

INNOVATIVE

2020 ANNUAL AND SUSTAINABLE PERFORMANCE REPORT



ARKEMA
INNOVATIVE CHEMISTRY

A leader in Specialty Materials. A leader in Specialty

INNOVATIVE

nurturing resilience

/2/

We survived 2020 and faced the economic crisis brought on by COVID-19 by drawing on our strengths: a plentiful portfolio of materials suitable for diverse markets, a growth strategy focused on our best-performing activities and our ability to meet our customers' needs with increasingly innovative and sustainable products. Above all, we were able to count on the mobilization of our teams all over the world, and their spirit of solidarity.

We now know that we are a resilient company and will emerge stronger from this crisis.



Shareholder information

Meet the members of the Executive Committee and Board of Directors and find our financial and non-financial results for 2020.

/70/

Materials. A leader in Specialty Materials. A leader in



designing the future

/22/

A specialty materials pioneer, we have a unique market offering, combining high-performance materials with resins for coatings and adhesives in response to major societal challenges. Our products provide concrete solutions to fast-growing applications of the future, such as electric batteries, mass 3D printing, sustainable construction and energy-efficient transport. A major focus of our growth strategy is the circular economy, and we are working on three of its drivers: the use of renewable and recycled materials; the optimization of resources in our plants; and the development of solutions oriented towards sustainable or recyclable applications. We are also continuing to lead a dynamic innovation policy alongside a number of partners in technological fields, which is the only way to ensure we are perfectly aligned with market expectations.

With our innovative materials, we are in a position to offer key improvements for a more efficient and sustainable world.

growing our talents

Internally, our staff are our greatest asset, and we have a number of programs designed to build their loyalty, cultivate their abilities and attract talented new candidates all over the world. We strive to promote diversity, a good gender-balance and training for our youngest employees. Externally, we are engaged in many philanthropic initiatives: civic action in education, the integration of troubled young people, and humanitarian projects.

Our view of progress is based on people and on our values. Simplicity, solidarity, responsibility and performance, in everything we do.

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/In 2020 and 2021 the world experienced an unprecedented health and economic crisis. We have **managed** this situation by reviewing our working methods, reducing our costs, re-examining our processes, and adapting our offering. As a specialties supplier of essential materials in many industries, we have adapted our portfolio in response to the urgent needs caused by the pandemic.

Above all, we continue to **anticipate the needs** of our customers, who are always looking for better and more sustainable products, and to implement our portfolio management strategy.

We are a **resilient company** and we will emerge stronger from this crisis./



INNOVATIVE *for*

**nurturing
resilience**

We are a resilient company and we will emerge strong

**/Thierry
Le Hénaff/**



**The Group
is currently
in an enviable
position, well
placed to benefit
from the rebound
in 2021.**

SIGHTS SET ON 2024

Resilient earnings and operations, recognized social commitment, a high level of employee involvement, ongoing innovation and investment. Thierry Le Hénaff, the Group's Chairman and Chief Executive Officer, is confident about what lies ahead for Arkema. Sights are set on the 2024 target of becoming a pure-play Specialty Materials company with sales in excess of €10 billion—an ambitious plan that remains on track despite the health and economic crisis.

2020 A SINGULAR YEAR

The COVID-19 pandemic spread like a tsunami, followed by an unprecedented global economic collapse. This impacted every country in which we operate, without exception.

2020 was a year like no other, turning our lives upside down. It took a huge amount of effort from our staff, and these efforts were not in vain. Arkema was able to weather the storm better than many other companies and is now in an enviable position, well placed to benefit from the rebound in 2021 and beyond.

ACKNOWLEDGEMENTS

Crises reveal a company's strengths and the staff at Arkema really proved their worth in responding to these events. This period has also illustrated the Group's solidarity, one of our four core values. Despite difficulties relating to the crisis, everyone played their role to the full and adapted to the situation.

For example, we were quick to enable employees to work from home. Despite restrictions, we were able to continue production and to serve our clients effectively. The Group did not merely cope with the pandemic, but made real progress in a number of areas, stepping up its innovation programs, launching two major industrial projects, rolling out new business and operational excellence initiatives and pursuing its long-term strategy.

RESILIENCE

The Group demonstrated adaptability and responsiveness. Full-year earnings were down but volumes fell by just 4%, with EBITDA margin remaining robust at 15%. Specialty Materials, which represent 82% of Group sales and are at the heart of our development efforts, suffered a drop in EBITDA of just 12%, confirming our strategic focus. We also managed to generate a high level of cash flow, with €651 million, comparable to the record achieved in 2019. We therefore ended the year in a very solid financial position, giving us the leeway needed to pursue the Group's ambitious growth plans.

A CLEAR COURSE OF ACTION

In response to the pandemic, we worked on a progression of targets over time: managing the crisis in 2020; being ready for the rebound in 2021; and actively continuing to implement our vision for 2024 of becoming a leading name in Specialty Materials. That is why we maintained capital expenditure of €600 million, despite the challenging environment, with major industrial launches in Malaysia, Japan and China.



will emerge stronger from this crisis. We are a resilient



>>> We began construction of two major new projects presenting an attractive environmental profile and proven high rates of return: a 100% bio-sourced polymer production plant in Singapore and the hydrofluoric acid facility at the Nutrien site in the U.S. We also stepped up our rate of innovation, with promising opportunities in batteries and hydrogen tanks, lightweight materials, 3D printing, low VOC¹ paints, filtration membranes, recyclable composites and high-performance adhesives for industry and construction. We finalized the sale of the functional polyolefins business to Korean group SK and at the end of the year signed the proposal to sell PMMA to U.S. company Trinseo, which will take on our Altuglas International employees. We made a number of targeted acquisitions in adhesives, including LIP, Fixatti and Ideal Work, and acquired stakes in start-ups with promising technologies. We aim to become a leading name in sustainable materials and technologies and to exceed sales of €10 billion in 2024.

1. Volatile Organic Compounds

A UNIQUE POSITIONING THAT SERVES MAJOR PLANETARY CHALLENGES

Now more than ever, our aim as an industrial firm is to use our expertise and innovation in materials science to support the transition towards a world that is more economical, more responsible, and more demanding. That is why we provide breakthrough solutions for our clients and help them offer innovative solutions to end consumers, in response to demand for lighter materials, the management of natural resources and new energies.

Arkema's strategy is coupled with the aim of creating lasting value for all stakeholders, as embodied by our corporate social responsibility (CSR) policy. Within this framework, the Group has set itself the ambitious target of increasing the proportion of sales making a significant contribution to the United Nations' Sustainable Development Goals to 65% in 2030, compared to 50% currently. It has also defined a Climate plan in line with the Paris Agreement, with the aim of cutting its greenhouse gas emissions by 38% between 2015 and 2030.

company and we will emerge stronger from this crisis.

In terms of safety, Arkema's main commitment as a responsible industrial company was reflected last year by a record low accident frequency rate of 1.0 accidents per million hours worked. Our demanding commitments and progress in CSR have been recognized by the leading non-financial ratings agencies. I am particularly proud of our recent inclusion in the DJSI World index in sixth place in the Chemicals category out of 114 companies.

CONFIDENCE

Since the low of April 2020, we have capitalized on a strong recovery in China and our presence in the construction, decorative paints and batteries segments. At the end of the year, major industrial sectors such as automotive also began to see an upturn in North America, Europe and Asia. This allowed us to return to significant volume growth of 5% in the fourth quarter. On the strength of our high-quality innovation projects and of our increased—despite the health crisis—sales and marketing and R&D budgets, we are confident about 2021, and enjoyed a very solid start to the year, following on from the progress already made in the fourth quarter of 2020.

In Specialty Materials, we are aiming to return this year to EBITDA close to pre-COVID levels at constant exchange rates, or an increase of 10% supported by brisk sales growth. We feel that the arrival of vaccines and stimulus plans will support a strong recovery and that we are in a favorable position to benefit from this dynamic.

This confidence in 2021 is reflected by our ambitious shareholder return policy. The Board of Directors decided to return to the 2019 level with a proposed dividend of €2.50 per share. A €300 million share buyback program will be launched for the first time after the sale of PMMA has been finalized.

TALENT SERVING THE COMMON GOOD

Since our IPO in 2006, the Group has continued to evolve, resulting in exceptional value creation for stakeholders. We owe this success above all to the talent and commitment of the men and women who work for the company.

Our vision is for a truly diverse group with a wealth of backgrounds, nationalities and skills, rallying all staff to the Arkema project. Diversity is an asset that we have decided to strengthen further within the Group, aiming to have women account for 30% of senior management by 2030 and non-French nationals to make up 50% of the workforce.

Together we will continue to write the Group's amazing story. Individual talent only has meaning when it serves the common good.

"2020 was a singular year and I would first like to thank all our employees around the world who mobilized and adapted to the situation. Thanks to our diverse markets, the Group demonstrated its resilience and we are still on course for 2024 with the development of our Specialty Materials activities, which put us in a unique position to address the major challenges facing the planet. So we are confident about the future. And I know I can count on the fantastic support of our employees, truly talented people serving the common good."

We are a resilient company and we will emerge strong

/Profile/



Revenue of

€ **7.9** billion



employees

20,600



Present in

55 countries



production sites worldwide

147

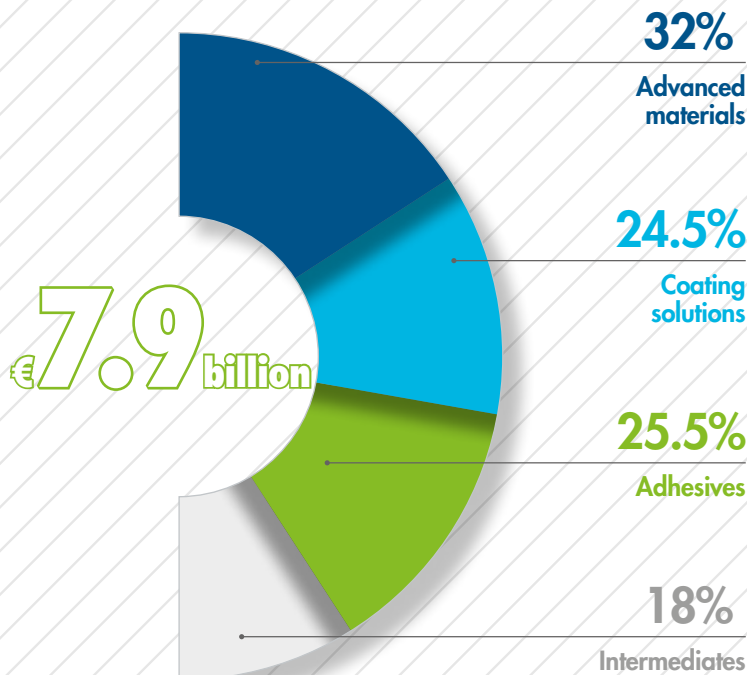


World's

no.1 to no.3

in 90% of our businesses

A portfolio built on **4 major business segments**



Unique expertise in specialty materials, which represent

82%

of our business (89% including the annual contribution of divestments/acquisitions announced in 2020)

per from this crisis. We are a resilient company and we

A global presence balanced across 3 regions



North America

33%

of sales

4,000 employees
42 production sites

Europe

36%

of sales

11,300 employees
64 production sites

Asia & rest of the world

31%

of sales

5,300 employees
41 production sites

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Innovation, a core focus of our business purpose



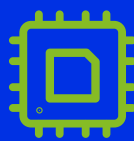
5 R&D platforms dedicated to sustainable development



Natural resource management



New energies



Electronic solutions



Lightweight materials and design



Home efficiency and insulation

will emerge stronger from this crisis. We are a resilient

/Zooming in and out of 2020/

It is difficult to sum up such a strange year. In the context of the global pandemic, during which everyone worked so tirelessly to support one another, we maintained our business activities around the world and continued to pursue our projects and refocus our businesses, R&D collaborations and CSR commitments. We look back at some of the highlights.

1 COVID-19 STRIKES: STANDING TOGETHER



January

Donation of hydrogen peroxide in China

In China, Arkema donated 26 metric tons of hydrogen peroxide, used as a disinfectant, to the health authorities in Hube province.

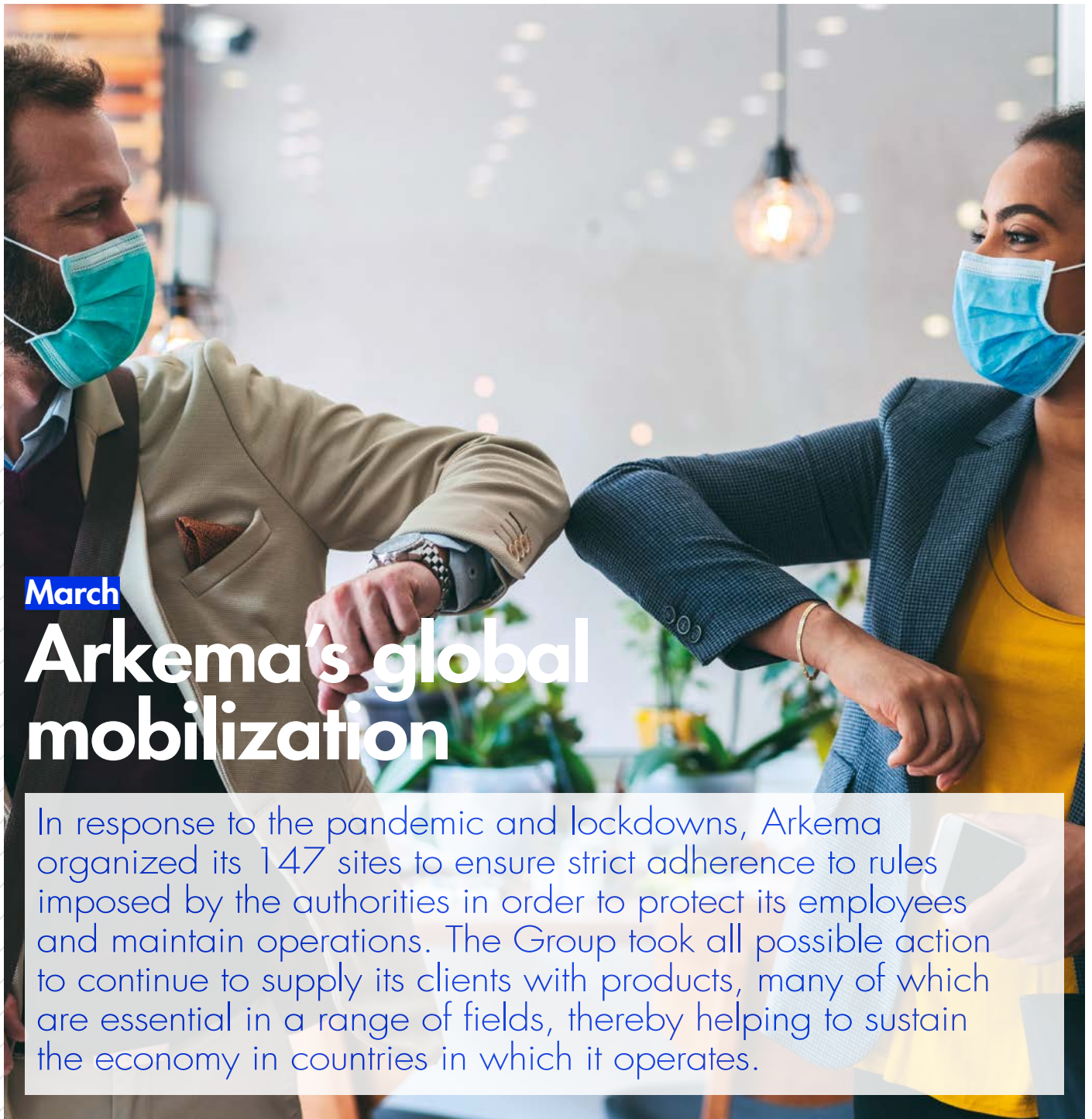


March

Urgent manufacture of hand sanitizer in France

Arkema decided to adapt one of the production lines at its Rhône Alpes research center CRR, just outside Lyon, to produce 20 metric tons of hand sanitizer every week and urgently distribute it free of charge to French hospitals. Our Jarrie plant near Grenoble supplied the requisite hydrogen peroxide.

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March

Arkema's global mobilization

In response to the pandemic and lockdowns, Arkema organized its 147 sites to ensure strict adherence to rules imposed by the authorities in order to protect its employees and maintain operations. The Group took all possible action to continue to supply its clients with products, many of which are essential in a range of fields, thereby helping to sustain the economy in countries in which it operates.



March

Molecular sieves for respiratory devices

The Honfleur plant in France stepped up production of molecular sieves, which are essential components of respiratory devices, in response to a significant rise in demand. Teams worked around the clock to ensure a constant supply of molecular sieves for medical equipment manufacturers.

April

Donation of transparent acrylic glass sheets



Around the world, plants operated by our Altuglas International subsidiary were running at full capacity owing to high demand for transparent acrylic glass sheets, used to protect customers and staff in the essential stores that remained open. Some of our sites donated funds for urgent medical equipment, such as our Matamoros site in Mexico, which donated to the city's main hospital (to manufacture protective shields for patient intubation).

2 MANAGING THE PORTFOLIO AND PARTNERSHIPS, OPENING NEW PLANTS – BUSY TIMES!

January

Bostik acquires LIP

LIP Bygningsartikler AS (LIP) is the Danish leader in tile adhesives, sealing systems and floor preparation solutions. Like the acquisition of Prochimir in October 2019, this transaction reflects Arkema's strategy to continue to expand its Bostik Adhesives business through targeted acquisitions.



June

Disposal of our functional polyolefins business

This sale to SK Global Chemical was part of Arkema's strategy to refocus its Specialty Materials businesses. With revenue of €250 million, this business produced ethylene copolymers and terpolymers for food packaging, cables, electronics and coatings.



er from this crisis. We are a resilient company and we

June Innovative U.S. partnership

Nutrien Ltd., one of the world's leading agrochemicals manufacturers, agreed to supply Arkema with hydrofluoric acid, the key raw material in certain polymers and fluorochemicals, for its Calvert City site (Ky.). This project allows for secure and competitive access to hydrofluoric acid, which will be produced using a natural element in phosphate that Nutrien uses to manufacture its products instead of fluorspar ore, the traditional choice. This agreement is supported by a \$150 million investment in a hydrofluoric acid unit, which will produce 40,000 metric tons per year at Nutrien's Aurora site (N.C.).



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July

Bostik acquires Fixatti

Fixatti specializes in value-added high-performance thermobonding adhesive powders for niche applications in construction, technical finishes, batteries, cars, and textile printing. This internationally renowned company has two sites in Europe and one in China. Fixatti employs 180 people and generates revenue of €55 million.

will emerge stronger from this crisis. We are a resilient

July

Arkema invests in Continuous Composites



Arkema bolstered its partnership with Continuous Composites, creator of Continuous Fiber 3D Printing (CF3D®) technology. The Group invested in the US startup to accelerate the development of 3D composites, a groundbreaking innovation for strong, lightweight structures in the aeronautics, automotive, and energy sectors, among others. Through its subsidiary Sartomer, Arkema is developing a specific range of photocurable resins for use with CF3D® technology.



September

Bostik acquires Ideal Work

Bostik expanded its range for floors with the acquisition of Ideal Work, an Italian company that specializes in value-added decorative floor technologies, with revenue of €10 million, in line with Arkema's strategy of targeted growth in groundbreaking adhesive technologies, which round out Bostik's existing range for the construction industry.



September

A new industrial adhesives plant in Japan

Bostik-Nitta, a joint venture 80% owned by the Group, opened a new world-class industrial adhesives plant in Nara, Japan. This new capacity is helping Bostik to serve its Japanese customers in the ever-expanding markets for diapers, personal care, packaging, labeling, transportation, and electronics.



December

Arkema disposes of its Altuglas International subsidiary

Arkema announced the divestment of its PMMA, or acrylic glass, business to Trinseo for an enterprise value of €1,137 million. This transaction represents a further step in the Group's transformation program and ambition to become a pure specialty materials player by 2024.

company and we will emerge stronger from this crisis.

3 INNOVATIONS AND AWARDS CREATE A BUZZ



January

**Rilsan®
forever!**

The French president paid tribute to products “made in France” with an exhibition of 120 iconic objects or products made using French expertise. Selected from 1,750 submissions, our Rilsan® material made the final cut. This was an opportunity for people to rediscover a 100% bio-based material at the leading edge of performance, used in 3D printing and other applications. Since it was invented 70 years ago, in powder and granulated form, its high-strength properties have earned it a place in dozens of different applications, from textiles to protective coverings for steel pipes, engine piping and eyewear frames.

February

**Prefab houses
made from
Elium®**

composites

Arkema; the Nexoon startup, 5M—a company specialized in composite materials; and the P2P Institute of Technology Research in Metz—a leading industrial center in composite pultrusion technologies; all teamed up on an innovative factory-made modular construction system using Elium® resin. These highly robust structures can be installed, dismantled and

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re-erected in 24 hours, and are designed to meet needs for individual and collective housing, both social and premium.



