opportunities that will help them on their path to success!"



Arkema and the CGénial Foundation, promoting careers in our industry

Arkema works with the CGénial Foundation, which promotes science culture in France. The Foundation, recognised as a community-interest organisation by the Ministry of Research, promotes science among young people, encourages technical and engineering careers in general, and strengthens the links between business and education. Every year, hundreds of primary and secondary school teachers visit our sites. In turn, Arkema engineers and technicians volunteer to visit local schools and talk

to students. These initiatives allow students, supported by their teachers, to enjoy lively and stimulating interactions with engineers and technicians to learn about their careers and the work they do. The sessions

help to forge closer links with academia and attract young people to science and engineering careers. Each year, a national competition is held, inviting secondary pupils to present a scientific project.



Tour of our showroom, L'atelier 4.20, for young CGénial prizewinners.

SHAREHOLDER INFORMATION

Film: 2022 highlights

Capacity increases, acquisitions, partnerships, sporting events, certifications and more... We look back at the events that tell the story of the Group's dynamic in 2022.

JANUARY ▼

For the first time, Arkema is certified as a Top Employer in France, China, the United States and Brazil

The local Top Employer certification recognises the excellence of our human resources practices in four countries that account for two-thirds of our employees and hires worldwide.



JANUARY ◀

Capacity increase for Pebax® elastomers

To support its customers' strong growth, particularly in the sports and consumer goods markets, Arkema announced a 25% increase in global production capacity for Pebax® elastomers and its bio-based and recyclable Pebax® Rnew® range following investment at its Serquigny site in France.

JANUARY ▼

Kynar® PVDF in China: production capacity revised upwards

To keep pace with strong demand, particularly for lithium-ion batteries, Arkema increased its Kynar® PVDF fluoropolymer production capacity at its Changshu site in China and set a new target of 50% additional capacity compared to the 35% announced in 2021. There was no change to the startup date, which remained at the end of 2022.



HIGHLIGHTS

📅 JANUARY ▼

Arkema promotes innovation in sustainable materials

Arkema and the French Academy of Science launched the €25,000 Innovation Prize in Chemistry for Sustainable Materials, to reward scientific research that contributes to the development of innovative materials, environmental protection and sustainable development. The 2022 prize was awarded in October to Lyderic Bocquet, Research Director at the CNRS, for his work combining the physical chemistry of materials, fluid dynamics and nanoscience.



📅 JANUARY ▼

Adhesives: targeting Asian electronics markets

Arkema is expanding its range of high-precision adhesives with the planned acquisition in China of Shanghai Zhiguan Polymer Materials (PMP), which specialises in hot melt adhesives for the consumer electronics market. This reflects Bostik's strategy to build a strong position in the attractive high-precision electronics adhesives market, especially in Asia.



📅 JANUARY ▲

Arkema targets next-generation electric batteries

Arkema and Morrow signed a Memorandum of Understanding to develop and test new electrolyte formulations for the next generation of high-voltage batteries. Using Arkema's proprietary ultra-high-purity lithium electrolyte salts and Morrow's large-format high-voltage batteries based on cobalt-free technology (LNMO), this partnership will accelerate the development of new generations of batteries.



📅 FEBRUARY ▲

Completion of the acquisition of Ashland's performance adhesives business in the United States

This business, which employs around 330 people and operates six manufacturing facilities, mainly in North America, generated revenues of approximately \$360 million in 2021. Its technologies and locations are complementary to those of Bostik, enabling the latter to broaden its range of solutions and position itself as a major player in industrial high-performance adhesives.



📅 MARCH ▲

Decathlon's Kiprun running brand uses our Pebax® material

Sports equipment designer Decathlon launched its new running shoe, the Kiprun KD900X, the ultimate in its running range. The sole is made of Pebax® foam, known for its lightness, responsiveness and exceptional energy return compared to more traditional materials such as EVA and TPU. It also features a carbon plate to ensure speed and performance over time, for almost 1,000 kilometres. Weighing in at less than 220g, this lightweight shoe is helping to boost Kiprun's ambitions!