May

Our thermoplastic composites make an impression

Arkema was a double winner at the 2020 JEC Awards. In partnership with the Soudure Institute, Hexcel, Latecoere, and Stelia Aerospace, the Group clinched an award in the aeronautics category with an innovative high-performance welding technology for thermoplastic composite parts that do away with the need for rivets. The second prize, voted for by 25,000 participants, was for the Destiny project, a joint effort by Arkema and Stratiforme Industries to develop a train cabin in thermoplastic composite based on Elium® resin. This reasonably priced cabin can be recycled at the end of its lifetime, unlike thermoset composites which are the standard material used in the rail industry and are difficult to recycle.

September

Bio-based Pebax® polymer a key component in Mizuno's Wave Rider shoe

The famous Japanese running shoes and clothing brand launched the Wave Rider 24, the latest model in its iconic line. This running shoe features the new Energy midsole

technology from Mizuno, with the famous Wave Plate embedded in the foam. The undulating plate is made using our Pebax® Renew® bio-based polymer derived from castor beans and also offers exceptional energy return!



September

Prize-winning biobased surfactants

Arkema won the Environment and Natural Resources Prize at the Sustainable Industry Awards hosted by French magazine Usine Nouvelle for its new range of Sensio™ surfactants. These products, derived from castor oil, are aimed at the detergents market. Its combination of cleaning power and foaming profile leads to more effective products. Thanks to its plant origins and biodegradable properties, Sensio™ surfactants offer a unique sustainable alternative to traditional products.



adhesive that offers an alternative to drawing pins and sticky tape. Blu Tack® has become a mainstay of Bostik's stationery range, with more than 250 million packs sold worldwide since its launch in 1970. The product is the leader in the UK, South Africa and Asia Pacific. In Australia, a pack of Blu Tack® is sold every five seconds.

July

Bostik's Blu Tack® adhesive: still fresh at 50!

Created in a British laboratory during attempts to develop a new sealant, Blu Tack® is a reusable

er from this crisis. We are a resilient company and we



September

Arkema 4, a floating lab, takes to the water

The new Multi 50 is the result of a close, intense collaboration between Arkema and the Lalou Multi Composite shipyard, which have been partners for eight years. With recyclable resins, new adhesives, clean energies and more, there are many innovative materials and solutions to complement the bold architectural choices.

The entire deckhouse/cockpit was made from a composite based on recycled Elium[®] resin. The cockpit, which is 80 cm lower than on the other Multi 50s, offers protected maneuvering. For better visibility in all sailing conditions, the cockpit and deckhouse are fitted with glazing in Altuglas[®] ShieldUp[®] Flex PMMA, the first flexible sheet in the world, which can

be installed without thermoforming and was developed by Altuglas International, Arkema's subsidiary. This acrylic glass is five times more shock-resistant than traditional PMMA and considerably more lightweight. With a scratch-resistant, water-repellent coating, it offers remarkable optical qualities. Developed by the young French company Powertech, the latest-

generation lithium batteries use our Kynar[®] technology, which increases energy storage capacity by 50% with no increase in weight compared to the Arkema 1 trimaran. Combined with a larger surface area of photovoltaic panels installed on the front outrigger arm, the system delivers a fully autonomous energy supply to on-board equipment

without emitting a single gram of CO₂.

As with the floats and the outriggers, the structure and bulkheads were assembled by structural bonding using Bostik's methacrylate products. These high-strength glues have an elongation capacity that is six times greater than epoxy adhesives.

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October

Our Elium[®] resin wins the Pierre Potier prize

At a ceremony attended by Agnès Pannier-Runacher, French Secretary of State for Economy and Finance, Arkema was awarded the 2020 Pierre Potier prize for its Elium[®] liquid thermoplastic resin, a disruptive innovation on the composites market that is used to make 100% recyclable wind turbine blades.

4 REAL EVIDENCE OF OUR SOCIAL AND ENVIRONMENTAL RESPONSIBILITY!



February

Arkema commits to reducing its greenhouse gas emissions

Arkema is taking action with an ambitious climate plan aligned with the Paris Agreement, which aims to keep global warming well below 2°C compared to pre-industrial levels. Our new environmental goal is to reduce our absolute greenhouse gas emissions by 38% by 2030 compared to 2015.



March

Success of Pragati, the world's first sustainable castor bean cultivation program

The founding members of the Pragati project—Arkema, BASF, Jayant Agro-Organics, and the organization Solidaridad—celebrated the success of phase one and the official launch of phase two, which will last until July 2022. This program was implemented in the state of Gujarat in India, which represents around 70% of the world's castor beans. Arkema is one of the largest users of castor oil, for production of its Rilsan® polyamide 11. Phase 1 involved the annual production of 13,000 metric tons of castor beans by 3,000 audited and certified growers. Approximately 5,200 hectares now meet the criteria of the sustainable castor farming code. Water consumption has fallen by 25% and returns have improved by 50% compared to 2016. By the end of the second phase, 7,000 growers will have been certified.



September

Arkema supports the wind power sector with recycling

A partner in the ZEBRA (Zero waste Blade ReseArch) project led by French research center IRT Jules Verne, which involves leading manufacturers and technical centers in an ambitious project to design and manufacture the first fully recyclable wind turbine blade, Arkema reinforced its position as a key player in the thermoplastic composite market with its Elium® resin. This material is a prime example of the circular economy approach that the Group initiated for both its operations and its products.



company and we will emerge stronger from this crisis.

September

Placement of our first green bond

Arkema successfully placed its first green bond fully dedicated to the financing of its new world-scale plant in Singapore to manufacture 100% bio-based Rilsan® polyamide 11, for a total amount of €300 million, giving investors the opportunity to contribute to the development of sustainable solutions in specialty materials, and confirming the Group's leadership in sustainability and innovation.

November

Arkema mobilizes to get clean drinking water into schools in China



Water treatment has always been one of Arkema's core areas of focus, as one of Arkema's key R&D platforms. Through

ArrMaz, its specialty surfactant subsidiary, Arkema announced that it had joined the One Foundation's Clean Water 2020 project, a charitable initiative which aims to improve the drinking water of schools in rural areas of Yunnan Province. To support the gradual implementation of this project, Arkema donated \$58,000 to One Foundation.

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October

Arkema, a positive example of CSR

Thanks to its ambitious policy and strong commitments, Arkema climbed to 11th place, clinching top spot in the chemicals sector, in the Wall Street Journal's ranking of the 100 most sustainably managed companies, in recognition of the Group's ability to create value over the long term.

November

Arkema joins the Dow Jones Sustainability World Index

Arkema joined DJSI World in sixth place in the Chemicals category among 114 companies assessed. This prestigious index includes the top-performing companies in terms of CSR based on the ratings of the Standard & Poor's SAM non-financial questionnaire. The Group also joined DJSI Europe as the second best company in its sector.

We are a resilient company and we will emerge strong

/ Acquisitions /

Bostik pursues its strategy of targeted development



With the acquisition in 2020 of Fixatti, LIP and Ideal Works, our subsidiary Bostik, ranked third in the world for glues and adhesives, gained essential new assets and expanded its solutions portfolio and regional coverage. Interview with Fernando Accioly-Menezes, Bostik Strategy Director.

Since Arkema acquired Bostik in 2015, the latter has pursued a sustained strategy of growth through acquisitions. What is the overall vision guiding this approach?

Fernando Accioly-Menezes – Arkema enjoys a robust financial position with margins that support its aim to achieve external growth in specialty materials. Bostik is helping to spearhead this development. Some of the markets in which we operate are still very fragmented, with a lot of small and medium-sized players, some of which are extremely successful.

This is particularly true for our businesses in Consumer & Construction (adhesives and mastics for construction, DIY) and Durable Goods (bonding solutions for industry, transport, aeronautics, domestic appliances, etc.), which have been the focus of most of our recent acquisitions. We adapt our strategy to the scale of each business activity by seeking out companies that offer good complementarity in terms of their offering or regional coverage, and if possible, both, allowing opportunities for us to supply a wider range of solutions.

A steady stream of acquisitions over five years



1. DIY : do it yourself

er from this crisis. We are a resilient company and we

Bostik in figures

57 production units around the world

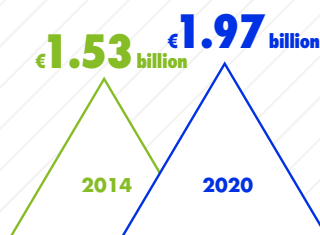
Present in **50** countries

25.5%

of Arkema's sales

6,000 employees

Growth in Bostik's sales



An expanding market

€55 billion

worldwide sales for adhesives and sealants

4% annual growth

LIP and Ideal Works, which both joined our Consumer & Construction business activity in 2020, are good examples of this.

F. A-M. – Absolutely. LIP is a great brand. It is number one in Denmark in tile adhesives, and in floor sealants and preparation, with very high-quality products and a good reputation among professionals. It will allow us to break into the Danish market while leveraging our channels to boost its exports, particularly to Sweden where we have a high profile. As for the Italian company Ideal Works, which also operates in flooring, it rounds out our offering with its decorative concrete technology and its established high-end position in Italy, which we will now focus on deploying internationally.

In July, you finalized the acquisition of the Belgian company Fixatti. How does this transaction fit into the strategy for your Durable Goods business?

F. A-M. – It adds another string to our bow in the field of specialty hotmelts, which have been booming. These thermobonding solutions offer many benefits. They are solvent-free, some types can be bio-based, and they offer improved

recyclability and reduced weight due to the replacement of mechanical fixings. With 180 employees and three production sites in Europe and China, Fixatti is in a strong position in the field of thermobonding adhesive powders. Its acquisition follows that of Prochimir in 2019, with its adhesive film technologies. Both operations allowed us to increase our critical mass in specialty hotmelts, access new markets, and offer a wider range of industrial solutions.

In December, Bostik invested \$11 million to create the CMC joint venture with Taiwanese company Cartell. Can you tell us more?

F. A-M. – This was more of a prospective investment, after the acquisition of the Spanish startup Afinitica in 2018, with which Cartell was already doing business. It was designed to implement an innovative production process for the manufacture of cyanoacrylate monomers used in the formulation of fast-cure, high-performance and odorless adhesives for various applications in the engineering adhesives sector such as consumer electronics and microassembly. This is also a growth market with high demands in terms of industrial performance.

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2019



PROCHIMIR

High-performance thermobonding adhesive films for automotive, construction, textile, and medical markets (France)

€30 million in sales



LIP

Tile adhesives, waterproofing systems and floor preparation solutions (Denmark)

€30 million in sales



IDEAL WORK

High added-value decorative flooring technologies for the construction market (Italy)

€10 million in sales



FIXATTI

High-performance thermobonding powders for the construction, technical coating, battery, automotive and textile printing sectors (Belgium)

€55 million in sales

2020



CMC

Investment with Cartell in joint venture CMC to produce high-performance cyanoacrylate adhesives (Taiwan)

\$11 million investment



/ We are a **pioneer in specialty materials**. We are the only company to offer three complementary ranges: Advanced Materials and value-added solutions, Adhesives, and Coating Resins.

As an essential player in specialty chemicals, Arkema leverages its talent and expertise to create innovative materials and solutions that help us use our resources more efficiently and support the green recovery. We are at the **forefront** of developments in the highest-performing, most innovative, smartest materials. Our inventions allow us to contribute to **sustainable development**. We are innovating to meet current needs and anticipate future trends. Without the advanced materials we develop, there would be no electric batteries or hydrogen cars, no recyclable wind turbines or lighter, more efficient vehicles. We are also working hard to improve the recyclability of our materials and of the applications that use them.

Our materials offer essential improvements to help us move towards a more efficient and sustainable world./

A white electric car is shown from a low-angle, rear-quarter perspective, plugged into a charging station. The car's sleek design and the charging cable are prominent. The background is a light, neutral color with a subtle grid pattern.

INNOVATIVE *for*
designing
the
future

/A unique combination of materials and expertise on the market/

Global demand for innovative and sustainable materials

- Today, this trend is accelerating, driven by new needs in:
- Mobility (weight, robustness, batteries)
 - Urbanization (insulation, energy efficiency, modular construction)
 - Environment (solar, wind, hydrogen, water treatment, renewable resources)
 - Industry 4.0 (3D printing, miniaturization, smart materials)
 - Consumption (customization, performance, sustainability)

To meet our clients' needs for high-tech, lightweight, bio-based, recyclable materials, Arkema keeps evolving and expanding its portfolio of activities to enhance its assets and expertise. This ongoing process of change supports the vision we have always nurtured: to make Arkema a pure leader in specialty materials, focused on innovation and sustainable solutions.

Powerful expertise in materials science

Arkema has built a unique solutions offering with a diverse and extensive range of materials that it has either developed or acquired over the past fifteen years. We are experts in:

- Bonding materials
- Substituting materials for alternatives that are lighter, more effective and/or bio-based
- Protecting materials and applying coatings to them

All these skills are based on extensive expertise in materials science, which combines our knowledge of polymerization, formulation and application. This range of expertise forms the core of Arkema's business and enables us to offer bespoke solutions and unique innovations for the most demanding clients in numerous sectors such as electronics, decorative and industrial paints, construction, and automotive manufacturing.

Our challenges



Our expertise



We are a pioneer in specialty materials and the only Group to offer three complementary product segments: Advanced Materials, Adhesives, and Coating Resins. Our product portfolio is at the leading edge of innovation thanks to our wide range of expertise in materials science. It helps fulfill the key demands associated with the major trends in a constantly evolving world.

OUR OFFERING



Adhesive Solutions

No. 3
OF THE MARKET

Trends

- Growing population and urbanization
- Energy efficiency of buildings
- Lighter materials (replacing mechanical fixings)



Advanced Materials

No. 1 or 2
DEPENDING ON THE RANGE

- Lighter transportation
- Renewable energies
- Access to clean water
- Bio-based materials and recycling
- 3D printing



Coating Solutions

No. 2 or 3
DEPENDING ON THE RANGE

- Environmentally friendly coating solutions
- High-performance coatings (resistance to extreme weather, rapid drying)

designing the future

Three growth platforms with powerful synergies

We have structured our expertise in three coherent and complementary segments based on materials science:

- Adhesives
- Advanced materials
- Coating solutions

We have world-leading positions in all three segments.

Together, they form the Specialty Materials platform, which forms the basis for Arkema's long-term corporate vision.

The combination of these three platforms is unique in the chemicals industry. It allows us to generate significant internal synergies in innovation, commercial opportunities, and operational efficiency. It also gives us an exceptional ability to serve our clients in a variety of attractive growth markets.

OUR RESPONSE TO SUSTAINABILITY CHALLENGES

Better building insulation, widescale 3D printing, improved Li-ion batteries and lighter transport. Our expertise in high-performance materials addresses the development and sustainability challenges of these four key markets for Arkema.

/ Sustainable construction / These materials make a difference

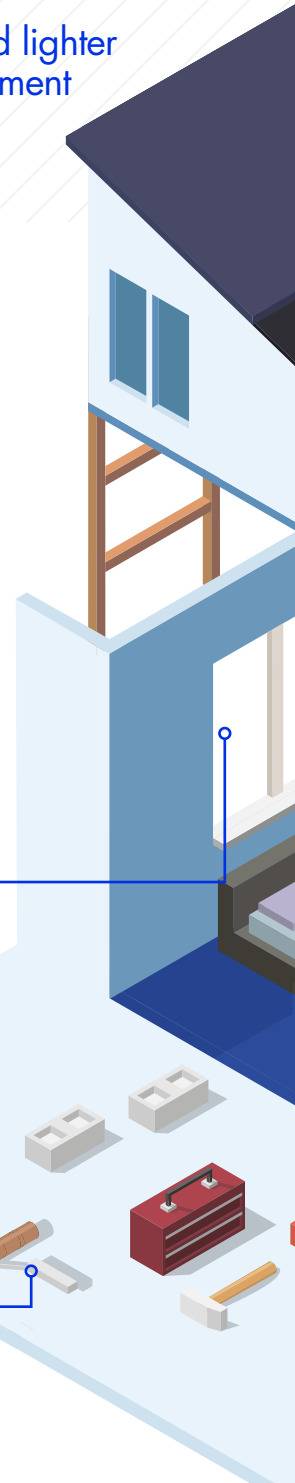
In response to the climate crisis and population growth, the construction sector faces unprecedented challenges. Building energy performance, resource efficiency and environmentally friendly materials and processes will be vital issues for the coming decades.

Arkema has made these themes a central focus of its innovation policy and is already working to offer professionals and individuals solutions for healthier buildings that are more insulated, sustainable and comfortable.

1. Warm edge technology, the new global standard for **high thermal insulation** double glazing, uses Siliporite® molecular sieves mixed with a polymer matrix. By reducing the thermal bridges created by window frames, this solution offers far better energy performance than conventional double glazing and is a benchmark for energy efficient buildings.

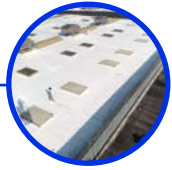
2. Bostik solutions for indoor applications are **free from toxic** products, exceeding regulatory requirements. Water-based sealing foam (0% isocyanate, 0% polyurethane), tin-free silicone seals and adhesives for bio-based flooring that contain zero solvents and volatile organic compounds.

3. The Synaqua® range of decorative paint resins is made from a **high proportion of bio-based materials**—between 42% and 74%, and up to 96% for the new Synaqua® 4856 grade. Derived from non-food plant biomass, these formulations also have very low emissions of volatile organic compounds while providing the best finish in terms of look and feel.



18%

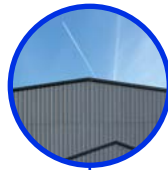
Contribution of the building and construction market to Arkema's revenues



4. In very hot conditions, cool roofing, a reflective white roof paint, greatly limits warming inside the building. A coating of UV- and moisture-repellent Kynar Aquatec® optimizes the efficiency and durability of white roofs, making it an **effective ecological alternative to air-conditioning**.



5. Produced with HFO (hydrofluoroolefin) chemistry, our Forane® 1233zd expansion agent is used to make **foam panels with high insulation performance**. Moreover, it has a global warming potential of just 1 CO₂-equivalent, which is 1,000 times less than the previous generation of water-based HFCs (hydrofluorocarbons).



6. Our very high durability powder resins provide the basic components of paints and protective lacquers, maximizing **the life span of metal surfaces** exposed to moisture, including exterior pillars, roofs and concrete reinforcement rods. They are a recognized asset in sustainable construction.



7. Bostik's insulating smoothing coating, a breakthrough innovation launched in 2020, contains hollow glass beads with remarkable insulating properties. It creates a **thermal barrier between the wall and the coating, thereby eliminating the cold wall effect and reducing energy losses** by up to 15%.



8. Bostik's range of Panel Tack® primers and sealants allows any kind of exterior panel (cladding, insulation) to be installed **without the use of mechanical fixings**. This solution **eliminates the thermal bridges** created by the fixings and improves building insulation.



9. Sartomer's photocure resins provide wooden floors and surfaces with **long-lasting protection** from scratches and abrasion, coupled with a highly efficient industrial UV application process. Once hardened, they do not emit volatile organic compounds.



10. Bostik's Axios™ Tri-linking™ polymer technology makes it easy to lay solid timber floors and wall finishes. The membrane formed by these adhesives prevents the wood from splitting, **protects it from moisture and dampens noise** to improve soundproofing.



11. Ethacryl™ additives, which improve the dispersion of cement particles, **reduce the amount of water** required to prepare a cubic meter of concrete **by 30% to 40%**. They are also used in the manufacture of plasterboard, for the same reason.

designing the future

Our materials offer essential improvements to help us mo

 **3D printing/**

An unrivaled portfolio of solutions

In sectors such as aeronautics, health, cosmetics, and sports, 3D printing is now being used in a wide range of mass-produced applications that fully leverage the unique features of additive manufacturing: freedom of design and customization, speed of implementation, and savings on raw materials use. Arkema, which adopted this future-focused technology from the outset, is developing a unique range of materials and solutions to support its customers and partners in all innovative fields, within a market expanding 30% year-on-year.

Leading the way in all technologies

Arkema's range of complementary specialty polymers—Bio-based Rilsan® polyamide 11, Orgasol® polyamide 12, Kynar® PVDF, Kepstan® PEKK— offer high-performance solutions for diverse needs in 3D plastic printing including heat resistance, mechanical resistance, hardness, flexibility, competitiveness, and durability. The Group also offers an internationally recognized range of specialty resins and photoinitiators for UV curing, with Sartomer's N3xtDimension® solutions; enabling fast printing speeds, high accuracy, transparency and ability to make highly complex hollow structures. These unrivaled materials enable Arkema to fulfill the very specific needs of its customers with each of the three major additive manufacturing processes: selective laser sintering (SLS), UV curing (SLA, DLP etc.), and fused filament fabrication (FFF), also called fused deposition modeling.

Fused filament fabrication 3D printing



Laser sintering of a powder bed

A proactive R&D strategy

Arkema entered the world of 3D printing in 1988 with the first rapid prototyping applications, and was quick to detect the full industrial potential of additive manufacturing.

The Group has made this market one of the key drivers of its innovation policy and developed a considerable R&D effort at its three dedicated centers of excellence: King of Prussia (Pennsylvania, United States) for filament extrusion, Serquigny (France) for selective laser sintering, and Exton (Pennsylvania, United States) for photocuring. The Group's engineers have connected printing machine manufacturers with the needs of end users to develop new material grades — and the manufacturing and supply chain processes that go with them — to support an increasingly diverse range of applications.

UV curing of liquid resins



Rapid growth of industrial applications

With annual growth of 30%, 3D printing technologies are expanding rapidly throughout industry worldwide.

Additive manufacturing is used not only in prototyping, but increasingly in mass production. Arkema's materials are a driving force in this growth. In 2020 they contributed to some major success stories:



○ Chanel's Volume Revolution and Volume Stretch mascaras, with an originally designed brush printed in Rilsan® powder



○ HexR custom-printed cycling helmets based on a scan of the user's head, made from a honeycomb structure in Rilsan® to ensure excellent impact absorption



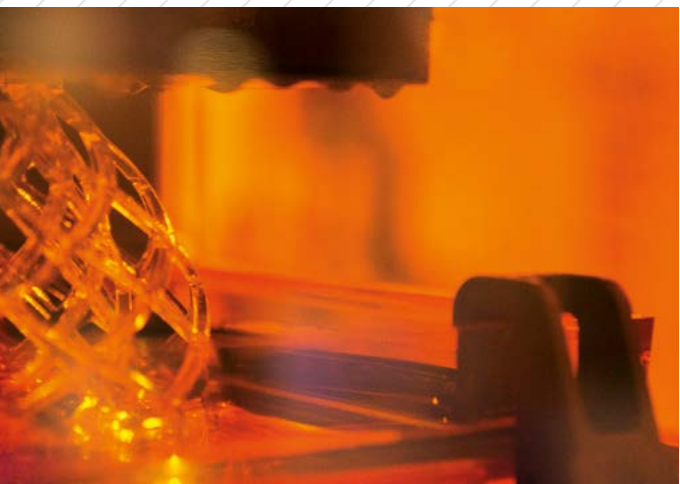
○ Neubau eyewear frames, made to order to reduce lead times and simplify stock management



○ ADAPTIVE, by Fizik, is an extra-wide, comfortable saddle that adapts to fit the cyclist. It is produced by the start-up Carbon and based on a honeycomb structure in N3xtDimension resin.



○ Mighty Buildings is revolutionizing the construction industry by creating beautiful and sustainable homes using 3D printing and robotics automation, leveraging N3xtDimension® photocurable solutions and supply chain model.



CUSTOM MEDICAL DEVICES

3D printing is particularly beneficial in the medical field to produce devices such as orthotics, prosthetics, and implants to match the individual measurements of patients. Arkema is a key partner in this growth sector (20% per year) to which it supplies its medical-grade specialty materials. For example, the XFeet additive manufacturing platform produces orthopedic soles in Pebax® RNew and new orthotic products in Rilsan® polyamide 11. In dental prosthetics, the specialist Dentca obtained authorization from the FDA in 2020 to produce custom parts in N3xtDimension® UV resins. Another medical application is in mass production: also in 2020, the HP group produced swabs made from Rilsan® polyamide 11 using 3D printing technology for Covid-19 testing.



PEKK AND 3D PRINTING, A WINNING COMBINATION

Kepstan® PEKK, an exceptionally high-performing polymer, is mainly used in aeronautics for the most demanding applications. It combines rare mechanical, thermal and chemical resistance with ease of use, making it perfectly suited to 3D printing, unlike its competitor, PAEK. In this specific segment, additive manufacturing is valuable in small production runs of parts with complex shapes (air distributors, bearing cages) for its ability to optimize the quantity of raw material used.

designing the future



PHOTOCURE RESINS: SARTOMER SPREADS ITS WINGS

In 2020, Sartomer acquired Colorado Photopolymer Solutions, which has contributed to its technical expertise in the development of specialty formulations for 3D printing in mass production. The company has also formed development partnerships and investment with Continuous Composites and Adaptive3D, two breakthrough start-ups bringing disruptive technologies to 3D printing.

materials offer essential improvements to help us mo

Lithium-ion battery/ **Driving the transition with Arkema**

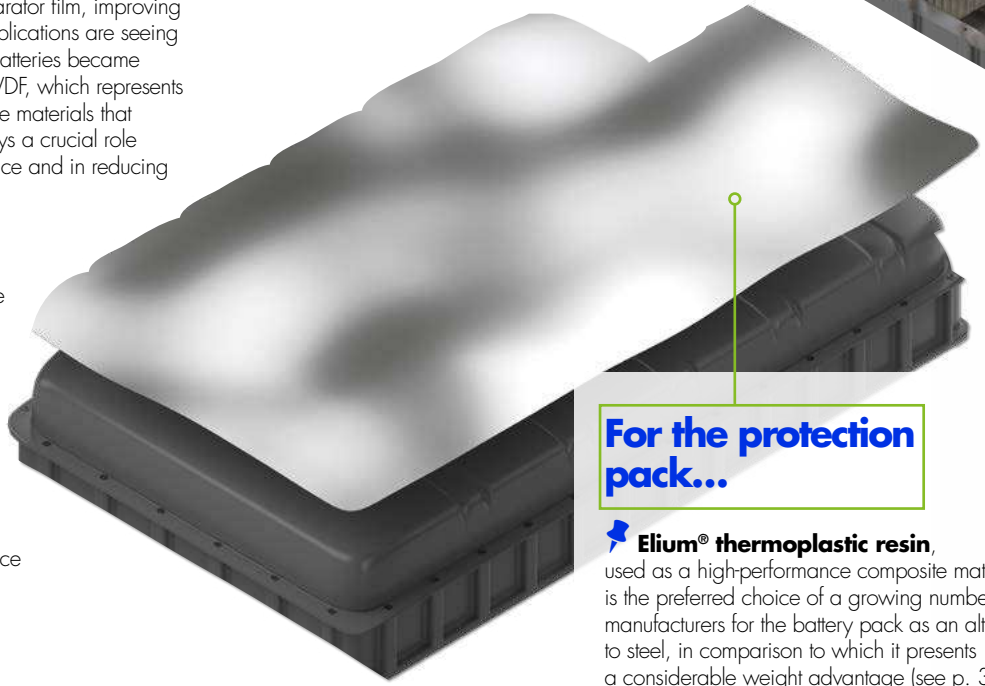
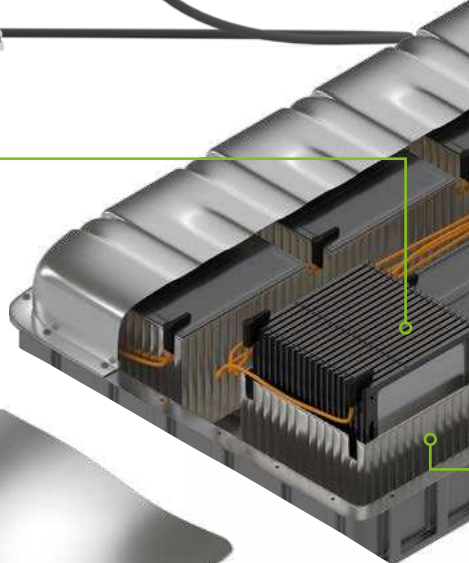
By 2050, half the world's vehicles will be powered by electricity. All the leading carmakers have joined the revolution. Compared to 3% at present, 10% of new vehicles should be electric in 2027 (33% including hybrids). A key aspect of this transition is improving Li-ion battery performance (charging time, autonomy, weight), now one of the biggest R&D fields in the world. Government stimulus plans in 2020 have further increased its prospects. A recognized name in the battery ecosystem, Arkema has made a major contribution in this area with a unique combination of high value-added solutions, from the cell interior to assembly and battery management.

At the heart of each cell...

Kynar® PVDF, which enjoys high electromagnetic stability, performs an essential role in the formulation of electrodes by helping active particles to bind to current collectors. Thanks to its resistance to high voltages and electrolyte solvents, it is also used as a protective and adhesive agent for the separator film, improving the cell's lifespan. These two applications are seeing strong growth. In 2020, Li-ion batteries became the biggest market for Kynar® PVDF, which represents just a very small proportion of the materials that make up a battery pack but plays a crucial role in the system's overall performance and in reducing its carbon footprint.

Foranext® ultra-pure electrolyte salts, far more stable at high voltage than current solutions, will help to reduce the battery's charging time and increase its autonomy.

Graphistrength® carbon nanotubes, added to the cathode in small quantities, help the flow of electrons to the anode and reduce battery charge time.



For the protection pack...

Elium® thermoplastic resin, used as a high-performance composite matrix, is the preferred choice of a growing number of manufacturers for the battery pack as an alternative to steel, in comparison to which it presents a considerable weight advantage (see p. 32).

Kepstan® PEKK, thanks to its light weight and outstanding resistance, offers a high-end battery pack protection solution.

Inside the modules...

Rilsan® polyamide 11, applied in a thin layer on the lining that separates the cells, provides electrical insulation.

Piezotech® piezoelectric polymers are used as "actuators" for sensors monitoring the level of battery charge.

Bostik® specialty adhesives are used to attach cells to each other and to the battery pack casing.



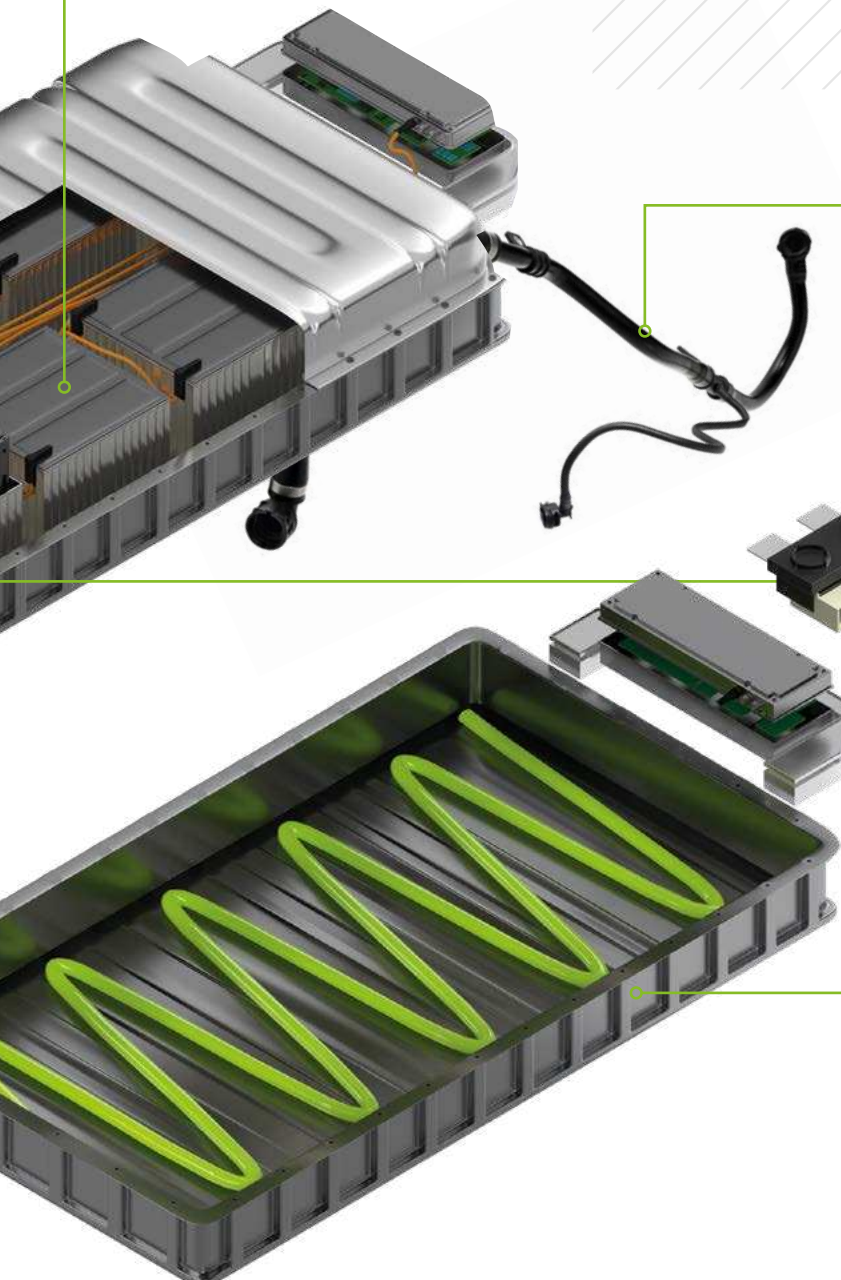
A NEW CUTTING-EDGE LABORATORY FOR INNOVATIVE MATERIALS AND BATTERIES OF THE FUTURE

Arkema has a growing number of R&D and industrial partnerships with various members of the battery ecosystem (academic research, start-ups, gigafactories, manufacturers), and is constantly refining its formulations in order to offer new grades of its Specialty Materials to best meet the needs of each application. Looking further ahead, the Group is also working on emerging technologies as an alternative to conventional Li-ion batteries. To this end, in 2020 it launched a new cutting-edge laboratory in Pierre-Bénite, France, dedicated to developing new materials and innovative procedures, primarily for solid-state Li-ion batteries. The creation of this new laboratory was jointly funded with the European Union.



For thermal management...

Rilsan® polyamide 11, combining very good temperature stability, mechanical resistance and excellent waterproofing for the connections, is now widely used for making the tubes that carry cooling liquid to the protection pack. Rilsamid® polyamide 12 can also be used for this application.



For electrical insulation...

Rilsan® polyamide 11, owing to its electrical insulation and shaping properties, can be used as a protective coating for bus bars. These rigid connectors, which link modules to each other, are used instead of flexible cables to make the battery more compact. This bio-sourced application is growing at a rapid rate.

For battery assembly...

Various Bostik® adhesive and insulating agent solutions are used for the encapsulation of electronic components, preventing thermal bridging, and battery assembly and waterproofing.


Our materials offer essential improvements to help us mo

High-Performance Polymers/ Lighter materials for transportation

Shaving a few kilograms off a vehicle's weight saves electricity or fuel, which means a smaller carbon footprint. As CO₂ emissions standards become increasingly stringent, finding ways to reduce weight is crucial in the race to green mobility currently playing out in the automotive and aeronautics industries. Backed by its unique expertise in high-performance polymers, Arkema has made lighter materials a key strategic focus of its innovation. From the airframes of commercial airliners to batteries for electric vehicles, composites made from the Group's materials can be used in a wide variety of applications and can easily replace metal parts without compromising performance, safety or durability.

Kepstan® PEKK: The wings of the future

There is a clear trend **in the aeronautics** industry to replace metal parts with thermoplastic composites. Polyetherketoneketone (PEKK), a lightweight material that offers extraordinary rigidity, mechanical and thermal resistance (up to 260°C in continuous use), is supporting this transition. Arkema is the world's leading supplier of PEKK, which it sells under the Kepstan® brand. Composite tapes combining Kepstan® PEKK and high-performance carbon fibers are 40% lighter than aluminum. They allow more efficient production of structural aircraft parts such as longitudinal struts and circular frames. In addition, they are increasingly used as an alternative to thermoset composites for aircraft skin owing to their shorter and more efficient production cycle. What's more, Kepstan® PEKK is particularly well suited for 3D printing (see pp. 28-29), used by aircraft manufacturers to make parts with very complex shapes.

 **Arkema is the world's leading supplier of PEKK, with two production sites in Europe and the United States.**



Elium® composites: lightweight AND recyclable for battery packs

In electric vehicles, much of the focus on weight reduction is on the battery, which accounts for a substantial portion of vehicle mass (often a quarter to a third in pure electrics). In this fast-growing market, Elium® liquid resin offers an attractive alternative to metal for battery protection packs. Elium® fiberglass composites are 10-15% lighter than steel. They are also better suited than thermoset composites to the automotive industry's fastest manufacturing processes, thanks to the thermoplastic resin's short cure time. Plus, Elium® composites have the major advantage of being recyclable – a key differentiating criterion for today's manufacturers.



Elium® resin is the only

liquid thermoplastic resin in the market that can be used to make recyclable composites.



Bio-based Rilsan® Polyamide 11: reduced weight, from the body to the engine block

Bio-based Rilsan® polyamide 11, derived from ricin oil, gives automotive equipment manufacturers an unparalleled solution to the vital challenge of reducing vehicle weight and lowering energy consumption and CO₂ emissions. Highly resistant and lighter than steel, aluminum and rubber, Rilsan® polyamide 11 responds to the demand for lighter-weight materials in transportation. In particular, manufacturers use it to make engine hoses, fuel lines and pneumatic braking systems for trucks. Arkema has leveraged its expertise in polyamide 11 to develop specific solutions for different high value-added applications. For example, Rilsan® Matrix composite tapes filled with carbon or glass fibers are designed to replace or combine with metal in structural parts using new and innovative processes. And Rilsan® HT polyphthalamide, with its exceptional temperature resistance (135°C in continuous use), is a popular alternative to metal in fluid transport applications close to the engine, such as cooling circuits.



Rilsan® polyamide is the world's only

100% bio-based polyamide.



INDUSTRIAL ADHESIVES: AN ALTERNATIVE TO METALLIC ATTACHMENTS

Attachments are another factor in reducing vehicle weight. For an increasing number of applications, glues and high-performance adhesives are replacing screws, rivets and other mechanical solutions, fulfilling the same functions but with less weight. Bostik's industrial adhesives business offers a market-leading lineup here, for example with structural adhesive solutions for bonding plastic and metallic parts together. Because of their different nature, these two materials are very difficult to assemble with rivets or welding. Bostik is now the world leader in hot-melt adhesives, which use powder or adhesive film to assemble flexible materials like fabric or foam. These solutions use up to 90% less product than traditional adhesives.



Trimming **100 kilograms** off the weight of a car saves **0.40 liters** of fuel and **10 grams of carbon per 100 kilometers.**



Reducing an airplane's weight by **1,000 kilograms** saves **6,000 tons** of jet fuel, or **20,000 tons of carbon**, over the plane's 30- to 40-year lifespan.

designing the future

SHOWCASING OUR FLAGSHIP PRODUCTS

We shine a spotlight on five of our materials ranges that will drive our growth over the next few years.

Focus 1

/Siliporite® molecular sieves/

World-renowned expertise

Molecular sieves work by allowing small molecules to pass through while retaining large ones, depending on the size of the mesh. When viewed at a microscopic level, these porous materials, made from a mixture of synthetic zeolite and clay, form an evenly spaced three-dimensional mesh.

They perform essential adsorption, drying and separation functions in a wide variety of fields. With a long history of expertise in this area, Arkema is now one of the world's leading specialists, under the brand name Siliporite®. Its ongoing innovation policy and production capacity at the Honfleur (France) and Inowroclaw (Poland) sites enable it to offer high-performance solutions for all application markets.

Arkema has leading positions in its molecular sieve markets

Oil & Gas
No. 2
WORLDWIDE

"Static" sieves

Polyurethane resins

33%
GLOBAL MARKET SHARE

Warm edge
(double glazing powder)

No. 1
IN EUROPE WITH 75% OF THE MARKET

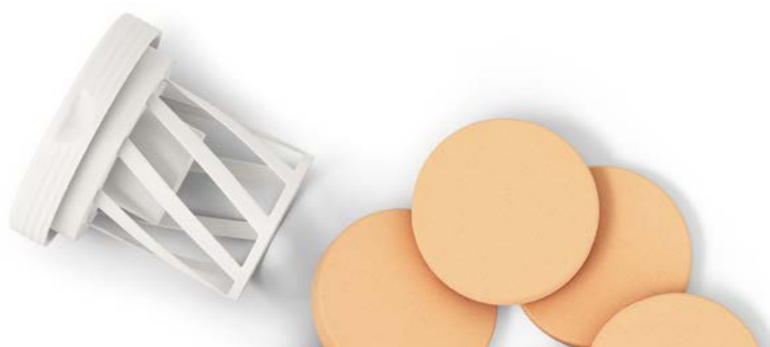
Oxygen
concentrators

No. 2
WORLDWIDE WITH 70% OF THE MARKET

Oil & Gas, petrochemicals Essential at every stage

Arkema's molecular sieves are used in many processes in refineries and petrochemical plants. Loaded in adsorption columns, they are used to dry and separate oil and petrochemical cuts, purify refining products and, importantly, dry natural gas, which must contain less than 0.1 ppm¹ of water to be transported in liquid form. These sieves, which are regenerated after each operation (adsorbed molecules – water, sulfur molecules – are desorbed from the sieves so that they can restart the adsorption cycle), now have a life span of four to five years. Arkema is the world's number two leader in this strategic sector. The Group consults with the major industrial sectors and continuously adapts its offering to meet the needs of each type of application. In 2017, the Honfleur site received a major investment (€57 million) to double its industrial capacity and produce sieves used for the separation of xylene isomers in the petrochemicals sector.

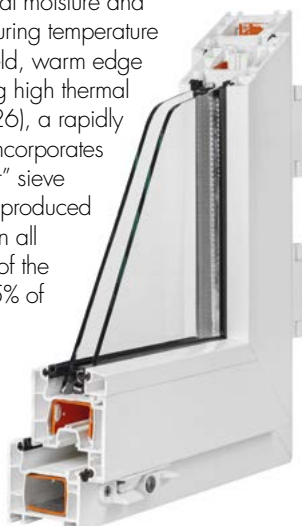
1. ppm: parts per million



Construction, packaging Where can you find "static" sieves?