📅 MAY ▲

Coming soon: an ultra-pure electrolyte salt plant for batteries

Arkema and Nippon Shokubai joined forces to launch feasibility studies and set up a joint venture to build a plant to produce ultra-pure LiFSI (lithium bis(fluorosulfonyl)imide) electrolyte salts, key components of battery cells for electric vehicles.

📅 APRIL ▶

Arkema renews its commitment to women's football

Arkema has been sponsoring women's football since 2019, and renewed its naming rights contract with the women's first division, the Arkema D1, for a further three seasons.



📅 APRIL ◀

Certification of our bio-based polymers

Arkema obtained SuCESS™ certification, the world's first sustainable castor specification, for its range of advanced bio-based and recyclable materials. SuCESS™ certification is awarded by independent certification bodies accredited by the Sustainable Castor Association.



📅 JULY ▼

An ambitious new climate plan

Arkema strengthened its commitment to climate action by setting itself an ambitious science-based target to reduce its Scope 1, 2 and 3 greenhouse gas emissions by 46% by 2030 compared to 2019.



HIGHLIGHTS

SEPTEMBER ▶

Pebax® elastomers aim even higher

In response to strong demand from the sports and consumer goods markets, Arkema increased its global capacity expansion for Pebax® elastomers at its Serquigny site in France from the 25% increase announced in January to 40%, in two separate phases. The first will take place in the first quarter of 2023 with a 15% increase in global capacity. The additional 25% increase will start in the third quarter of 2023.



SEPTEMBER ◀

Coatings: Arkema bolsters its operations in Mexico

Arkema completed the acquisition of Polimeros Especiales in Mexico, strengthening the Group's solvent-free coatings offering and its operations in this fast-growing region. Polimeros Especiales produces high-performance waterborne resins for a wide range of applications including architectural and decorative paints, textiles, pressure-sensitive adhesives and construction. The company, which has become a leading emulsion manufacturer in the region, has revenues of \$40 million and employs 230 people.



SEPTEMBER ▼

A Diversity And Inclusion policy set in stone!

By publishing and distributing its Diversity and Inclusion Code throughout the company, Arkema reaffirmed its commitment to using these values to guide its recruitment and career management worldwide.



OCTOBER ▲

Sale of our phosphorus business

Arkema announced a plan to sell its Febex subsidiary, a phosphorus derivatives business, to the Belgian group Prayon. This transaction reflects Arkema's dynamic business portfolio management strategy.

OCTOBER ▼

Sale of recycled high-performance polyamides

Partially and totally recycled Rilsan® polyamide 11, Rilsamid® polyamide 12 and Pebax® elastomers are produced at the Agiplast recycling centre, an Arkema subsidiary in Italy, as part of the Virtucycle® programme. They are now being sold in response to high demand from our customers.



NOVEMBER ▼

New range of mass balance certified acrylic materials

Arkema launched certified bio-attributed specialty acrylic additives and resins for a wide range of applications. By replacing fossil feedstock with bio-based or recycled feedstock, Arkema's customers can meet their climate change targets by reducing their Scope 3 greenhouse gas emissions.



DECEMBER ▼

Coatings: increased capacity for low-VOC powders in India

Arkema announced the doubling of its polyester resin production capacity at its Navi Mumbai site in India, strengthening the Group's leadership position in the global powder coatings market and its commitment to the development of ultra-low VOC technologies.



NOVEMBER ▼

Sailing: a podium finish for the Arkema boat

Our skipper Quentin Vlamynck had a great race on the Arkema trimaran in the 2022 Route du Rhum, finishing second. Earlier in the year, Quentin won the 2022 Pro Sailing Tour, a competition in the Ocean Fifty trimaran class.



DECEMBER ▼

Beneteau's sustainable Elium® resin concept boat unveiled at the Paris Boat Show

More than 200,000 people visited the Nautic Paris Boat Show in December to discover the latest innovations in nautical technology. Among them was the Beneteau group's new First 44 E, the first production sailing boat to be built entirely from recyclable Elium® resin. This is the first fully recyclable sailing boat, and it was a big hit on the Beneteau stand!



Executive Committee

The Executive Committee, chaired by Thierry Le Hénaff, is responsible for the operational management, coordination and implementation of the strategy within the Group. This decision-making body defines strategy, monitors performance, reviews key organisational issues and major projects, and oversees the implementation of internal control. It consists of a Chief Operating Officer, five operational and functional Executive Vice Presidents, and three operational Senior Vice Presidents. It meets twice a month.



Laurent Tellier joins the Executive Committee

At the beginning of 2023, Laurent Tellier joined Arkema as Senior Vice President, Performance Additives and member of the Executive Committee, replacing Marie-Pierre Chevallier who has retired.

His industrial and international experience, his ability to transform mature businesses and successfully develop fast-growing activities, as well as his multicultural experience, partnerships with customers and passion for innovation, will be key

assets for Arkema. He had been CEO of Saint-Gobain Surface Solutions since 2019. A graduate of École Polytechnique and École des Ponts Paris Tech, Laurent Tellier has twenty years' experience with Saint-Gobain, with an international career in the three main regions where Arkema also operates (Asia, Americas and Europe). He has led a wide range of businesses in ceramics, abrasives and composite systems, and surface solutions.



Thierry Parmentier, Executive Vice President, Human Resources and Communication

Laurent Tellier, Senior Vice President, Performance Additives

Bernard Boyer, Executive Vice President, Strategy

Erwan Pezron, Senior Vice President, High-Performance Polymers

Thierry Le Hénaff, Chairman and Chief Executive Officer of Arkema

Marie-José Donsion, Chief Financial Officer

Marc Schuller, Chief Operating Officer, Advanced Materials, Coating Solutions and Intermediates

Luc Benoit-Cattin, Executive Vice President, Industry and CSR

Richard Jenkins, Senior Vice President, Coating Solutions

Vincent Legros, Executive Vice President, Adhesives Solutions (Bostik)

Board of Directors

The Board of Directors, chaired by **Thierry Le Hénaff**, has fourteen members, with equal representation between women and men. It is made up of seven independent directors, two directors representing employees and one director representing employee shareholders. The Board of Directors defines Arkema's strategy and oversees its implementation. It is supported by three specialised committees.

↓ **Thierry Le Hénaff**,
Chairman and Chief Executive
Officer of Arkema



↓ **Isabelle Boccon-Gibod**,
Director representing Fonds
Stratégique de Participations
(FSP)



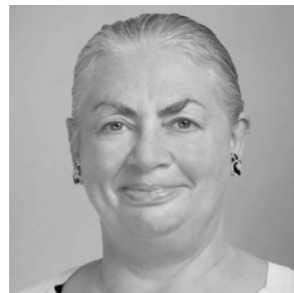
↓ **Marie-Ange Debon**,
Independent Director



↓ **Ilse Henne**,
Independent Director



↑ **Ian Hudson**,
Independent Director*



↑ **Victoire de Margerie**,
Independent Director*



↑ **Laurent Mignon**,
Director*



↑ **Hélène Moreau-Leroy**,
Independent Director*

In 2022:



91%
meeting
attendance rate



10
meetings including
one day dedicated to
the Group's strategy

**On the
ground!**

Board members travelled to Singapore in January 2023 to see the brand new facilities at the factory that starts up this year. The trip included a Board of Directors meeting on site, a tour of our newly built factory on Jurong Island, and meetings with the local Arkema management team and the

Singapore Economic Development Board, who worked hard to get the project for Singapore. The Directors were able to appreciate the scale of the undertaking since its approval five years ago. This €410 million industrial project, the largest in Arkema's history, will increase our global polyamide 11 capacity by 50% to meet strong demand in Asia.