Discreet but effective "static" molecular sieves are used in a wide variety of applications in the form of beads or powder. In **pharmaceutical packaging**, they protect drugs from moisture, and are found in aspirin tube caps, for example. In the formulation of polyurethane resins, which comprise between 2% and 5% of molecular sieve powder, they help to prevent the formation of air bubbles, and are used in **floor coverings** (gymnasiums, athletic tracks, car parks, etc.) and automotive parts (steering wheel, dashboard, etc.). Static sieves are also present in the form of beads or powder in **double-glazed windows**, where they adsorb residual moisture and prevent fogging during temperature changes. In this field, warm edge technology offering high thermal insulation (see p. 26), a rapidly growing market, incorporates a special "powder" sieve

solution: 12,000 metric tons of static sieves were produced in 2020. Arkema occupies very strong positions in all these applications, including approximately 33% of the world market for polyurethane resin sieves and 75% of the European warm edge market.



Oxygen concentrators Sieves to support breathing

The Nitroxy® range of sieves is changing the lives of hundreds of thousands of patients worldwide. Designed to retain nitrogen molecules, they filter the air to 93% **oxygen concentration**. They are the key component of oxygen concentrators, used by people with chronic respiratory conditions such as obstructive pulmonary disease. These medical devices are commonly used in the US and China (in Europe, these patients tend to use oxygen bottles). There are fixed models for home and hospital use, but portable models are becoming increasingly common (see opposite). This market has grown steadily over the past few years, particularly in the context of the 2020 Covid-19 pandemic, which has unfortunately led to an increase in chronic respiratory failure. As the industry leader, serving 70% of the global market, Arkema is mobilizing its industrial capacity to meet this demand.



designing the future

Nitroxy® Revolution: a life-changing innovation

The development of lighter, **more compact oxygen concentrators**, which have been a major technical challenge for manufacturers, is vital for people who need them every day. Recently, a new generation of truly portable, battery-powered machines weighing around 3 kg has emerged, restoring these patients' mobility and independence, and greatly improving their quality of life. These "reduced model" concentrators use a special grade of molecular sieve developed by Arkema under the name Nitroxy® Revolution, of which nearly 100 metric tons were produced at the Honfleur site in 2020.





Focus 2

/Resins and coating additives/ A unique product range

From decorative paints to industrial coatings for metal, wood, plastic and concrete, Arkema's range of coating products is as vast as there are surfaces to coat, whether to improve shine, protect them from damage or provide specific functions. With its Coating Solutions made from acrylic, the main resin used for paints, inks and coatings thanks to its high performance qualities, Arkema is one of the global market leaders in materials for paint and coating manufacturers. We are continually evolving to help them meet new standards in sustainability, application performance, innovation, energy savings and industrial efficiency.

Proven know-how in the four main technologies helping to significantly reduce VOCs¹

Arkema is one of the few companies to have invested simultaneously in all four current coating technologies, for which it has world-renowned solutions:

-  **Waterborne resins**, with flagship products such as the Synaqua® range, with a high level of bio-based materials, for lacquer or interior paint applications; the Encor® range for lasting protection of concrete roofs and internal and external walls; and Kynar Aquatec® emulsion for cool roofing applications (see p. 26).
-  **High-solid resins** (up to 90%), which if diluted on application improve energy efficiency during transportation and offer better industrial efficiency while also meeting regulatory requirements (bio-based content and formulations without classified compounds). Intended for various industrial coating applications, this offering is based on the Synolac®, Synocure®, Gelkyd® and Unithane® ranges.
-  **Photocurable resins** (100% solid), in which Arkema has long-standing and recognized expertise thanks to its subsidiary Sartomer, joint world market leader. These resins harden instantly under the effect of UV light and have a solvent-free formulation. They offer tailor-made high-level performance for metal, paper, industrial wood (furniture, flooring) coating applications in the building, automotive, electronics, cosmetics and packaging industries.
-  **Powder resins** (100% solid), such as ranges of bio-based Rilsan® polyamide 11 solutions for internal coating of water pipes and carrying industrial fluids (thermoplastic resins); or Reafree® polyester resins with a low curing temperature (thermosettable resins) for various architectural and industrial metal and wood coating applications.



Specialty Additives: small quantities, high added value

Added to formulations in small quantities, additives allow manufacturers to adjust the behavior and properties of their paints and coatings. Under the trademarks Coapur™, Coadis™, Ecodis™, Rheotech™, Viscoatex™, Thixo™, CrayVallac® and Orgasol®, Arkema presents cutting-edge expertise in this area, offering a strong fit with its resins: rheology additives, which act on the flow and leveling of resins, along with dispersants for pigments and mineral fillers, texturing, matting, anti-abrasion, leveling, sanding agents etc., able to meet increasing performance requirements and a wide range of specifications. Furthermore, thanks to the acquisition of Lambson in 2019, Sartomer has strengthened its position as a key player in UV technology, also offering a wide range of photo-initiators and the associated expertise. These additives turn light into energy for hardening UV resins formulated by our customers.

1. Volatile Organic Compounds



Key figures

€1.9 billion
sales in 2020

35 production sites

9 application laboratories
and technical expertise centers

2.6% R&D spend
(percentage of sales)

3% average organic
growth in 2020-2024



New capacity in 2020

Driven by average global growth of around 3.5% in the coating markets, especially in photocurable resins, high durability powder resins and waterborne resins, the Group is keeping pace with the rise in demand by means of regular investment. In 2020 alone, new capacity was launched at the acrylic monomers plant in Clear Lake (U.S.), the polyester powder plant in Navi Mumbai (India), the photocurable resins plant in Nansha (China) and the rheology additives plant in Chester (U.S.).

Numerous applications

With over 3,000 listed products, our resins and additives are used in the formulation of paints, inks and coatings intended for a wide range of applications, meeting extremely varied and exacting functional and regulatory specifications.



designing the future

Helping our markets find sustainable solutions

"The breadth of our offering of resins and additives, coupled with our expertise in all current technologies, allows us to help our clients, who formulate paints, inks and coatings, to find solutions that are more sustainable and environmentally friendly. In addition to eliminating volatile organic compounds, in which we go beyond regulatory requirements, we play a driving role in the major fundamental trends in our markets: the higher solidity of resins, lower curing temperatures and speed of implementation, which all help to improve energy efficiency. We are also at the cutting edge in developing formulations with a low level of fossil input thanks to the use of bio-based raw materials and a focus on the origin of the carbon used, both at our plants and at our suppliers."

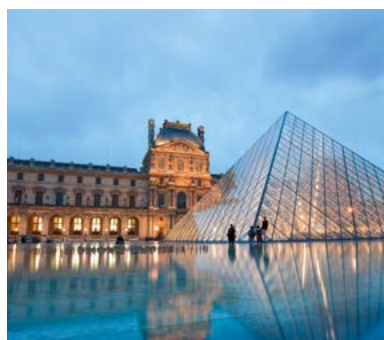
Jean-Christophe Leveugle, Global Director, Strategic Marketing, Coating Resins

Focus 3

/Kynar® PVDF/ Growth on all fronts for an exceptional material

Extreme durability, extreme resistance to chemicals, UV and fire, ease of implementation... Since its discovery in 1948, the exceptional properties of PVDF fluoropolymer have been used to enhance various applications. Marketed under the Kynar® name since the early 1960s and produced in Calvert City, Kentucky, it is now one of the leading growth drivers for Arkema, the market's world leader.

Thanks to an ambitious industrial strategy supported by a major innovation drive, the Group has made Kynar® products a powerful performance factor in key areas of the sustainable economy.

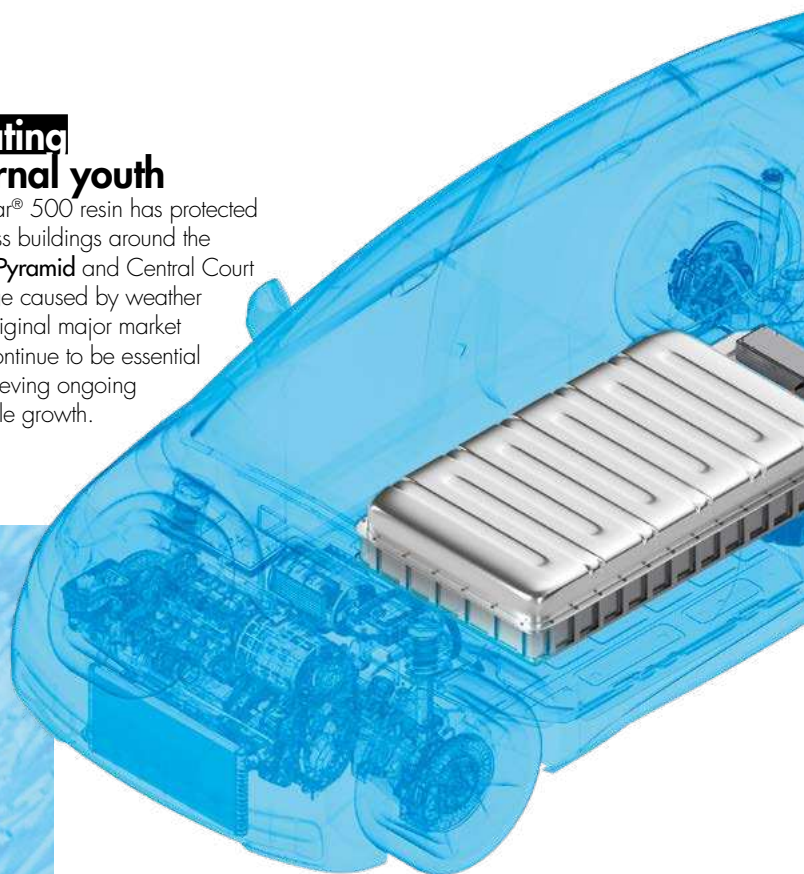


Architectural coating The secret of eternal youth

For more than 50 years, Kynar® 500 resin has protected the metal structures of countless buildings around the world – including the Louvre Pyramid and Central Court at Wimbledon – from damage caused by weather and pollution. This was the original major market for Kynar® products, which continue to be essential in the architecture sector, achieving ongoing and – importantly – sustainable growth.

Ultrafiltration for water treatment Kynar® products combat thirst

Mechanical ultrafiltration systems are increasingly being used in water treatment plants and in portable drinking water kits. These technologies incorporate PVDF filter membranes, for which Arkema supplies specific high-performance hydrophilic Kynar® grades. Other types of membranes, also made with Kynar® products, are used in the pharmaceutical industry for the filtration of active ingredients, an application that saw strong growth in 2020.



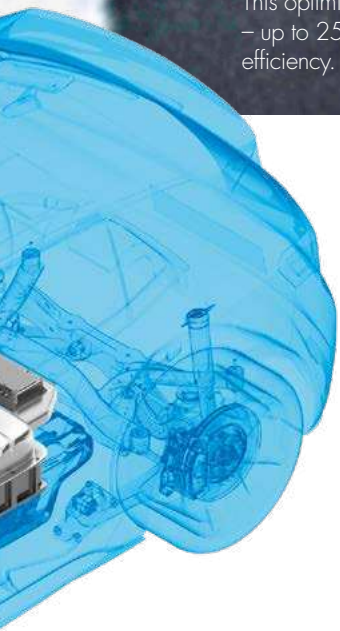
Li-ion batteries Central to the development of green mobility

The rise of electric vehicles is a major driver of the global R&D race to improve the performance of Li-ion batteries. Kynar® PVDF performs essential functions as a binder in electrodes and as a separator film (see also p. 30). This rapidly expanding field, which also includes batteries for smartphones, computers, drones and electric bikes, is now one of the most important markets for Kynar® solutions.



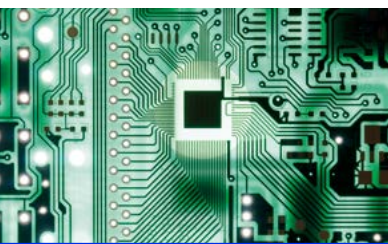
Cool roofing An environmentally friendly and innovative alternative to air-conditioning

Cool roofs – white roofs designed to reflect solar radiation and keep the interior cool – are fueling growing momentum in the climate change era. Based on Kynar® 500 PVDF technology, from which it gains its UV and soil resistance properties, Kynar Aquatec® is applied in a water-based paint as a transparent protective overcoat for white paint. This optimizes the longevity of white roofs – up to 25 years – as well as their energy efficiency.



And that's not all Semiconductors, solar panels, polyethylene and more

Kynar® products are a material of choice for high-stakes applications such as in **semiconductor** manufacturing, which requires the ability to move a liquid without affecting its purity, or in **the chemical and food industries** when transporting aggressive fluids. Kynar® products are also used as a protective film for the back of **solar panels** and as an additive for the production of **polyethylene**, for which it improves implementation and recyclability.



“Sales of Kynar® PVDF have seen very steady growth, from 6 to 7% per year. After the rapid growth in Li-ion batteries, all application markets are contributing to this positive trend, which was not affected by the health crisis in 2020.”

David Silagy, Europe General Manager & Global Fluoropolymers Product Manager

An investment strategy focused on sustainable innovation

Arkema is the world leader in PVDF and has production facilities on the three continents where the market for Kynar® products is growing, with plants in Pierre-Bénite (France), Calvert City (U.S.) and Changshu (China). “The Group has been rolling out an ambitious growth policy for ten years, supported by a consistent R&D effort for all key PVDF markets and a willingness to support our customers wherever they are,” says David Silagy, Kynar® Europe General Manager & Global Fluoropolymers Product Manager.

As a result, Arkema’s industrial capacity is growing. “We are conducting a very proactive investment program. Over the past ten years, this has resulted in an increase in our capacity every 18 months on average. The latest one took place at the end of 2020 with the start-up of a new line in Changshu, which has increased our capacity to serve the electric battery market by 25%. In early 2021, we announced a further increase in capacity for Kynar® fluoropolymers at Changshu, which is expected to start up before the end of 2022.”



designing the future

Focus 4

/ Sustainable glues and adhesives / Solutions and ideas from a world market leader

Number three in the global glues and adhesives market, Bostik's vision is resolutely centered on innovation and sustainable solutions, serving a large number of markets with ever increasing demands in relation to performance and environmental impact, in construction, packaging, various industrial and even hygiene products. Arkema's major subsidiary, backed by the Group's investment capacity, enjoys a solid position and robust growth in each of its fields.



Consumer & Construction

Through its well-known B2C brands, as well as brands for construction professionals (materials manufacturers, installers, etc.), Bostik's portfolio contains hundreds of **glues, caulks, sealants and technical materials** serving more sustainable construction all over the world (see p. 20). Its ambitious strategy is based on making buildings more energy efficient and getting rid of toxic compounds, and going beyond regulatory requirements, and this strategy was further reinforced in 2020 with two major acquisitions (see p. 21).



Durable goods

Structural adhesive in the automotive industry, railways, sailing and aviation; building sealing and waterproofing; assembly of electronics and batteries... Bostik has developed a very broad range of technologies and materials for all areas of industry needing **fixing or adhesive solutions offering a high level of added value and a long life span.**

The Group has an ambitious growth and acquisitions strategy (see p. 20) for buoyant markets, focusing on clean technologies such as specialty hot melt adhesives, in which it is now the world market leader.





Industrial adhesives: Investing in clean technologies in growth sectors

"Our Durable goods business, which accounts for over 40% of Bostik's sales, covers thousands of applications in transportation, building and assembly of manufactured products, from smartphones to car bumpers. We have a dynamic growth strategy supported by investment in 17 key technologies and vertical integration with other activities within Arkema, such as leveraging industrial synergies for certain materials, and integrating our sales and marketing approach to certain markets. This approach allows us to record solid growth in the most buoyant areas, such as vehicle batteries, in which we use seven or eight different technologies, building sealing and waterproofing (doors, roofs, double glazing, etc.) and even consumer electronics."

**Guillaume Desurmont, Senior Vice President,
Global Durable Goods, Bostik**



Bostik's role in a new world order for packaging

"Growing environmental concerns are reshuffling the cards in the market for packaging adhesives. The shift towards sustainable solutions—bio-based, compostable, recyclable etc.—is a fantastic development opportunity for our Advanced Packaging business, which historically controls 4-5% of the market. We offer serious advantages in addressing this challenge thanks to our very broad range of technologies and our recognized sustainable development innovation policy. We were the first to offer a polyurethane lamination adhesive that was certified compatible with the recycling of polyethylene (one of the most widely used plastic materials for food packaging); our Kizen® technology reduces the quantity of materials used for carton sealing by up to 20%; and we are developing a specific range of hot melt adhesives for compostable packaging.

These developments are reflected by significant improvement in our financial performance and robust volume growth in these highly promising segments."

**Richard Lelièvre, Senior Vice President Advanced
Packaging, Bostik**



Advanced packaging

Food packaging, labeling, stickers, cardboard boxes...

In the vast industrial packaging market, there is a huge need for adhesive and fixing solutions, often with very specific requirements, and evolving rapidly in line with new environmental standards. The sustainability and recyclability of packaging materials, use of bio-sourced and renewable adhesives, and compostable packaging are now central to what is expected by manufacturers and their customers. Bostik enjoys a strong position in these specialty markets, generating 4-5% of worldwide sales, and its innovation-led growth strategy will put it at the heart of this environmental shift in the packaging sector.

designing the future

Non-woven fabrics/hygiene

Diapers and other sanitary protection products are making steady progress in weight reduction, comfort and sustainability, with a growing use of natural materials, among other factors. Bostik is a leading partner for this vast, constantly expanding market, which is expected to grow by 20% over the next five years. Its hot melt adhesive solutions offer the key assembly functions that determine finished product solidity, consumer comfort and safety, and production machinery performance. Working with manufacturers all over the world, Bostik is continually improving its offering by optimizing adhesive quantities, helping its clients optimize the amount of substrate used and adapting its formulations to the surface chemistry of new bio-based materials (bamboo and cotton fibers, plastics made from cornstarch etc.).



Focus 5

/Rilsan® polyamide 11 / A 100% renewable success story

As fossil resources run out, the use of bio-based – and thus renewable – materials is becoming more important than ever for sustainability, both in industry and for the general public. In this respect, Arkema already has a considerable head start with its polyamide 11, and is the only manufacturer to have produced it for seventy years, which it does at its original site at Serquigny (France) using the seeds of the castor plant, a tropical shrub.

Rilsan® polyamide 11 is 100% bio-based and offers a very high level of performance. Its lightness, strength, temperature-resistance and ease of implementation are equivalent to or better than those of petroleum-based long-chain polyamides. This unique combination of qualities has ensured its growing success in many industrial applications, from cars to water pipes and even sporting equipment.

Automotive, oil & gas, water systems... The incredible range of Rilsan® applications

Rilsan® Polyamide 11, available in different grades, offers a high-performance, bio-based solution for a wide range of industrial applications. This 100% renewable polyamide goes from strength to strength!



Used for coating **drinking water pipes**, it is an alternative to stainless steel, which has a much greater impact in terms of CO₂ emissions.



In the automotive industry, the exceptional resistance to high temperatures of Rilsan® HT polyamide (135°C in continuous use) is making it increasingly popular with automotive suppliers as an alternative to metal and rubber in fluid transport applications in the engine environment.

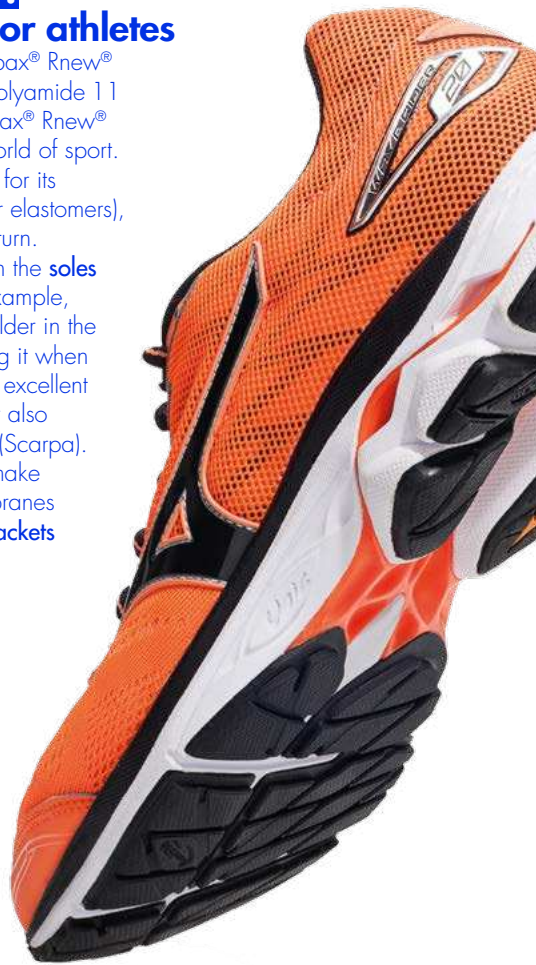
In the **oil industry**, it protects underwater pipelines – up to 2,500 meters in length, connected to offshore platforms – from corrosion.



Rilsan® products can be extruded into filament to make **textiles** used in sports articles such as NOSC-branded yoga clothing and the new 100%-recyclable Cyclon shoe from On Running (see p. 46).

**Pebax® Rnew® elastomer:
Bio-based performance for athletes**

Polyamide 11 is also used to make the Pebax® Rnew® elastomer. Obtained by combining rigid polyamide 11 “blocks” and flexible polyether blocks, Pebax® Rnew® elastomer is racking up successes in the world of sport. It is recognized by all major manufacturers for its lightweight qualities (20% lighter than other elastomers), impact-resistance, durability and energy return. This unique material has proved its worth in the soles of many football and running shoes. For example, Kenyan Brigid Kosgei, the world record-holder in the mixed-sex marathon category, was wearing it when she won the 2020 London Marathon. The excellent cold-resistance of Pebax® Rnew® elastomer also makes it a material of choice for ski boots (Scarpa). Some Pebax® Rnew® grades are used to make bio-based water-resistant breathable membranes for high-performance clothing such as ski jackets (Picture).



Recently, it has been developed to protect the inside of hydrogen fuel tanks, owing to its exceptional resistance to pressurized environments of up to 700 bars and to extreme temperature fluctuations.



Specific Rilsan® grades are increasingly used in electric vehicle batteries for cooling circuit coatings and electrical conduit ducts.



A transparent version, Rilsan® Clear, has also been marketed for several years to manufacture spectacle frames, smartphone covers and household appliances.



The excellent application properties of Rilsan® polyamide in powder form also make it a material of choice for various 3D printing processes (see p. 28).



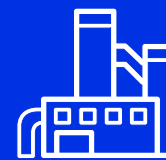
From sourcing to recycling, a material of choice for the circular economy

Life cycle analysis has found that the manufacture of polyamide 11 emits a total of 35% to 40% less CO₂ than its petroleum-based equivalent.

At the other end of its life, Rilsan® products offer genuine recycling opportunities, which the Group is working to implement with its clients under the Virtucycle program (see p. 46) before the end of 2022.

No. 1

ARKEMA IS THE WORLD'S LEADING CASTOR PROCESSOR



Production capacities

up 50%

by the end of 2021!

Arkema operates along the entire production chain, from the amino 11 monomer, made from castor oil, to polyamide 11, at its sites in Marseille, Serquigny (France), Birdsboro (US), Changshu and Zhangjiagang (China). In response to strong growth in Asia, our overall capacity will increase by 50% in early 2022 thanks to our new-generation factory at the Jurong Island site in Singapore. This is a major achievement, involving an exceptional investment by the Group of €500 million over five years, the largest in our history.

designing the future

Our materials offer essential improvements to help us ma

/Sourcing, processes, products/

The three elements of the **circular** economy

Faced with resource scarcity and the need to reduce our environmental footprint, the current model of the so-called “linear” economy – extract, produce, use, dispose – has reached its limits. Arkema plays a central role in materials processing and has made transition to the circular economy a major focus of its sustainable growth strategy. To drive this decisive development, the Group is taking action on three fronts. Namely, the choice of raw materials, seeking to promote renewable and recycled materials; the optimized management of resources during manufacturing at its sites, to become even more efficient and streamlined; and its range of solutions, with a strong focus on sustainable and recyclable applications.



PRIORITIZING RENEWABLE AND RECYCLED RAW MATERIALS

1

There is now strong market demand for solutions based on renewable raw materials, and this is increasingly a criterion of choice for consumers. Arkema is a pioneer in this field. Its 100% bio-based Rilsan® polyamide 11 has been an uninterrupted success for more than seventy years for a wide variety of applications (see p 42). It is produced from castor oil, of which Arkema is the world’s largest buyer. Castor seeds are grown by hundreds of small producers in Gujarat, India on marginal land not competitive for food crops, using techniques to minimize water consumption. In addition to the Rilsan® ranges, which account for 40% of the Group’s sales of products made from renewable resources, Arkema’s bio-based offering includes Sensio™ specialty surfactants, the Synolac® and Synaqua® resins for alkyd-based decorative paints, Vikoflex® epoxy plasticizers, and Bostik® hot-melt adhesives, to cite just a few examples. The Group now provides suppliers with an assessment of the proportion of renewable and recycled materials in the products it purchases.



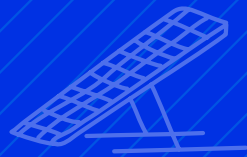
LIFECYCLE ANALYSIS: IDENTIFYING PRODUCT IMPACTS

To guide its industrial policy toward the most sustainable solutions, Arkema is engaged in a systematic process of lifecycle analysis (LCA). This scientific methodology consists of quantifying, for a given product, all the environmental impacts related to its production (raw materials, energy, emissions). Arkema provides this data at the request of its clients to enable them to calculate, throughout the value chain, the environmental impact of the products they bring to market. Within the Group, a team of specialists are working on this methodology, collecting data from both our business units and our suppliers. The project is growing rapidly, with the aim of covering 50% of the Group’s sales by 2023, and ultimately the entire portfolio.



2 WATER, ENERGY, WASTE PROCESSES: DOING MORE WITH LESS AT OUR SITES

For a manufacturer, the first step towards the circular economy happens at the factory level, through the selection and optimization of processes. Arkema has been rolling out two major transformation programs at its 147 sites for several years. “ArkEnergy” aims to reduce the Group’s net energy consumption by 20% between 2012 and 2030, and the “Optim’O” program has set a target of a 60% reduction in pollutant emissions between 2012 and 2030. The Group is taking action on different fronts, making technical improvements, working on operational rigor, involving all employees, replacing or adjusting certain processes, and implementing recovery loops and industrial integration. Arkema is also fully investing in a third rich seam of efficiency—the reduction and recovery of its waste and by-products (see p 47).



designing the future

3 OUR SOLUTIONS: SUSTAINABILITY AND RECYCLABILITY



Occupying a central position in the value chain, Arkema is leading the way for its partners and clients, designing materials and solutions that contribute to the emergence of a circular economy, reducing the amount of material used, extending the lifetime of clients’ finished products, and improving the separability of materials and components, as well as their recyclability and degradability. These approaches feed into the Group’s entire innovation policy and are reflected in one of Arkema’s five strategic innovation platforms, which is dedicated to natural resource management. Many of the Group’s solutions already contribute to this: Kercoat® and Opticoat® technologies triple the lifetime of returnable glass bottles, our Kynar® Aquatec coating provides hardwearing protection for reflective roofs while reducing air-conditioning requirements by up to 30%, and Cecabase RT® additives increase the amount of recycled aggregate in road asphalt by up to 15%. The issue of products’ end of life – and recyclability – now arises at the eco-design stage, which relates to the entire value chain, particularly suppliers, customers and other partners. Arkema, which has created a disruptive new product with its 100% recyclable Elium® thermoplastic resin, is now investing in the development of recycling processes and industrial pathways for its high-performance polymers (see p 46).



Focus

Taking a closer look at our products through the prism of eco-design and recycling

As a global specialist in high-performance materials, Arkema leverages its innovation expertise to create, in partnership with its clients, the industrial sectors that will enable these materials to be recovered in end-of-life applications and recycled.

With its Elium[®] liquid resin, the result of a long-term investment in R&D, Arkema has achieved a breakthrough in its progress towards the circular economy. This thermoplastic material combines lightness, mechanical strength and durability, opening up new prospects for recycling large composite parts. At the end of their life, they can be crushed and depolymerized at low cost, and the material can be reused as it retains the same properties. This property makes Elium[®] resin an increasingly popular alternative for major manufacturers in advanced fields such as wind power and aeronautics who are working with Arkema to industrialize recycling processes.

Future industries

In addition to this flagship innovation, the Group is taking a proactive approach with its clients and partners to create recycling channels for its advanced materials, such as PVDF and high-performance polyamides, which are the subject of the Virtucycle[®] program, launched in 2019 with Agiplast, a global specialist in polymer regeneration.

Cyclon helps the circular economy take a big step forward

Lightweight, stylish and designed for speed, the Cyclon shoe, launched by Swiss manufacturer On Running in 2020, is also the first in the world to be 100% recyclable. In fact, you don't buy them – instead, you rent a pair from the manufacturer, who takes them back once they're worn out! Eco-designed in partnership with Arkema, the Cyclon shoe is made entirely of Rilsan[®] polyamide 11, from the tongue and adhesive down to the sole. The entire shoe can be melted down and reused to make new pairs.



"We're working on a case-by-case basis, identifying sources of recoverable materials – starting with scraps and production waste at our clients' factories," says Noël Zylberfarb, Sustainable Offer Manager at Arkema. Different recovery models are being structured: "Closed" loops, where mechanically recycled polymers (grinding and purification) are re-introduced directly into production, and "open" loops in which Arkema sells on the market grades of polymers containing a proportion of recycled material.

Eco-design gains momentum

At the same time, we are paying closer attention to the design of finished products, which must incorporate circularity from the outset. "In order to promote recycling, one of the core elements of the circular economy, there is now a clear move towards single-material products where possible or, failing that, provision for separating the various components. And it is essential that the materials used, which include additives, coatings and adhesives, present no barrier to recycling or separation, but also that they contribute to it fully through their properties.

In particular, selecting materials free from hazardous substances is becoming increasingly important in terms of recycling," says Noël.

This shift toward the principles of eco-design calls for a real change of culture, which the Group is working to bring to its partners, and of course to its own teams. The already-famous Cyclon racing shoe (see opposite) is an excellent example of eco-design and virtuous partnerships, from the choice of raw materials to product end-of-life, supported by an innovative business model.



Arkema has developed a thermoplastic resin that means it is now possible to make fully recyclable wind turbine blades.



Bringing industrial waste into the loop

Downstream of its production processes, Arkema is always looking for ways to re-use waste materials and by-products in other value chains.

"In 2020, 35% of the Group's waste was already being recycled," explains Jean Morch, Vice President, Safety and Environment. "Nearly 140,000 metric tons are reused as an energy source during incineration, or as a raw material in another product."

Waste is inherent in chemicals manufacturing, and the waste generated by the Group – 400,000 metric tons last year – is a major source of value in enabling progress toward the circular economy. As a result, the proportion of recovered waste will increase further in the coming years. "We take a proactive approach to leveraging new sources of recovery and recycling wherever possible, and this will involve developing new partnerships," he adds. In particular, there is scope for progress in the processing of certain types of waste into products that can be used in other sectors.

Recovery sectors

For example, for several years, the sodium-containing water from the purification of a monomer manufactured at the Arkema plant in Mont has been used by industrial paper mills for the manufacture of craft paper and cardboard. In Lacq, the desulfogypsum produced during the treatment of sulfur residues is now used to manufacture plasterboard. In 2020, 14,500 metric tons of this product were reused and kept out of landfill. Similarly, the palladium in used secondary filters in the Jarrie (France) oxygenated water production lines is now recycled and used to manufacture one of the catalysts used by the site. "Since 2019, our circularity efforts have been coordinated on Arkema's sites and with Arkema's partners by a multidisciplinary working group of people from business lines, procurement, R&D and processes," says Jean. In the circular economy, (almost) nothing gets lost, (almost) everything is reused... as long as you put the effort in!

/Open innovation/ Working in networks to promote faster, better growth

Arkema is designing the materials of the future by creating targeted, collaborative projects involving multiple partners from an array of technology sectors. In the view of Denis Bortzmeyer, head of R&D partnerships, that's the only way to stay fully aligned with the market's needs.

We hear a lot of talk about open innovation. How does it work at Arkema?

Denis Bortzmeyer – Open innovation has always been part of the Arkema mindset. Our R&D is rooted in openness and collaboration. Public-private platforms for collaborative research are real catalysts where we can pool our resources, share the most advanced equipment and pool a wide range of expertise in complementary fields. We feel it's important to go out in search of "intellectual capital," and the growing number of high-level scientific initiatives that Arkema is forging with university researchers and major laboratories is really a reflection of that. Downstream, there's no substitute for collaborative projects with companies from large industrial sectors. Our major research projects — whether they involve composite materials, hydrogen, electronics, batteries or a host of other technologies — are all conducted alongside application partners, institutes, start-ups, SMEs or large corporations, all recognized for their expertise in their fields. In our view, bringing different ecosystems together is the best way to address each market's needs and bring projects to fruition, and hence to the market, more quickly.

In concrete terms, how do you go about setting up a technical partnership?

D. B. – There are several examples I could give. In France, in early 2020, Arkema joined forces with a start-up, Nexoon, and the M2P Technological Research Institute (IRT-M2P) in Metz to develop a new modular construction concept using components in composite materials. Arkema is providing its Elium® resin, which is the world's only liquid thermoplastic resin that can be used to make recyclable composites, while Nexoon is contributing its expertise in the construction of modular buildings. The IRT-M2P boasts incredible expertise and equipment for developing profiles using the pultrusion process. That same resin is key to another collaboration as well, aimed this time at manufacturing the first fully recyclable wind turbine blade. Arkema is tackling that challenge as part of the Zebra consortium (Zero waste Blade ReseArch), a top-level project led by the IRT-Jules Verne research center near Nantes; the consortium includes



leading manufacturers and tech centers (CANOE, Engie, LM Wind Power, Owens Corning and Suez). We're also forming collaborations of that kind in Asia and the United States, where we have a very active R&D operation.

How do you build sustainable development and ecodesign into your collaborative projects?

D. B. – For the past several years, the need for sustainable development has been a guiding principle of our innovation strategy. Companies like ours have some of the best records of commitment in social and environmental responsibility. Take Zebra, for example: that project dovetails perfectly with Arkema's policy of creating a circular economy for both its operations and its products. Recycling — and ecodesign more broadly, encompassing a product's entire life cycle — need to be our watchwords when we're developing new materials. Currently, more than 70% of our patents are connected in some way with sustainable development. Where our R&D efforts converge is their focus on responsible innovation that furthers Arkema's aim of providing solutions that contribute to the U.N.'s Sustainable Development Goals (SDGs).

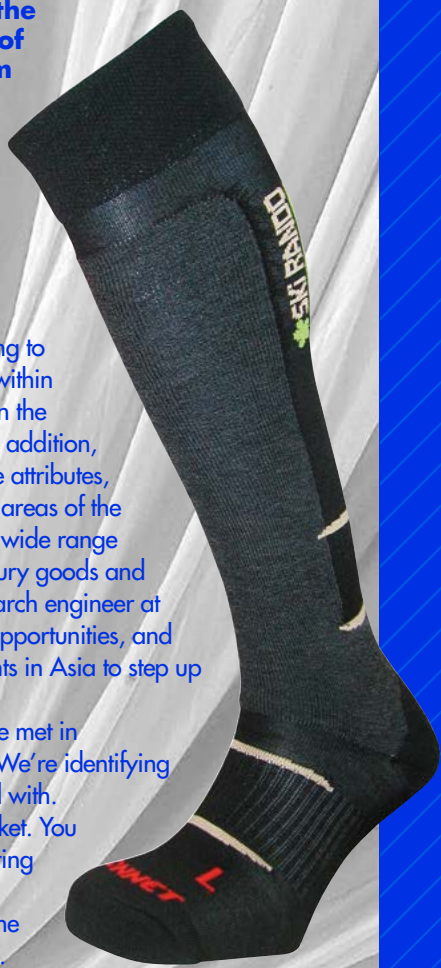


Stefânia Cassiano-Gaspar

Rilsan® polyamide 11 is finding new markets in the textile industry thanks to a web of expert partnerships

Our R&D team hopes to win over the textile industry to our Rilsan® line of specialty polyamides, derived from a unique process based on castor oil. It's a wonderful example of incremental innovation spurred by technological and industrial partnerships.

Originally embraced by the undergarment industry when it was invented more than 70 years ago, Rilsan® polyamide 11 is looking to broaden its horizons. "We want to diversify within the traditional textile market and capitalize on the value added by our bio-based polyamide. In addition, we want to show that, thanks to its impressive attributes, this product has a role to play in many other areas of the garment industry, just as it does already in a wide range of markets, from athletics to automobiles, luxury goods and more," says Stefânia Cassiano-Gaspar, research engineer at Cerdato. The market offers significant sales opportunities, and Arkema is making major industrial investments in Asia to step up its polyamide 11 production (see page 42). There's a formidable technical challenge to be met in incorporating a host of different processes. "We're identifying the right partners that we can learn from and with. Technically, it's an extremely demanding market. You have to master every stage of the manufacturing process, from extrusion and texturizing to weaving and dyeing, to make sure we give the right advice to our developers and customers. For the extrusion phase, for example, we were able to work on a pilot unit at the European Center for Innovative Textiles (CETI) in Tourcoing, France. That kind of partnership is ideal for giving us a better understanding of the transformation process and getting the most out of our polyamide 11, both from a manufacturing perspective and in terms of the quality of the thread, such as its recyclability and carbon footprint. Customers today are especially focused on those concerns."



Start-up Connect, to foster responsible innovation

Start-up Connect is a new global program, launched in late 2020, which invites start-ups specializing in advanced materials to approach Arkema about the possibility of special research partnerships in which they can capitalize on the Group's assistance and technological experience. By providing technical or financial support for these innovations, Start-up Connect serves as a strategic component of Arkema's growth inside a responsible innovation ecosystem. These start-ups can profit from Arkema's global reach, its exceptional knowledge of markets and applications, and its ability to develop a safe and competitive chemicals business. They also gain access to the scientific and technical resources at the Group's 15 R&D centers in France, the United States and Asia. This ecosystem is designed to encourage the pooling of expertise while promoting innovation and regional economic development.

designing the future



203

That's the number of patents filed by Arkema in 2020.

Those patents allow us to protect our know-how and expand our presence in the major disciplines targeted by our five research platforms — all of which bear on major challenges facing today's world: New Energies, Natural Resource Management, Electronics Solutions, Lightweight Materials and Design, and Home Efficiency and Insulation.



This interview was also prepared with Christian Collette, Arkema's R&D Vice President, who died suddenly of a heart attack on April 24. At the helm of the R&D division for fifteen years, he played a vital role in Arkema's innovation and growth policy, thanks to his vision and understanding of the world. But his impressive human qualities made him an exceptional person as well. We pay tribute to his memory.

/We want to involve all our internal and external stakeholders in our **corporate project** and we embody our values – simplicity, solidarity, responsibility, and performance – in everything we do.

Internally, our employees **are our strongest asset**, and we strive to apply our values and many programs to retain them, foster their development, and attract **new talent** around the world. We take concrete action to promote diversity, gender equality, career opportunities, and **quality of life** both in the workplace and for those working from home.

Externally, we are engaged in many philanthropic initiatives to support communities in relation to education, **the integration of disadvantaged young people**, and humanitarian projects.

Our expertise in materials science is based on a **vision of progress** that we want to promote as widely as possible./

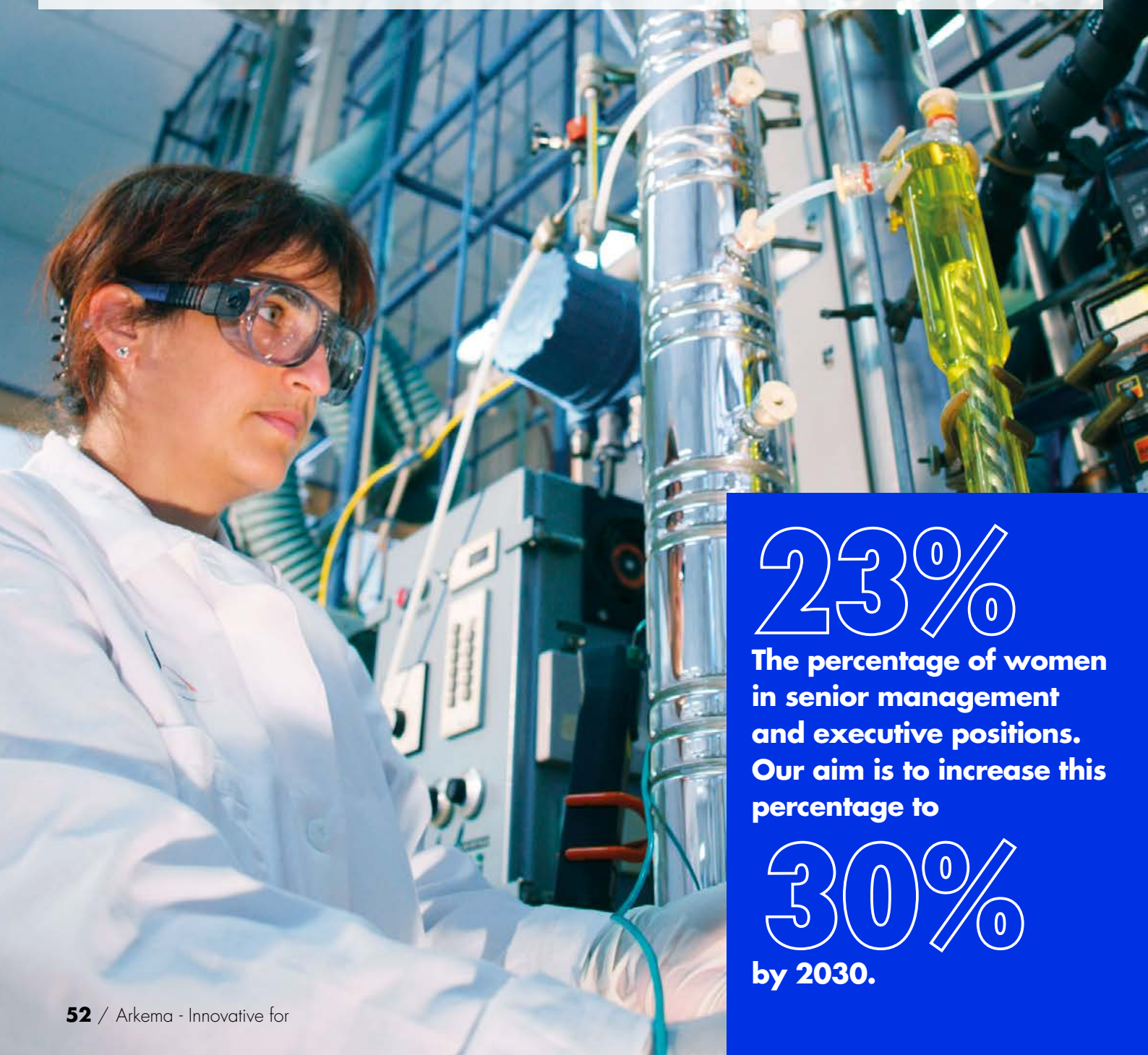


INNOVATIVE *for*
growing
our talents

Our expertise in materials science is based on a vision of

/Gender diversity in the workplace/
**Valuing the women
of Arkema**

Arkema continues to expand its policy to support the recruitment and promotion of women at all levels and in all regions of its operations, ensuring that its female employees enjoy the same career development opportunities as their male counterparts. It is committed to attracting and promoting female talent in an industry that is traditionally male-dominated.