↓ **Sébastien Moynot**,
Director representing
BPIfrance



↓ **Nathalie Muracciole**,
Director representing
employees



↑ **Nicolas Patalano**,
Director representing
employee shareholders



↑ **Thierry Pilenko**,
Independent Director



↑ **Susan Rimmer**,
Director representing
employees



↑ **Philippe Sauquet**,
Independent Director

**Two new directors
in 2023**



The Board of Directors is nominating **Séverin Cabannes** and **Florence Lambert** at the Annual Shareholders' Meeting on 11 May 2023.

↑ **Séverin Cabannes**

His appointment will bring to the Board his skills as a banking executive and his knowledge of finance and financial markets. His responsibilities in the chemical and new information technology sectors will also strengthen his contribution.

Born in 1958, Séverin has degrees from the French engineering schools École Polytechnique and École des Mines de Paris. He is a director of Aéroports de Paris and a director of Moody's France SAS, Moody's GmbH and Moody's Investors Service UK.



↑ **Florence Lambert**

The Board of Directors will benefit from Florence's experience in research and innovation, particularly in new technologies and energy transition. Her knowledge of the institutional world, particularly in international carbon-free energy and start-ups, will also be a real asset.

Born in 1972, Florence graduated from Institut National Polytechnic de Grenoble and holds a PhD in electrochemistry on renewable energy storage. She is an Officer of the National Order of Merit. Since 2021, she has been Chairwoman of Genvia, a company specialising in technologies for the production of decarbonised hydrogen.

To strengthen its expertise, the Board of Directors has three specialised committees.



The Audit and Accounts Committee, composed of **Marie-Ange Debon** (Chair), **Isabelle Boccon-Gibod**, **Ilse Henne** and **Ian Hudson**. This committee ensures the quality of internal control and the reliability of the information provided to shareholders and financial markets. Subject to his appointment at the Annual Shareholders' Meeting, **Séverin Cabannes** will join this committee.



The Nominations, Compensation and Corporate Governance Committee, composed of **Thierry Pilenko** (Chair), **Hélène Moreau-Leroy**, **Nathalie Muracciole** and **Philippe Sauquet**. This committee makes recommendations concerning membership of the Board

of Directors, compensation policy for the Directors (including the Chairman and CEO), and corporate governance best practices.



The Innovation and Sustainable Growth Committee, made up of **Victoire de Margerie** (Chair), **Nicolas Patalano**, **Isabelle Boccon-Gibod**, **Ian Hudson**, **Susan Rimmer** and **Sébastien Moynot**. This committee is responsible for assessing the contribution of Arkema's innovation and strategy to environmental challenges and sustainable growth. Like the other two committees, it contributes to the comprehensive review of all the Group's environmental, social and governance (ESG) and non-financial issues. As of 11 May, subject to their appointment at the Annual Shareholders' Meeting, **Ian Hudson** will take over as Chair, replacing **Victoire de Margerie**, and **Florence Lambert** will join the committee.

* Proposed changes to the membership of the Board of Directors submitted to the Annual Shareholders' Meeting of 11 May 2023:

■ Renewal of the terms of office of **Hélène Moreau-Leroy** and **Ian Hudson** for a period of four years as independent directors;

■ As the terms of office of **Laurent Mignon** and **Victoire de Margerie** expire at the Annual Shareholders' Meeting on 11 May 2023, **Séverin Cabannes** and **Florence Lambert** have been appointed to replace them as independent directors.

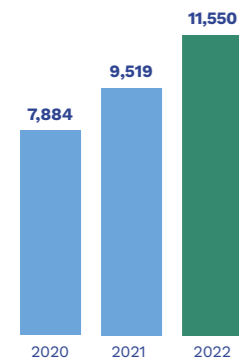
Financial and extra-financial performance

In 2022, Arkema made progress in all its financial results and its environmental and social performance. The Group has set itself ambitious targets for the latter, especially our new climate plan.