23%

The percentage of women in senior management and executive positions. Our aim is to increase this percentage to

30%

by 2030.

"Do you feel you deserve to move forward in your career? Don't hold yourself back just because you're a woman." These words make you think. For Mélanie Jourdain, this is not just personal advice. The Vice President Group Talent has made this one of the core principles of Arkema's development. The École Polytechnique graduate joined Arkema in 2005, just before the spin-off, because "I wanted to experience an emerging group and watch it take shape." She has held a variety of roles over the last fifteen years, from development engineer to General Manager Fluorochemicals Europe, as well as positions in purchasing and strategic planning working with the Executive Committee. Throughout this time, she has always felt encouraged in her career in the organization. "The Group helped me realize that these positions were within my reach. More and more women are accessing management and executive roles in all our business lines. This is a global target and all our entities are on board." There are many examples of successful career paths in a company that is careful to ensure women have equal access to employment and the same career development opportunities as men. These core principles and those concerning equal pay form part of its non-discrimination charter.

Mélanie Jourdain,
Vice President
Group Talent

HELPING WOMEN TO GROW

The figures speak for themselves. Today, 25.3% of the Group's employees are women, rising to 34% among middle managers, providing a large talent pool for increasing the percentage of women in senior management roles to 30% by 2030. "We need to step up the pace as this is a societal issue and expectations are high," says Mélanie Jourdain, aware of the challenge that lies ahead. "With 20,600 people in the Group, we can't make it happen in two years. And we aren't looking to achieve numbers for the sake of the numbers alone. We want to get women on board because workplace diversity and the success of our female employees clearly help to drive the Group's performance." Researchers, engineers, technicians and operational staff, in support functions or highly operational roles, women are everywhere and are doing every bit as much for the company as their male colleagues.

Alan Tan,
Chief Human
Resources Officer,
Arkema Greater
China

A KEY ROLE IN IMPROVING PERFORMANCE

Reducing inequality also means combating stereotypes and creating the conditions for a discrimination-free environment. Arkema pays very close attention to this, particularly in the United States. "We have launched the *Respecting the workplace* campaign to raise people's understanding of rules of good conduct, such as not saying 'Hi guys' when addressing a group that includes women. Little things like this that are not meant badly can nevertheless give offense," stresses Sandra Auffray, Arkema's Vice President Human Resources for the United States. "We've also extended the principle of safety shares, used at the beginning of meetings to remind people of basic safety practices, and we now also have diversity shares. Everyone, male or female, is welcome to share their experience." Women's networking has been around in the United States for a long time and has been adopted by the Group. Arkema's US branch has launched "Women@Arkema," a close network of women who meet up for mutual support and to further their careers. "The feedback is excellent. It's become a valuable in-house tool," explains Jennifer Trolley, Senior HR Manager at Sartomer Americas. "We also actively support women interested in our mixed leadership Development program, which helps them assert their management potential. Increasing numbers are taking part in this program that can set up tomorrow's female leaders," she observes. "Hiring women at the highest level sends out a strong signal," confirms Sandra Auffray, citing the recent appointment of Samantha Hollingsworth Davis as CIO Americas.

Sandra Auffray,
Arkema Vice President Talent Management
for the United States

In Asia too, female talent is being encouraged. "Arkema China has a good number of women in management roles and many in executive positions. The proportion is higher than at the Colombes head office or in the United States," explains Alan Tan, Chief Human Resources Officer for Arkema Greater China. She stresses the importance of adopting inclusive practices at the recruitment stage. "We highlight the gender balance during campus visits. When presenting our strategy, we remind people that this is one of our key goals for the next five years. Some jobs attract mostly men. Our aim is to do all we can to get more young women to apply to them. We have many success stories in this area."

ALL OVER THE WORLD, WOMEN ARE TELLING THEIR STORIES

“The fact that Arkema is committed to developing workplace diversity at all levels of the company is absolutely essential for me. A lot of research has been published about prejudice against women at work. Fortunately, Arkema has adopted an organizational strategy that combats these difficulties by creating a comfortable working environment that helps women gain confidence. The women I have worked with at Arkema are strong, passionate, intelligent and inspiring. I am proud to work for an organization that invests in female talent and gives them the means to progress and flourish in their careers.”



Michelle Walasavage,
Process Development
Manager, King of Prussia,
Arkema United States

“Women have many options

for an enriching career at Arkema. During my 23-year career, I think that I’ve had access to the same development and promotion opportunities as my male colleagues. As a mother to young children, I’ve also enjoyed a good work-life balance. Of course, there are still obstacles to be overcome, so Arkema’s commitment to increasing the proportion of women in management roles really counts. Women need female role models they can identify with in a sector that is traditionally dominated by men. It’s important to work on creating more inclusive environments for women and other minority groups. I would advise any woman to take charge of her own career and take every opportunity to demonstrate her leadership skills, talk to her manager about her interests and aspirations, and build her networks. There are a lot of amazing people at Arkema who can help you achieve your goals, but they can’t help you if they don’t know what matters to you and where you want to go.”



Shasta Bondarev,
Maintenance &
Reliability Engineer,
Arkema United States

“Gender balance is a subject that is close to my heart,

even though I’ve never experienced any discrimination or been held back because I was a woman, even in roles in production, where men are in the majority. I don’t like talking about male jobs because I don’t think that there are male and female jobs. Even before this became so structured and visible, I think that Arkema has always wanted to focus on people, regardless of gender.”



Marianne Barbier,
Head of Product
Quality and Control,
Arkema Asia

progress that we want to promote as widely as possible.

**Lin Qi, Process Engineer,
Kynar® Changshu plant,
Arkema China**



"I recently joined the Group as a young graduate engineer. Arkema is a diversified company with plenty of career development opportunities. I've already been able to take on various roles within the company right from the start. Gender balance and diverse backgrounds in general create added value. They make teamwork more effective on a day-to-day basis. I feel that as women, we need to show a lot of determination and pragmatism. But whether you're a woman or not, I think that everyone needs to be able to find their place within the organization on the basis of their skills and their ability to contribute to the company's overall success. At Arkema, I really feel we have the same opportunities as my male colleagues."



**Jina Wu, Business Director,
Tape and Label Asia-Pacific, Bostik**

"Arkema is highly representative of big groups wanting to take on more and more women to turn them into senior managers in their organizations. I've always had an ambition to move into positions of responsibility. I like new challenges. Arkema has completely allowed me to take on major roles. I joined the Group as Human Resources manager for Bostik in China. I was then appointed director of the Arkema plant in Guangzhou, before taking on the position of Commercial Manager for the Asia-Pacific region. Arkema in China offers highly structured talent development programs. I have been on leadership development training programs. This is a really effective way of retaining talent and leveraging stable and more effective organizations."

**Sophie Chhun, General
Assembly Director (Durable
Goods BU), Bostik Asia Pacific,
Bostik Singapore**

"Pushing someone along a particular career path

just because she's a woman doesn't serve her or the company. I think Arkema has a more appropriate approach, which is to support women by recognizing their skills and personalities, while also factoring in their specific constraints. In my case, for example, I've taken parental leave, and I was lucky to have plenty of support. HR and my line managers were proactive in finding me a job at the right time that matched my profile and my career development aspirations. Supporting women by de-dramatizing this period of absence from work, which is not always easy to manage for the company or for women's own careers, is one of the best ways of helping them."

growing our talents



WOMEN'S MENTORING: PAVING THE WAY

In Homer's *Odyssey*, Mentor is the wise and benevolent counselor to Telemachus. Within Arkema's women's mentoring program, a mentor is a manager who wants to use his or her experience to help talented women reveal their potential and succeed within the company. Our female employees take part in this innovative approach to professional and personal development on a voluntary basis. A mentorship lasts for one year, but pairs are encouraged to stay in touch and ensure that the mentees maintain their contacts and grow their professional network. Since 2018, more than 70 mentoring pairs have been put together and the scheme has been a resounding success. In terms of numbers, during the first three sessions, the transformation rate (progression in job level or change of position within two years) was 86%. The mentees report that this approach has allowed them to consider career paths they had not thought of or which seemed out of reach. They also say that they have come out of the interaction with better overall knowledge of Arkema and how it works. "What we have also noticed," comments Caroline Bastien, General Manager and sponsor of the program, "is how much both mentors and mentees appreciate the informality, with no HR, no management, involved in this dedicated time. This creates a sense of freedom that is needed when addressing subjects like work-life balance, for example. The relationship also provides mutual enrichment, as this direct and candid exchange gives mentors new insights that can prompt them to rethink their practices."



**Caroline Bastien,
General Manager
and sponsor
of the women's
mentoring program**

"Our mentoring program

relies on volunteer managers who want to use their experience to help talented women reveal their potential and progress within the company."



**Mégane Dimey, HSE Engineer,
Feuchy plant in France, mentee**

"I had the welcome surprise of being invited

to take part in the mentoring program. At the age of 26, I was wondering about the various career development opportunities at Arkema. I find it very useful and reassuring to be able to speak freely and in complete confidentiality to a mentor with a great deal of experience. This has allowed me to reach higher and block out time to think about my career plans. Without it, I would have remained immersed in my day-to-day role at the plant. It's also the chance to build up a network of mentees in different jobs from mine. When I told a male colleague that I was on a mentoring plan, he asked me how he could apply. I replied that the program was just for women. The program shows that Arkema very clearly values the role of women within the Group. Arkema is really serious about inclusion."



progress that we want to promote as widely as possible.

/Cultural diversity in the workplace/ **Talent without borders**

Arkema was originally a French group but now has a strong international presence. It attaches huge importance to respecting diversity within its teams. The company intends to facilitate exchanges between countries, develop cultural diversity and allow local talent to grow in management and leadership roles.

41%

**This is the percentage
of non-French nationals
working in senior
management roles at
Arkema worldwide.**

**Our aim is to achieve
at least**

50%

**by 2030 by means
of diversified recruitment
and internal promotion.**

growing our talents

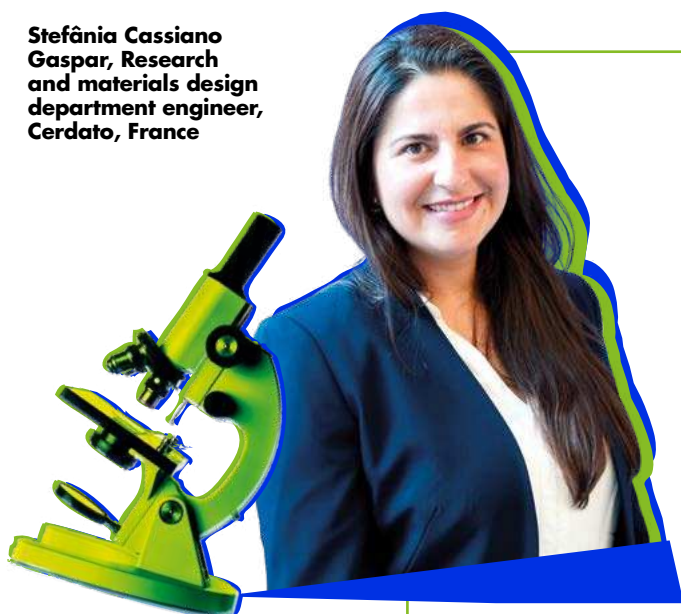
IN THE UNITED STATES, INTERNATIONAL CULTURE IS ESSENTIAL

For Sandra Auffray, Arkema Vice President Human Resources for the United States, this is clear: "The international aspect and diversity form an integral part of our culture. This is particularly true in certain business lines such as R&D, where talented people from all backgrounds work side by side." With a solid grounding in the practices of the US branch, mentoring – which involves a mentor (senior manager) and a mentee, with the former encouraging the latter to develop outside a conventional management relationship – "allows people with potential to grow while also acquiring a more international culture." Other programs exist such as the Leadership Development Program, which encourages staff to solve problems and push themselves to implement their solutions. "One of the program's winning teams," continues Sandra, "is launching an online platform to promote diversity and inclusion, coordinating several groups to document the diversity of employees at all our sites. Three years ago, we also launched a program to promote an international approach in order to reduce certain cultural disparities. It consists of getting one of our business units or departments to work together with its counterparts in other countries on a specific issue or project. This provides an excellent platform for dialogue, which is often the source of great discoveries."

CHINA ENTHUSIASTICALLY ADOPTS INTERNATIONAL MENTORING

Arkema's Chinese branch has discovered international mentoring with a great deal of interest. "Our mentees are ultra-motivated. The experience of mentees at head office or in the United States encourages them to look ahead to their future career. It's also a good way of breaking down cultural barriers and preconceptions," notes Alan Tan. The Chief Human Resources Officer for Arkema Greater China adds, "It should also be stressed that we have a lot of French and American expats in technical and management positions. They are well integrated into the organization, to the extent that some speak Chinese better than the Chinese themselves!"

Stefânia Cassiano Gaspar, Research and materials design department engineer, Cerdato, France



A FRENCH WOMAN IN ASIA



Marianne Barbier, Head of Product Quality and Control, Arkema Asia

"I started out at Arkema working in a plant, first in production, then in health and safety, environment, quality and logistics, before joining the Group's head office in Colombes in the polyamides supply chain. I've been based in China for ten years as product quality manager for Asia and the High Performance Polymers business unit. This broad experience has allowed me to build bridges between various roles, from production to client relations. I've always been well supported by Arkema. I've had career development coaching, a women's mentoring program and help with transfers. I needed that reassurance before moving to China as an expat. I had to wait for the planets to be properly aligned and find the right job in the right place at the right time. I wanted to tackle other ways of working, test my limits and break down barriers in order to continue to grow. This is both a breath of fresh air and a way of questioning things that gets you out of the slightly narrow framework of a purely French career path, even though I'd already had the opportunity to work with other cultures in a position in Europe. What I am most proud of today is having put together a solid team that is able to listen, is highly professional and recognized by the entire business unit. I've recruited four talented young people, three of whom are young Chinese women. Together, we are pleased to play a part in the recognition of the quality and performance of Arkema's products in Asia."

A BRAZILIAN IN FRANCE

"There are lots of different lives in a career. I came to France in 2007 as part of a joint degree between my university in Brazil and the École Nationale Supérieure de Chimie in Montpellier. I was very interested in materials, and went as far as completing a PhD thesis in France at the Institut Français du Pétrole Énergies Nouvelles in Lyon, in the field of ceramic membranes for heterogeneous catalysts. I then turned to specialty polymers and joined Arkema, which is recognized as one of the world's leading names in this field. In seven years at Cerdato, I've never had two years the same. There's always a new story to write. I love that multidisciplinary aspect just as I love being able to talk to my colleagues all over the world. This wealth of subjects, jobs and cultures is fantastic. I don't rule out going back to Brazil, as Arkema has industrial and commercial activities there."

progress that we want to promote as widely as possible.

SINGAPORE: PRESENCE BASED ON LOCAL STRENGTHS

A world-class Arkema plant dedicated to 100% bio-based Rilsan® polyamide 11 production, is soon to be opened on the Jurong Island platform in Singapore. This major project – the biggest investment in Arkema’s history – is accompanied by a large-scale on-site recruitment program. Matthieu Zône, Human Resources Director Asia-Pacific (excluding China), tells us about this facility, which draws on talent and the local ecosystem.

“First, we put together the local management team,

which is closely involved in the recruitment and onboarding of around 150 employees at the future site. Most will be Singaporean citizens or permanent residents, and around one third of the future plant’s management team will be women. So we want to make sure that the final pick reflects Arkema’s diversity policy. We talk extensively about the Group’s values during interviews to see whether applicants are receptive or not. We are also preparing for the future. For local managers, we aim to select applicants we believe have the potential to move into positions that will initially be held by expats. Newcomers will join a highly structured training program based on our procedures and our culture, with a focus on safety. Recruitment is carefully timed to allow us to roll out this training program. The project phase involves around twenty mostly French expats, who are in charge of passing on our industrial know-how.

Training employees and commissioning the plant will also involve other colleagues of ours, chiefly from the Marseille plant, who will be in charge of producing the amino 11 monomer. Some will come from Singapore, while others will receive employees from Singapore on site for field training. Arkema’s aim is to foster and grow talent everywhere the Group operates. In Asia, we have the critical mass to offer career prospects for all these talented people. This is a central factor making the company attractive and one of the keys to our performance. There’s something rather wonderful about all the positive energy released by a project like this and the enthusiasm of those who join us on the adventure.”

Mathieu Zône,
Human Resources
Director Asia-
Pacific (excluding
China)



Florence Lie Siew Ming,
Human Resources Manager,
Singapore

Paul Wen, Senior QEHS
Quality, Environment,
Health and Safety
Manager, Singapore



“I am Senior QEHS Quality, Environment, Health and Safety Manager

for the future plant. It wasn’t a given. I had to go through four recruitment interviews. But I really wanted to be part of the adventure of this new Arkema plant! It’s an exciting project. The Group has a rapidly expanding portfolio in the Asian market and a focus on corporate social responsibility excellence. For me, of course, it’s important to hire people locally, as Singapore’s multicultural labor force is skilled both academically and professionally. The training program has been customized and structured according to my needs, with in-depth consideration of my future role. The fact that the site will produce bio-based materials is particularly motivating for me, both as an HSEQ professional and as a citizen of our planet.”

“Being there when the plant is built is a unique opportunity.

The new plant is very attractive. It’s a greenfield site, and then there’s the Group’s global profile, and everything related to Arkema’s image, values and products. All this is really exciting. I’ve been a permanent resident of Singapore for 25 years, and I’ve always worked in chemicals. My contribution is knowledge of the local job market during the recruitment phase. To begin with, I try to attract the best applicants in a highly competitive environment and onboard them in the given time to ensure a smooth launch. When I’m inducting the teams, I have to align them with local regulations and the company’s policies. As an HR professional, I’m proud to work for an organization with a staff turnover rate of less than 5%, which illustrates the extent to which the Group is able to engage its employees.”

growing our talents



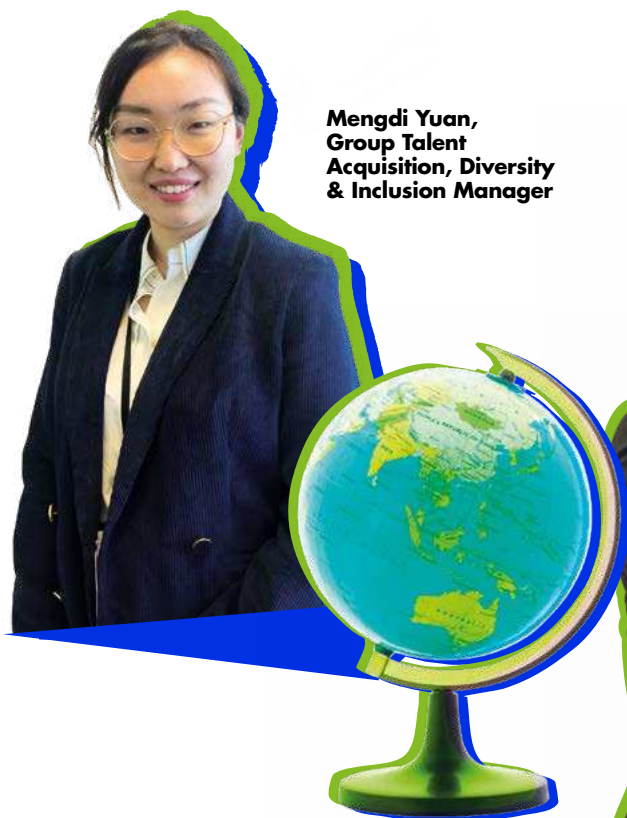
INTERNATIONAL MENTORING: IDENTIFYING AND SUPPORTING EMPLOYEES WITH POTENTIAL... WHEREVER THEY ARE

An international mentoring scheme reinforces the visibility and diversity of young talent at Arkema all over the world. This is a valuable tool to help them make the most of their potential and prepare the leaders of the future.