2022 financial results: an excellent year

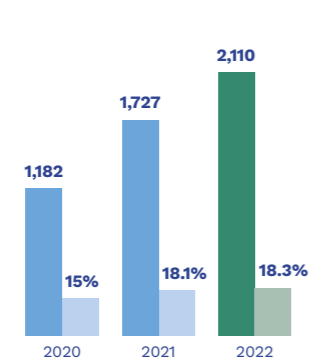
Arkema's geographical and technological positioning and the diversity of its markets enabled the Group to achieve a record financial performance in 2022 in a complex environment.

REVENUE (in € million)



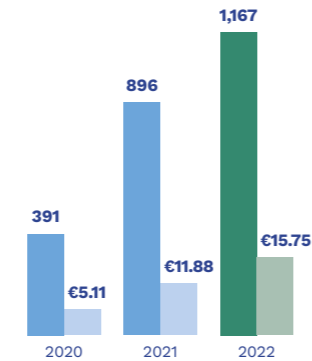
Revenue increased by 21.3% in 2022 compared to 2021.

EBITDA (in € million) AND EBITDA MARGIN (as a %)



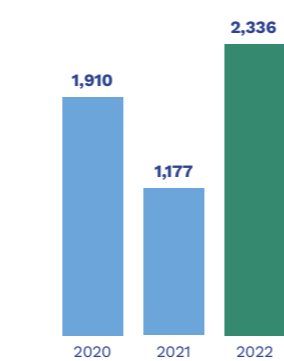
EBITDA, at €2,110 million, and the EBITDA margin of 18.3% were the highest in our history.

NET INCOME (in € million) AND NET EARNINGS PER SHARE (in €)



Adjusted net income totalled €1,167 million, or €15.75 per share.

NET DEBT INCLUDING HYBRID BONDS (in € million)



Net debt (including hybrid bonds) remained well under control at €2,366 million, i.e. 1.1 times EBITDA.

RISING DIVIDENDS SINCE 2008 (€ per share)



⁽¹⁾ Dividend recommended at the Shareholders' Annual General Meeting on 11 May 2023. The dividend is a key component of the Group's shareholder return policy. At Capital Markets Day on 2 April 2020, the Group reiterated its intention to gradually increase the dividend, with a target payout ratio of 40%.

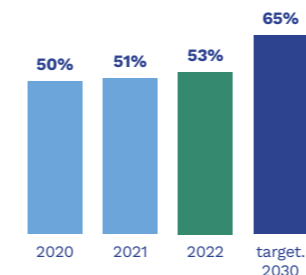
Continuous progress on our CSR indicators

Arkema strives for continuous progress in its CSR activities based on specific indicators and targets, through three commitments:

- To deliver sustainable solutions driven by innovation
- To be a responsible manufacturer
- To strengthen its position as a major employer and maintain an open dialogue with internal and external stakeholders.

1. SUSTAINABLE PRODUCTS

PROPORTION OF IMPACT+ SALES⁽¹⁾



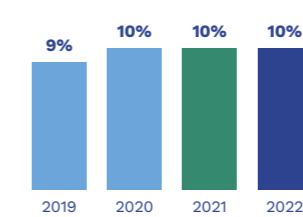
To strengthen its commitment to sustainable products, the Group has been evaluating its portfolio of solutions against sustainability criteria for several years through its Archimedes programme.

In 2022, the proportion of sales making a significant contribution to the UN SDGs (ImpACT+) was 53%.

2030 TARGET: 65% of our sales to make a significant contribution to the SDGs.

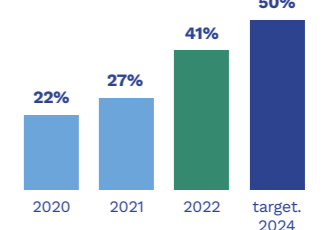
⁽¹⁾ The proportion of sales making a significant contribution to the SDGs (ImpACT+) was based on an assessment of 86% of the Group's sales to third parties in 2022, compared to 85% in 2021.

PROPORTION OF SALES FROM RENEWABLE OR RECYCLED RAW MATERIALS



The proportion of sales from renewable or recycled raw materials includes sales based on a content of at least 25% renewable or recycled raw materials since 2021.

PORTION OF SALES COVERED BY A LIFE CYCLE ASSESSMENT



41% of sales in 2022 were subject to a Life Cycle Assessment (LCA).

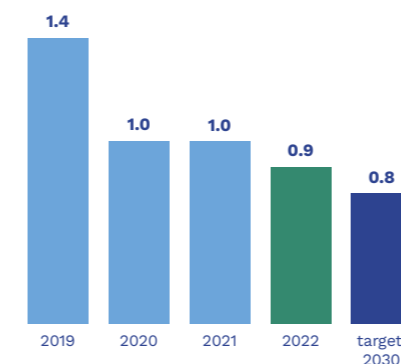
LCAs are carried out by Arkema experts or by professional bodies.

2024 TARGET: for 50% of our sales to be covered by an LCA.

2. RESPONSIBLE MANUFACTURING

Safety: two indicators with targets for 2030

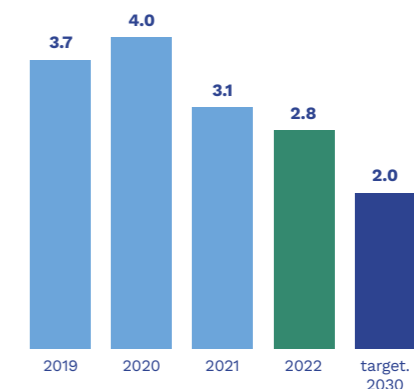
TRIR (Total Recordable Injury Rate per million hours worked)



The TRIR for 2022, which covers both Group personnel and contractors, was 0.9, lower than in 2021. Arkema's TRIR performance is among the best in the chemical industry.

2030 TARGET: achieve a TRIR of 0.8.

PSER (number of process safety events per million hours worked)



The PSER improved significantly in 2022 to 2.8. It is the focus of action plans to make our processes safer and to strengthen the safety culture among employees.

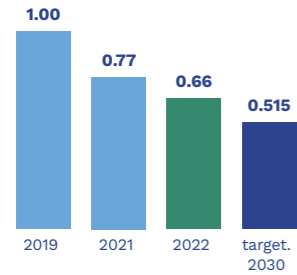
2030 TARGET: achieve a PSER of 2.0.

INDICATORS

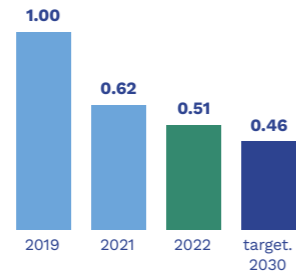
Climate and environment: five targets for 2030

The two climate indicators relate to Scopes 1, 2 and 3 (all categories) of the Kyoto Protocol. The value of absolute GHG emissions is compared to 2019 on a like-for-like basis at 1 July 2022, in line with the requirements of the SBTi (Science Based Target Initiative). The energy, water and air targets are based on Environmental Footprint Performance Indicators (EFPIs), which reflect changes in the Group's scope of activity and plant production. They are reported in absolute terms with reference to 2012.

CLIMATE SCOPES 1+2 (greenhouse gas emissions)

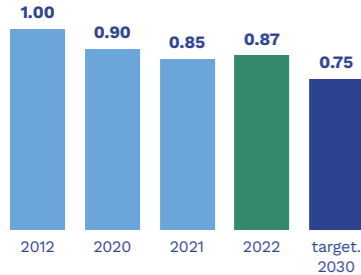


CLIMATE SCOPE 3 (greenhouse gas emissions)



In 2022, the value of absolute Scope 1 and 2 GHG emissions relative to 2019 was 0.66, a significant decrease from 2021 and in line with the target of 0.515 by 2030. The value of absolute Scope 3 GHG emissions compared to 2019 was 0.51, a sharp decrease compared to 2021.