“Talent has no age, gender or origin.”

But how do we make our men and women with potential, from all countries in which the Group operates, more visible and help them to grow in order to foster diversity within management and executive roles? This is one of the core focuses of Arkema’s HR policy. “We want to create a breeding ground for young talent in all areas and in all our business lines...people who aspire to rise through the Group, including outside their country of origin,” confirms Mengdi Yuan, Group Talent Acquisition, Diversity & Inclusion Manager.

International mentoring allows talented people outside France selected by the HR departments in different countries (China, Japan, South Korea, Singapore, India, New Zealand, United States, Mexico, Brazil, Argentina, Germany, United Kingdom, Russia and the Netherlands) to be supported by mentors who are senior managers or heads of business units and corporate functional departments. Eleven mentoring pairs were put together in 2020, and nineteen in 2021. “They’re all volunteers about halfway through their careers, with a successful track record to date. We have mentees in countries where Arkema doesn’t necessarily have a very strong presence, many of whom have questions about their career development prospects. In these countries, mentors, often with extensive international experience, can provide visibility and help them to expand their network.”



**Mengdi Yuan,
Group Talent
Acquisition, Diversity
& Inclusion Manager**



With operations in

55 countries,

Arkema generates 36% of its revenue in Europe (including 10% in France), 32% in North America, and a similar amount in Asia and the rest of the world. These figures attest to the Group’s ability to develop well beyond its origins, spurred by the collective energy of its 20,600 employees.

**David Silagy,
Kynar® General Manager, mentor**



“The international mentoring program is a unique opportunity

to be able to talk openly and honestly about your own experience, and to get to know a talented young person in another country whom you otherwise might not have met. It allows you to contribute to someone’s development and help them reveal their potential.

The program helps us to diversify the workforce by improving the gender balance and attracting people from different countries and cultures. We have a very clear ambition and need to ensure we have the means to achieve it. Change is not a given; it needs to be brought about and this program helps make that happen.”

AT THE CROSSROADS OF TALENT

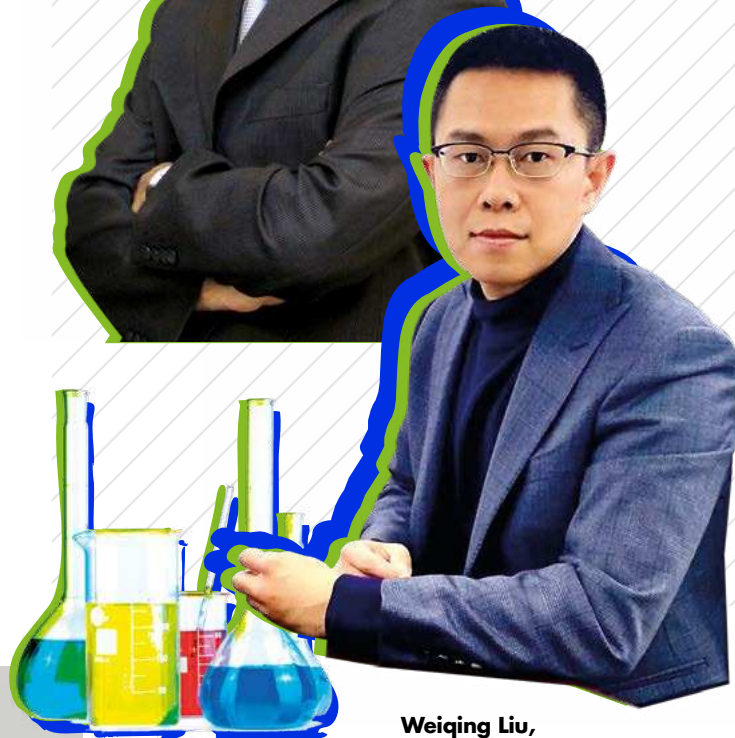
The Research & Development Center (CRDC) is based in Changshu, China, and is Arkema's biggest industrial platform in the world. Its French manager, Denis Bortzmeyer, handed over to Weiqing Liu, who is Chinese, in 2020. They tell their stories below.

“Weiqing joined CRDC in 2012 after completing his doctoral thesis in France.

He was there from the outset, holding management roles at CRDC and in business units. He was the obvious choice. Our HR officers helped to draw up a succession plan, setting up a training and coaching program to give him the right tools. In terms of managing the handover, there can only be one boss, so once responsibility for safety and people management has been transferred, the successor is in charge. But he can only do that by taking on the entire role. In general, I think it is vital that Arkema has this kind of promotion policy. We can't have a glass ceiling that reserves management roles for the French. We need to use talent from all our sites...men and women who have become part of Arkema's culture, developed their network within the company and demonstrated their loyalty. Once these criteria are met, it's very important to show them that the way is open for them.”



Denis Bortzmeyer,
former Manager of CRDC,
Head of partnerships
in the research and
development department



Weiqing Liu,
Manager of CRDC



“I'm very proud that people have put their trust in me

and to be able to follow in Denis's footsteps, because I see him as a consummate professional. My promotion had a very positive impact on my colleagues, 95% of whom are Chinese. It's a clear sign that Arkema recognizes individual commitment and performance. This is particularly important within the local context, which has been characterized by a high turnover rate. Of course, I feel pressure taking on this new role, particularly about being responsible for the safety, development and well-being of around sixty employees. The fact that I'm Chinese is an undeniable advantage in terms of people management and closer ties with local partners, businesses and universities. Having a Chinese person in charge of R&D – which few of our peers do – also shows that Arkema is serious about investing and expanding in China in the long term. This is a very persuasive argument for many of our business partners.”

Our expertise in materials science is based on a vision of

/Attracting talent/

Attracting talent and sharing our values

Even though they are still a significant factor in determining a company's attractiveness, the level of pay and material benefits are no longer enough to attract applicants and retain staff. Career prospects, the quality of the working environment, work-life balance, values, action on ecological challenges, diversity and inclusion are all part of the winning combination. Arkema offers all these to enhance its human capital and capture young talent.



progress that we want to promote as widely as possible.



"83% would recommend Arkema to a friend." This is from an index, published on the Glassdoor online job and recruitment platform where current and former employees rate their company. Good news for Raphaële Grivel: "In a tense job market where the employer brand is becoming increasingly important, these unfiltered recommendations represent a very well-regarded indicator for judging our attractiveness. Having a good score is a real advantage for future applicants," observes the Head of HR for France. It is a sign that a company's reputation is not just based on their corporate messages but also and above all on what employees, new graduates and students think of it. "We listen to the opinions of the younger generations who have grown up with social media, and that helps us to work on our weaknesses and build on our strengths."

AN INNOVATIVE, STRONG PERFORMANCE AND ATTRACTIVE INTERNATIONAL GROUP

When asked about Arkema's attractiveness, Alan Tan, Head of HR in China, confirms that the company "enjoys an excellent image among young graduates thanks to our strengths, namely sustainable development, technological leadership and the attention paid to our employees." The same can be seen in North America, where Sandra Auffray, Vice President Human Resources, mentions other attractions such as "a rich product portfolio, good financial stability and an ambitious CSR policy." Working for a socially responsible company has become one of the top criteria for applicants, who are increasingly mindful of a company's culture and values. Other criteria such as the quality of the working environment, work-life balance, respecting diversity and inclusive principles confirm this major paradigm shift.



**Raphaële Grivel,
Head of HR
in France**

"CONTRIBUTE TO THE MAJOR CHALLENGES THAT WE ALL NEED TO ADDRESS TOGETHER."

"With over 200 business lines, Arkema can offer you a wide-ranging career path according to your personal qualities and aspirations, in line with the organization's needs. We are also recognized for our areas of expertise and our efforts in promoting the best candidates for the development of new materials, more effective procedures and more sustainable solutions," stresses Mélanie Jourdain, Vice President Group Talent. "We tell potential applicants: join us so that you can contribute to these major challenges that we all need to address together. We need the best to make these changes happen. There are great opportunities for the young graduates who join us. It's our job to help them set off on this adventure."

growing our talents





Arkema makes a name for itself in the HR rankings

In 2020, Arkema excelled in a number of HR rankings compiled by magazines and international institutes. These rankings attest to the company's attractiveness and also reflect how well perceived the company is by its employees, trainees and students. It is also a recognition of the Group's efforts in human resources management.

- In 2020, **Forbes** ranked Arkema 259th among the "World's Best Employers" and 14th out of the 46 French companies.

- Arkema was included in the **Financial Times' Diversity Leaders**, recognizing the performance of 850 international companies in diversity, balance and professional inclusion, and scored 7.08 out of 10.
- In France, Arkema has a recommendation rate of 83.3% in the **Happy Trainees** rankings of the best-performing companies by **ChooseMyCompany** for onboarding, support and management of interns and trainees on work-study programs and VIE international internships.
- Also in France, Arkema is one of the top 20 best-perceived employers in the Oil and Chemicals sector, according to *Capital* magazine.



Mélanie Jourdain,
Vice President Group Talent

"There are great opportunities for the young graduates who join us and amazing challenges to take on. It's our job to help them set off on this adventure."



progress that we want to promote as widely as possible.



Introductory seminars: rituals for exchange and discovery

In France, webinars held remotely because of the health crisis have enabled dozens of young trainees and interns to go further and more quickly in learning about Arkema. "Whether they've chosen to become a production operator, prepare for an engineering degree or move into the support functions, they get to meet at these events. Allowing these young people to mingle reflects our values," emphasizes Alexana Terrade, head of recruitment and university relations. These beginners also need confidence to imagine their futures at Arkema. "If they meet expectations, we definitely want to keep them once they graduate. They are an incubator for future talent." These sessions also provide an opportunity to meet Arkema ambassadors – employee volunteers who discuss their career paths and jobs. That includes people like Jérémy Assayag, 32, responsible for strategic analysis and development projects in the thiochemicals sector. "Our Group has many talented engineers and chemists, but we also need finance, business and marketing specialists. It's important to show young graduates that all types of people have a role to play at Arkema. I've had a lot of feedback from students on LinkedIn saying that they're really interested in my assignments. It's fantastic to share this and, maybe, help them find their dream job."

"Our Group has many talented engineers and chemists, but we also need finance, business and marketing specialists. It's important to show young graduates that all types of people have a role to play at Arkema."

Jérémy Assayag,
Head of Strategic Analysis
for Thiochemicals
business and ambassador
for our trainees



growing our talents



WHAT OUR **TRAINEES** HAVE TO SAY

“I alternate between studying at university and working at the company. It’s the perfect way into the workplace. I can get in at the deep end, really explore the subject matter and meet the people involved in chemicals today. I’ve been lucky enough to be in touch with dozens of Arkema employees all over the world. It’s incredibly rewarding. For me, a successful transfer mostly means feeling useful and seeing that you’re not just there to do the work that no one else wants to do. At Arkema, I was offered real assignments with real goals. They let me get on with it by myself. They also gave me room to approach other people, and that’s important in tapping your potential. Here, they expect junior members of staff to come up with ideas. Even if an idea is not taken up, it encourages you to step forward. Arkema is keen to listen to younger generations to find out what they think about methods and management. This is also how you can stand out yourself, provide added value and seize the opportunity to go further with the company.”

“I’m on a work-study contract at Arkema as part of my International Business diploma at the Sorbonne University in Paris. I didn’t qualify in chemistry, so I didn’t know much about the sector before realizing that Arkema’s materials are part of our everyday lives. Its innovations are closely linked to sustainable development. This is particularly motivating when you’re 24, like me, and I also really identify with Arkema’s international dimension. I have dual German and Spanish nationality. I like feeling connected to the world. I find that mindset at Sartomer, where I’m in charge of export clients. My onboarding went really well. Demands were high but people were very supportive. I didn’t expect to be given responsibility for a client portfolio so quickly but I like being challenged and not just doing jobs to order. I have direct contact with dozens of clients in Switzerland and Germany. I help sales staff. I track orders. I work on my own, which shows the trust the company and its employees have in me, and really helps me to learn and move forward.”



Romane Cuq,
CSR project
manager
trainee

Omar Neggaz,
research
technician
trainee

“I started out as an aircraft structure fitter-assembler at Airbus Nantes, in France. I then decided to go back to university and take a Master’s degree in Chemistry at the Sorbonne. At the age of 33, I’m currently on a Professional Master’s degree course and also working at Arkema’s R&D center in Verneuil-en-Halatte. I’m part of the Additives team, where I’ve got good managers and my work consists of carrying out experiments and tests to clarify gray areas and gain a better understanding of our products and their manufacture. My team is really proactive and helpful, and my managers are real leaders. The HR department suggested that I take part in an onboarding webinar, which gave me a better grasp of the various bridges between different areas and units. For example, you see people working in production with options for moving into business roles. I’ve been assigned to a project that gives me the opportunity to specialize in powders as well as several analytical methods and processes. I’m also lucky to still be in touch with one of the speakers on the onboarding program, Rabi Inoubli, R&D engineer at the Lyon research center, and that contact is a source of valuable advice for doing my job and finding my future career path.”

Samira Monn,
export clients
manager trainee



progress that we want to promote as widely as possible.

SUCCESSFUL HANDOVER... ON LAND AND AT SEA

A lot of water has gone under the bridge since Quentin Vlamynck, the new *Arkema 4* skipper and the youngest in the Multi50 class, enjoyed his first family sailing outings on the lake of Biscarrosse. Still passionate about sailing regattas, he was studying at the Plastics and Composite Materials faculty at the Lycée Polyvalent de la Mer in Gujan-Mestras in September 2011 when he met skipper and entrepreneur Lalou Roucayrol, who was attending a conference. They hit it off. Quentin started a work-study program at the *Lalou Multi* boatyard. Ten years later, they still make a great team and there's no doubt that Quentin is getting ready to take the helm one day. A wonderful example of mutual trust and the handing down of knowledge.

"When I joined the *Lalou Multi* team, I had everything to learn.

That was what interested Lalou, being able to train me and pass on his view of the work and sailing. When I arrived, the *Arkema 1* trimaran was being built. Next came the *Arkema 3*, the first 6.50m prototype made from Elium® recyclable thermoplastic resin, and *Arkema 4*, the new trimaran bursting with innovation. Being a member of the construction team was completely part of the job. Having that permanent contact with the boatyard is both enriching and humbling. Sailing is the cherry on the cake. At each stage, there are different responsibilities. Lalou has always been available. He passes on everything he knows, and doesn't keep anything back. He taught me how to be a skipper. With *Arkema 4*, the pressure went up a notch, but he gave me the confidence I needed. We share the helm and everything that happens on board. Lalou is sharing more and more of the decisions and that's really gratifying. I'm lucky to be trained by someone with a huge amount of experience. He knows the sea and has been sailing on multihulls for more than thirty years. At the age of 28, I still have a lot to learn about these boats, which are the most sophisticated there are. Lalou is coming with me on all my trips this year, so that I can be completely ready for the next "Transat Jacques Vabre" race in November. There's no set path to get there. You need to be patient and humble, focused on what you're doing in the here and now, never give in and, bit by bit, you move forward, you grow."



Lalou Roucayrol, skipper and entrepreneur



Quentin Vlamynck, new skipper of *Arkema 4*

growing our talents

/Committed to sustainability and communities with the support of our employees/

The following are examples of actions Arkema is taking around the world to accelerate the inclusion of women, provide access to education and culture for all, and pave the way to more sustainable development, proving that we are serious about putting environmental and societal issues at the heart of our philanthropy policy.



Malaysia

Encouraging people to recycle their "e-waste"

As part of a partnership with Terengganu Polytechnic School, the regional WWF, CIMB Bank, and the Malaysian government, Arkema's team at its Kerteh plant chose to raise awareness among the local population of provisions to recycle their end-of-life televisions, computers and household appliances or donate them for reuse, in line with the Group's objectives to reduce waste and promote recycling.



Arkema-ArrMaz supplies schools with clean drinking water

Arkema and its subsidiary ArrMaz, one of the world leaders in specialty surfactants, have donated €50,000 to the Chinese NGO One Foundation to provide water filtration units to ten schools in priority areas of Yunnan Province. In addition to supplying the water purifiers, the project aims to raise awareness of hygiene and health issues and has reached four thousand students. Water treatment and access to drinking water are one of our five R&D platforms.

642

The number of Terrains d'Entente® programs carried out worldwide in 2020.

Bostik and Ontex Donation of feminine hygiene products in Zambia

Maydred Siamuzwe is an accountant at our subsidiary Bostik in the UK, which manufactures adhesives used in feminine hygiene products. When Maydred learned that girls in Zambia were missing school because of lack of access to sanitary pads, she decided to collect these items for students in her hometown in Zambia. This charitable initiative was soon picked up by Bostik's non-woven hygiene department and its partner client Ontex, the international leader in personal hygiene products. Thanks to their joint efforts, one million packs of sanitary pads have been distributed in this southern African country.



Arkema's international education fund

This fund is designed to support projects proposed by employees who volunteer in education programs. Through these efforts, Arkema wants to foster employee engagement across all countries. Since the fund was created four years ago, it has selected and financially supported 48 charitable educational projects in 15 countries.



progress that we want to promote as widely as possible.



India Arkema invests in training for women

A three-year training program was launched by the NGO Vibha India with the support of our peroxide plant in India, to enable 200 young women in rural areas to gain financial independence. The grant provided for the opening of a sewing training center and supply of equipment near Cuddalore in the southern state of Tamil Nadu.



L dans la ville Equal opportunities for girls

Arkema is a partner of Sport dans la Ville, a French charity that runs an "L in the City" program specifically

aimed at girls and young women. The program works with more than 1,000 girls from priority neighborhoods to offer pathways through sports, cultural experiences, visits to companies, and training workshops in order to give them the same chance of success as boys. Action is taken locally by our various sites.



United States Improving the lives of the underprivileged

Nearly 400 employees at Arkema's eleven sites in the United States have now responded to the appeal from United Way, an American NGO taking action against poverty. Our employees have raised more than €270,000 to support various educational, vocational, healthcare, and financial assistance programs for underprivileged people.



Arkema sponsors the Théâtre des Champs-Élysées

In France, Arkema is a Friend of the Théâtre des Champs-Élysées in Paris. Arkema specifically

supports the theater's programming for young people, which gives disadvantaged children aged six to twelve access to music and opera. The program is part of Arkema's strategy to support education and integration. In 2020, it allowed 12,000 children to experience the magic of opera.



LISTENING TO LOCAL COMMUNITIES

Through its Terrains d'Entente® program, our Group leads hundreds of initiatives around the world every year to foster dialogue with local communities, institutions, schools and charities. We want to be involved in

the communities where we operate through educational and philanthropic projects. In 2020, nearly a third of these initiatives concerned education and jobs, while 25% related to health and safety. In 2020, we partnered with 205 charities and NGOs, in addition to 168 institutions and 139 schools and universities.



Arkema D1 takes action on breast cancer

In October, players from the twelve clubs in France's elite women's football division had extra reason to celebrate their goals. At a rate of €100 per goal, Arkema raised €10,000 for France's "Ruban Rose" organization, which supports breast cancer research.



CGénéral Promoting science careers among young people

In France, Arkema is a partner of the CGénéral Foundation for the promotion of science to high school students. The Group supports dialog with the academic sector by taking part in the various flagship programs run by the foundation, involving school visits by our engineers and tours of our factories for teachers. In 2020, despite the pandemic, more than 400 high school students enjoyed presentations by our volunteers in classrooms and virtual meetings.

growing our talents

Resilient financial results and strong non-financial performance

Arkema has high ambitions for both its financial results and its social and environmental performance. We have set bold targets in both these areas for 2024, 2025 and 2030. The Group's operations and results have held out well during the exceptional public health and economic crises, while its CSR performance has continued to improve across the board.

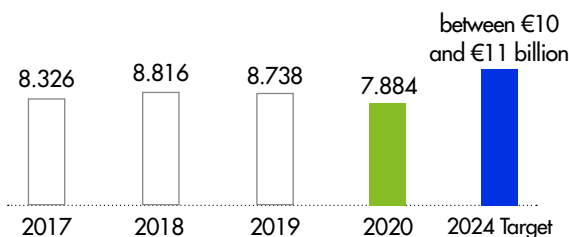
ROBUST FINANCIAL RESULTS

Arkema's regional and technological profile, coupled with the diversity of its markets, helped it to turn in a robust financial performance for 2020 despite the global pandemic, to manage its operations responsively as events unfolded, and to start a tangible recovery in sales and results in the fourth quarter.

Revenue

(in € million)

Revenue fell 9.8% from the previous year, or 8.1% at constant exchange rates, with the decline in volumes limited to 4.3%.

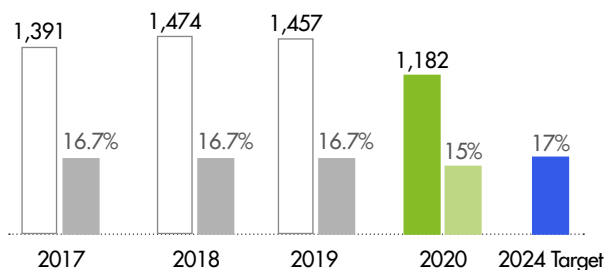


/2024 TARGET/revenue between 10 and 11 billion

EBITDA (in € million)

And EBITDA margin (in %)

EBITDA margin remained strong at 15%, backed by resilience in Specialty Materials.



/2024 TARGET/ EBITDA margin of 17%

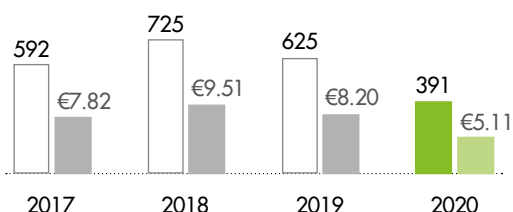
Adjusted net income

(in € million)

And adjusted net income per share

(in euros)

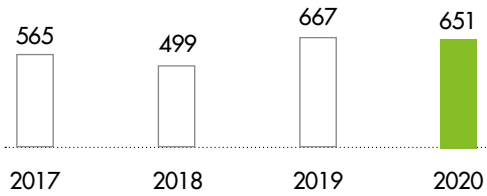
Adjusted net income stood at €391 million, or €5.11 per share.



Free cash flow

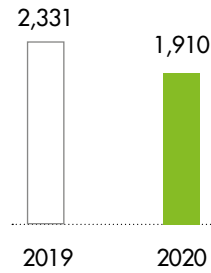
(in € million)

Arkema generated free cash flow of €651 million in 2020, nearly matching the excellent performance in 2019 (€667 million).



Net debt including hybrid bonds

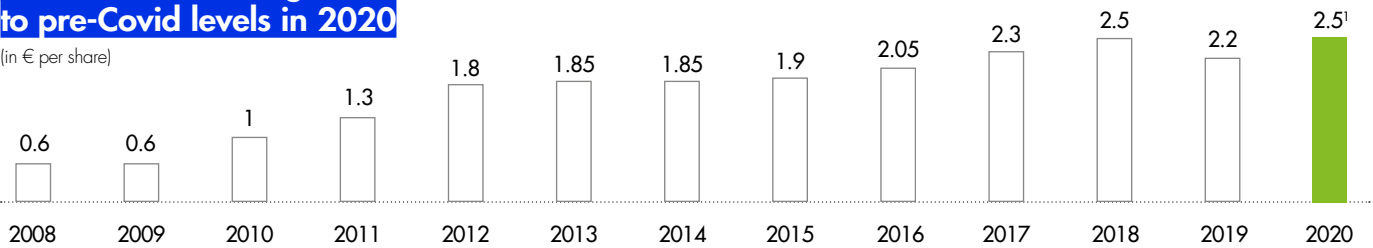
(in € million)



Net debt fell to €1.9 billion, including hybrid bonds (€700 million), equivalent to 1.6 times EBITDA for the year.

A dividend returning to pre-Covid levels in 2020

(in € per share)



1. Dividend recommended at the Annual Shareholders' Meeting on May 20, 2021.

The dividend is a key component of the Group's policy for shareholder returns. At Capital Markets Day on April 2, 2020, the Group restated its intention to gradually increase the dividend, with a target payout of 40% in 2024. The Board of Directors has decided to propose a dividend of €2.50 per share at the Annual Shareholders' Meeting on May 20, 2021. In addition, the Group will be implementing a share buyback program totaling €300 million once the divestment of its PMMA business has been finalized. These provisions include returning to shareholders the portion of the dividend (€0.50 per share) that was suspended in 2020 as a result of the pandemic.

CONSISTENT IMPROVEMENT IN NON-FINANCIAL INDICATORS

Through the use of precise indicators and targets, Arkema has set itself a course of continuous improvement in CSR, embodied in three commitments:

- offer innovation-driven, sustainable solutions;
- manage industrial activities responsibly;
- and cultivate an open dialogue with internal and external stakeholders.

Its ambition is to provide its customers with sustainable, innovative solutions that help to fulfill the Sustainable Development Goals (SDGs) defined by the United Nations.

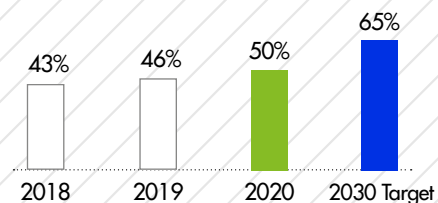
1 - SUSTAINABLE PRODUCTS



Share of revenue that has made a significant contribution to the U.N.'s Sustainable Development Goals¹

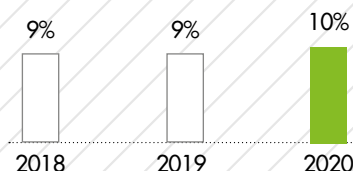
In 2020, 50% of Arkema's sales were connected with ImpACT+ solutions, and the Group has set a strategic goal of raising that figure to 65% by 2030, as further proof of its commitment to offering sustainable products.

1. The share of sales making a significant contribution to the SDGs (ImpACT+) is based on an evaluation of 72% of the Group's sales to third parties in 2020 and 44% in 2018 and 2019.



/2030 TARGET/65% IMPACT+ SALES

Share of revenue generated from renewable feedstock



2 - A RESPONSIBLE MANUFACTURER

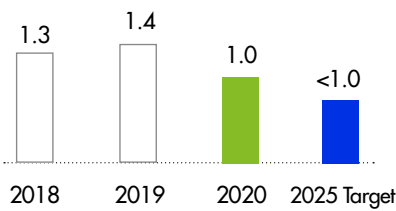


Safety: Two targets for 2025



Total recordable injury rate (TRIR) per million hours worked

The TRIR for 2020 (including accidents among Group personnel as well as workers from contracted firms) came to 1, a very clear improvement and the lowest rate Arkema has ever recorded. Arkema's TRIR performance ranks among the best in the chemicals industry.



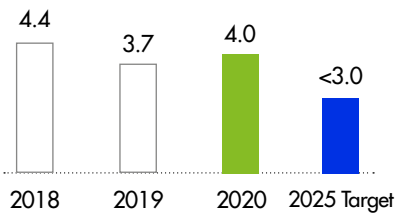
/2025 TARGET/achieve a TRIR <1.0



Process Safety Events Rate (PSER)

The PSER is the number of process safety events per million hours worked.

In 2020 the PSER was 4, virtually unchanged from the three previous years. A plan is currently being developed to define both technical and human actions for reducing the PSER.



/2025 TARGET/achieve a PSER <3.0

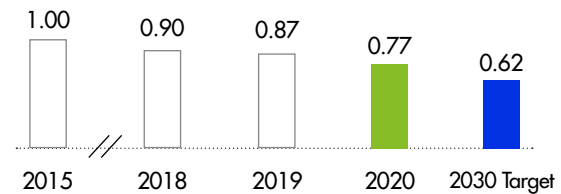
Climate and environment: Four environmental objectives for 2020



Climate

(Greenhouse gas emissions)

In 2020, Arkema reduced its greenhouse gas (GHG) emissions by 23% compared to 2015. The Group made especially notable progress in 2020, with emissions declining by 11% from 2019 levels; two thirds of that reduction was achieved through voluntary actions laid out in the Group's Climate Plan.



/2030 TARGET/reduce our GHG emissions by 38% from 2015 levels

This means a reduction in absolute emissions of more than 1.7 million tons of CO₂ equivalent to less than 3 million tons by 2030, whatever the increase in production volumes.

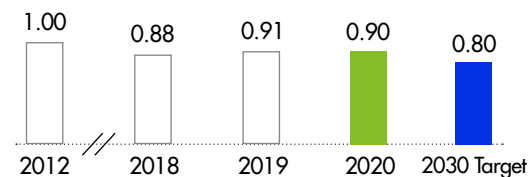
The "energy," "water" and "air" objectives shown below and opposite are defined on the basis of Environmental Footprint Performance Indicators (EFPIs), which reflect changes in the Group's business scope and production at its plants.



Energy

(Net energy purchases EFPI)

The improvement in this indicator in 2020 reflects a positive performance during unfavorable conditions, given the decline in production volumes as a result of COVID-19.



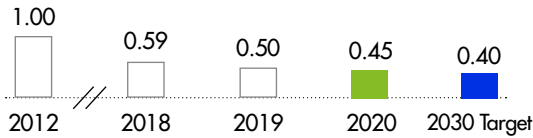
/2030 TARGET/reduce our net energy purchases EFPI by 20% from 2012 levels



Water

[Chemical oxygen demand [COD] EFPI]

The improvement in COD during 2020 is the result of progress at wastewater treatment facilities, notably at our Carling, Saint-Auban and Pierre-Bénite sites in France.



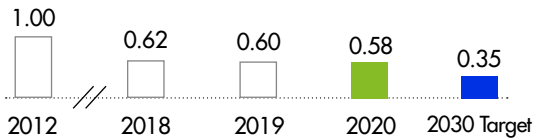
/2030 TARGET/reduce our COD EFPI by 60% from 2012 levels



Air

[Volatile organic compounds [VOC] EFPI]

VOC emissions improved in 2020 thanks to improved treatment methods at several plants, particularly the Marseille, Genay and Mont sites in France.



/2030 TARGET/reduce our VOC emissions EFPI by 65% from 2012 levels

A commitment to progress that is hailed by rating agencies

Member of
Dow Jones Sustainability Indices

Powered by the S&P Global CSA

Joined the DJSI World and DJSI Europe indices; bronze award, The Sustainability Yearbook 2021



"A" rating on climate change and "B" rating on water security in 2020



Listed on the Europe 120 and Eurozone 120 indices since 2015; added to the CAC 40 ESC index



Arkema has scored among the top 1% for companies in its sector since 2014; Sustainability Performance: Advanced



"C+" rating; Arkema ranks in the top decile worldwide

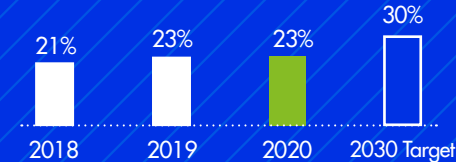
3 - OPEN DIALOGUE



Employee development and diversity

Proportion of women among senior management and executives

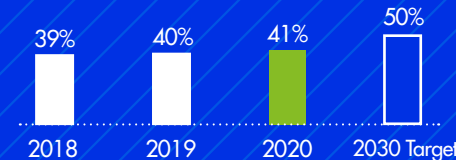
In 2020 the share of women in senior management and executive positions across the Group was unchanged at 23%, following a 2% increase in 2019 from the previous year.



/2030 TARGET/proportion of women among senior management and executives: 30%

Proportion of non-French nationals among senior management and executives

Consistent with Arkema's regional growth strategy, increasing the share of non-French nationals in its management ranks has become a major aim.



/2030 TARGET/proportion of non-French nationals among senior management and executives: 50%

Civic engagement

Number of Common Ground® events and initiatives worldwide



Common Ground® designates a range of community actions taken by our sites to promote open dialogue with their local stakeholders.

There were 642 Common Ground® initiatives worldwide in 2020, a decline from previous years attributable to the COVID-19 pandemic. Nonetheless, the percentage of industrial sites that carried out a Common Ground® initiative held steady at 78% — a testament to community engagement at our sites.

/Governance/

The oversight body

Chaired by Thierry Le Hénaff, our Board of Directors is composed of thirteen other members—seven independents, one representative of the shareholder FSP (*Fonds Stratégique de Participations*), one employee shareholder representative and two employee representatives. Seven out of fourteen members are women.



Thierry Le Hénaff
Chairman & Chief Executive Officer of Arkema



Yannick Assouad
Executive Vice President of Thalès, in charge of Thalès Avionics



Isabelle Boccon-Gibod
permanent representative of the French equity fund FSP (*Fonds Stratégique de Participations*)



Alexandre de Juniac
Director General and CEO, International Air Transport Association (IATA)



Victoire de Margerie
Chairwoman of Rondol Industrie



Laurent Mignon
Chairman of the Management Board, BPCE group



Marie-Ange Debon
Chairwoman of the Management Board, Keolis



Ian Hudson
Chairman of the Board of Directors of Carbios



Hélène Moreau-Leroy
Chairwoman and Chief Executive Officer of Hutchinson



Thierry Morin,
Chairman of TM France



Marc Pandraud
Vice Chairman of Investment Banking for Europe, the Middle East and Africa, JP Morgan



Nathalie Muracciole
Director representing employees



Susan Rimmer
Director representing employees



Jean-Marc Bertrand
Director representing employee shareholders

TO STRENGTHEN ITS EXPERTISE, THE BOARD OF DIRECTORS HAS TWO PERMANENT SPECIALIZED COMMITTEES¹

The Audit & Accounts Committee, composed of Marie-Ange Debon (Chair), Isabelle Boccon-Gibod (Permanent Representative of *Fonds Stratégique de Participations*), Hélène Moreau-Leroy and Ian Hudson. This committee ensures the quality of internal control and the reliability of information provided to shareholders and financial markets.

The Nominations, Compensation & Corporate Governance Committee, composed of Thierry Morin (Chair), Alexandre de Juniac and Victoire de Margerie. This committee makes recommendations concerning membership of the Board of Directors, compensation policy for the Chairman and CEO, and corporate governance best practices.

THREE NEW DIRECTORS IN 2021

At their meeting on February 24, 2021, Arkema's Board of Directors proposed that at the next Annual Shareholders' Meeting on May 20, 2021, Thierry Morin, Marc Pandraud and Yannick Assouad, whose terms of office are due to expire, be replaced, for a period of four years, by:

Thierry Pilenko, Management Advisor, former Executive Chairman of TechnipFMC

Bpifrance Investissement, representative of the Lac1 fund, whose permanent representative is **Sébastien Moynet**

Ilse Henne, member of the Executive Committee and Chief Transformation Officer of the thyssenkrupp Materials Services segment

Representatives of Arkema employees

12

In fiscal year 2020, the Board of Directors met twelve times (compared to eight in 2019).

95%

The attendance rate was 95% (unchanged from 2019).

In 2021, in order to assess the contribution of Arkema's innovations and strategy to environmental issues and sustainable growth, the Board of Directors decided to set up, with effect from the Annual Shareholders' Meeting on May 20, 2021, a new committee for Innovation and Sustainable Growth.

Its members will be Victoire de Margerie (Chair), Ian Hudson, Isabelle Boccon-Gibod, Jean-Marc Bertrand and Bpifrance Investissement.²

1. Subject to the approval by the General Shareholders Meeting of May 20, 2021 of the fifth to seventh resolutions, the membership of the Audit and Accounts Committee and the Nominations, Compensation and Corporate Governance Committee will be amended as presented in paragraphs 3.3.4.1 and 3.3.4.2 of the Document d'enregistrement universel 2020, respectively.

2. Subject to its appointment as a director at the Annual Shareholders' Meeting of May 20, 2021. For more details, refer to paragraph 7.2.2 of the Document d'enregistrement universel 2020.

Decision-making body

The Executive Committee manages the operational activities of Arkema alongside Thierry Le Hénaff. Each member oversees one or more business segments or several support functions. In 2020, three new members from inside Arkema joined the committee, including one woman and an American national.

Our top decision-making body, the Executive Committee, meets twice a month to examine strategic issues and growth and development plans, including capital expenditure, new capacity

and acquisitions. It also supervises the implementation of the Group's strategy, monitors the business and financial performance of our different activities, and attentively tracks safety and environmental performance.

Five operational Executive and Senior Vice Presidents implement the Executive Committee's decisions within the various business lines



Thierry Le Hénaff
Chairman & Chief Executive Officer of Arkema



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



Vincent Legros
Executive Vice President, Bostik

These three members report to Marc Schuller



Richard Jenkins
Senior Vice President, Coating Solutions



Erwoan Pezron
Senior Vice President, High-Performance Polymers



Marie-Pierre Chevallier
Senior Vice President, Performance Additives

Four functional Executive Vice Presidents supervise the support activities of all business lines



Bernard Boyer
Executive Vice President, Strategy



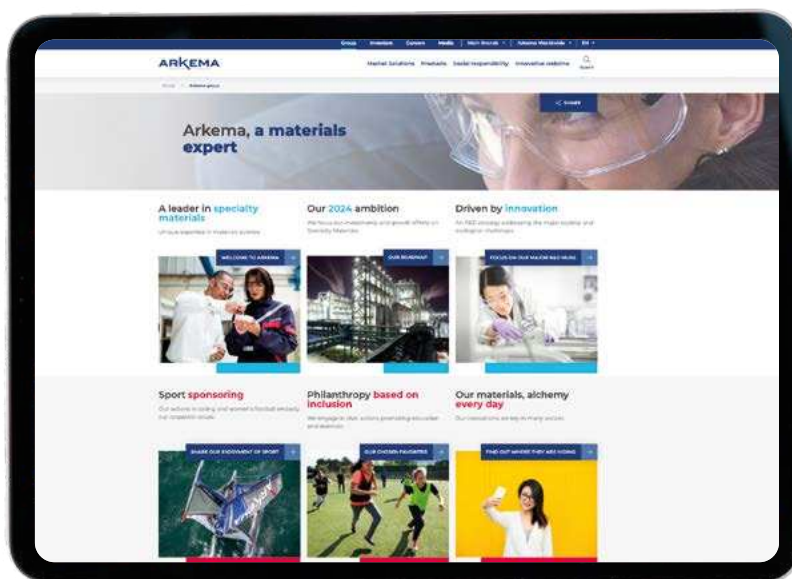
Luc Benoit-Cattin
Executive Vice President, Industry & CSR



Marie-José Donsion
Chief Financial Officer



Thierry Parmentier
Executive Vice President, Human Resources & Corporate Communications



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External Communications Division

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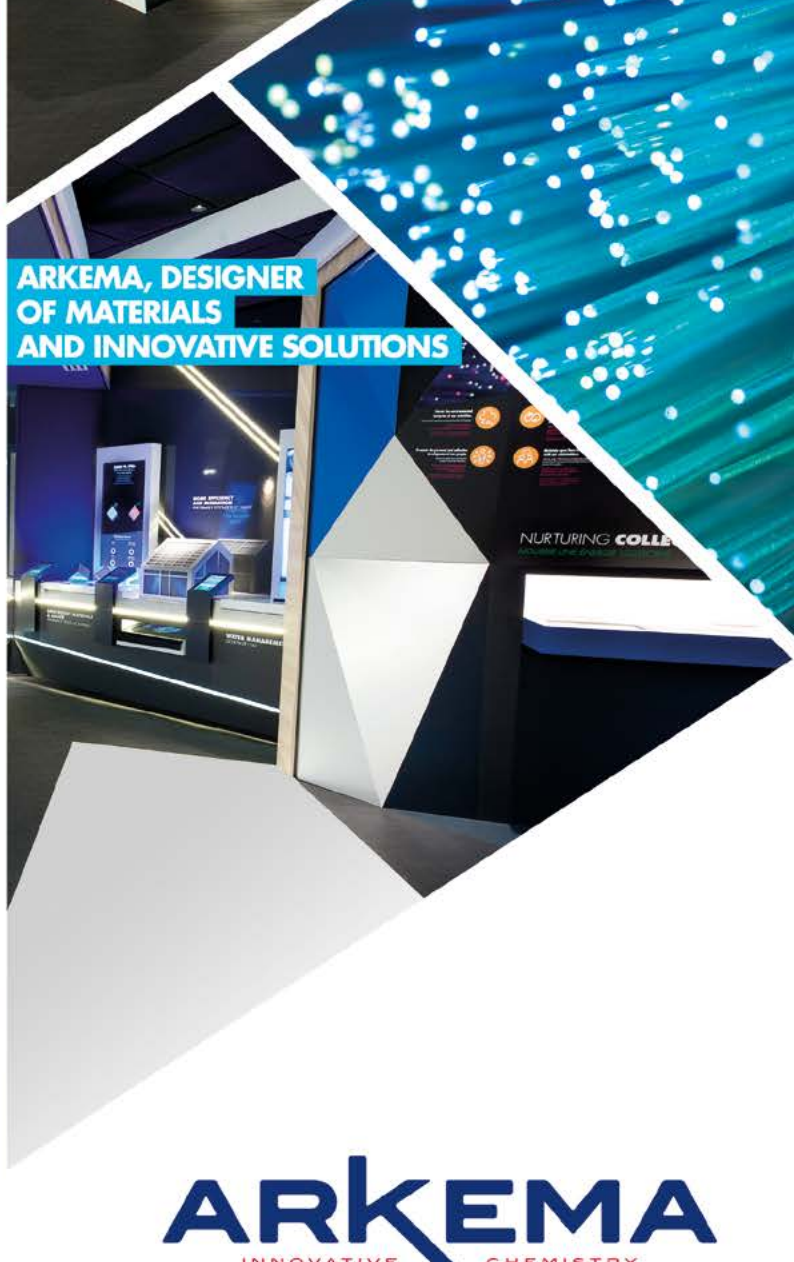
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The printer has been awarded the Imprim'vert® label for compliance with the French printing industry's environmental standards.



INNOVATION ON SHOW!

At Arkema, we're proud to be innovative – and even prouder to be able to share our innovations with you. L'Atelier 4.20 is a showroom dedicated to our latest discoveries, bringing chemistry to all. It's an interactive, educational, fun experience, where we reveal how our materials and innovative solutions address major social challenges and make your life easier.

Virtual visit:
ark.ma/atelier420



INNOVATIVE

ARKEMA
INNOVATIVE CHEMISTRY