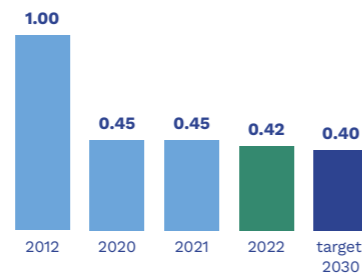
ENERGY (net energy purchases EFPI)



In 2022, energy performance deteriorated by 2 points following the winter storm in the United States at the beginning of the year and the decrease in production volumes, which affected the steam balance of the acrylic monomer sites in particular.

NEW 2030 TARGET:
25% reduction in net energy purchases in terms of EFPI compared to 2012 (the previous target was a 20% reduction).

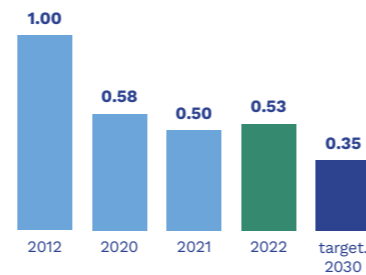
EMISSIONS INTO WATER (Chemical Oxygen Demand [COD] EFPI)



In 2022, the COD EFPI was 0.42, resuming its decline towards the target of 0.40 by 2030 thanks to the Group's ongoing actions.

2030 TARGET:
60% reduction in COD EFPI compared to 2012.

AIR (Volatile Organic Compounds [VOCs] EFPI)



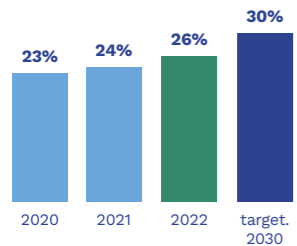
The increase in the VOC EFPI was caused by an isolated and temporary situation at the Jarrie site (France), which will be corrected in 2023. We continue to implement action plans to achieve the 2030 target.

2030 TARGET:
65% reduction in VOC emissions in terms of EFPI compared to 2012.

3. OPEN DIALOGUE

Employee development and diversity

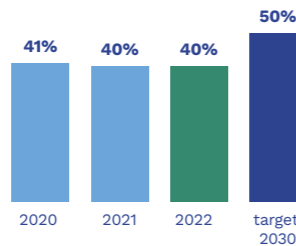
PROPORTION OF WOMEN AMONG SENIOR MANAGEMENT AND EXECUTIVES



In 2022, the proportion of women among senior management and executives across the Group increased by 2 points compared to 2021.

2030 TARGET:
30% female senior management and executives.

PROPORTION OF NON-FRENCH NATIONALS AMONG SENIOR MANAGEMENT AND EXECUTIVES

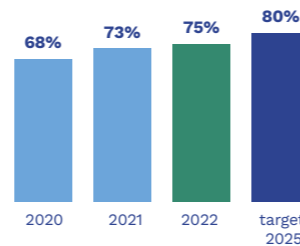


In all countries where Arkema operates, we prioritise local skills and expertise at all levels, including senior management and executives.

2030 TARGET:
50% non-French nationals among senior management and executives.

Responsible Purchasing

PROPORTION OF PURCHASES FROM RELEVANT SUPPLIERS COVERED BY A TFS ASSESSMENT



In 2014, Arkema joined the Together for Sustainability (TfS) initiative created by six European chemists. At the end of 2022, more than 1,800 of the Group's suppliers had been assessed against CSR criteria over the previous three years. The proportion of purchases from relevant suppliers covered by a TFS assessment was 75%.

OBJECTIVE 2025: 80% of purchases from relevant suppliers to be covered by a TFS assessment.



FOR THE WORLD TO CHANGE, WE MUST CHANGE THE MATERIALS WE USE.

In the race to transition to a more sustainable world, you can rely on our innovative materials. At Arkema, we team up with the biggest brands, for the greatest champions, to create materials that combine athletic performance with environmental responsibility, like shoe soles created from organic and recyclable sources. Arkema makes sports better by ensuring innovation and responsibility always go hand in hand.

Arkema. Innovative materials for a sustainable world.

arkema.com

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- @Arkema_group
- linkedin.com/company/arkema
- youtube.com/user/ArkemaTV
- instagram.com/arkema_group



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WMA

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ARKEMA