

# INNOVATIVE

2014 ANNUAL AND SUSTAINABLE DEVELOPMENT REPORT



KYNAR 500®  
50  
SUCCESSFUL  
YEARS

INNOVATION  
ARKEMA'S DNA



BOSTIK  
ACQUISITION  
A NEW ARKEMA

ARKEMA  
INNOVATIVE CHEMISTRY

# A NEW ERA OF COMPOSITE SOLUTIONS

Make your composites lighter, stronger, recyclable and gentler to the environment. A step change now possible with Arkema's innovative, competitive and comprehensive line of thermoplastic resins and prepregs, next-generation structural adhesives, and specialty additives.

**Arkema, innovative chemistry advancing composites.**

THERMOPLASTIC COMPOSITES

STRUCTURAL ADHESIVES

SPECIALTY ADDITIVES

**ARKEMA**  
INNOVATIVE CHEMISTRY

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An innovative 2014

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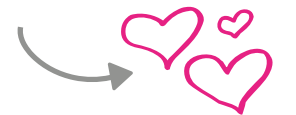


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**“Arkema has been steadily growing and getting stronger since it was created in 2006. The three major projects finalized this year will ensure growth from 2015 onwards.”**

**Thierry Le Hénaff,**  
Chairman and CEO of Arkema

grow **steadily**

Thierry Le Hénaff, Chairman and CEO of Arkema, responds to the five main themes in this annual report, reflecting on 2014, which saw the achievement of several of the Group's major strategic growth projects.



# 2014

A PIVOTAL YEAR  
IN ARKEMA'S  
TRANSFORMATION

## 1 GROW STEADILY

**T. Le Hénaff** > We continue to base Arkema's growth on our strategic priorities. The acquisition of Bostik, completed in early 2015, is the latest example of this. The Group has taken on a new dimension - €7.5 billion in revenue, 19,000 employees in over 50 countries. However, this is not opportunistic growth but a natural evolution of Arkema's profile, which has been **growing** steadily since 2006. This acquisition confirms our ambition: become world leader in performance materials (Bostik is the 3<sup>rd</sup> leading glue and adhesives company worldwide), seize opportunities in emerging markets (Bostik is especially present in China, India and Brazil), and be resilient to macroeconomic risks (the adhesives sector is remarkably stable).

Arkema's performance in 2014 highlights the need to protect the company from market instability. We reported revenue of €5.95 billion (down 1.4% compared to 2013) and EBITDA of €784 million. This downturn reflects adverse market cycles in the fluorinated gases and acrylic monomers sectors and relatively high 2013 reference sales for polyamide 12. Our nine other business lines achieved strong performances, with EBITDA up 8.5%. Our EBITDA margin of 13.2% represents a strong result in an unstable economic climate. —●

## 2 ACCELERATE GLOBALLY

**T. Le Hénaff** > Arkema is also continuing to adjust its geographical position to better access emerging markets, a process that has been ongoing for the past ten years. In 2014, Europe accounted for 42% of total turnover; the United States 35%, confirming its economic recovery; Asia and the rest of the world 23%. Our ultimate goal would be relatively equal income from each of these three regions.

In addition to the acquisition of Bostik, during 2014 we finalized two other growth projects that changed the global profile of Arkema. In China we created Sunke, a joint venture with Jurong Chemical, to ensure our production capacity for acrylic monomers in Asia. And we successfully launched the first thiochemicals industrial platform in Asia, at Kerteh in Malaysia, completing a major construction project launched in 2012, Arkema's largest investment to date.

These new production facilities complement the existing Acrylics and Thiochemicals production in the United States and Europe. They will **accelerate** our growth, particularly in Asia. Now most of our product lines have production facilities located in the three main regions. We have thus completed an important stage in Arkema's transformation and 2014 was a crucial year in this respect. —●

## 3 LIVE FULLY

**T. Le Hénaff** > Arkema's focus on specialty and green chemicals is changing the end users' image of our business. Arkema products are indispensable improvements in daily **life**, used in packaging, cosmetics, paints, smartphones, as well as cars, roads and buildings. Everyone benefits from the advantages chemicals bring to our food, transport, communications and leisure activities.

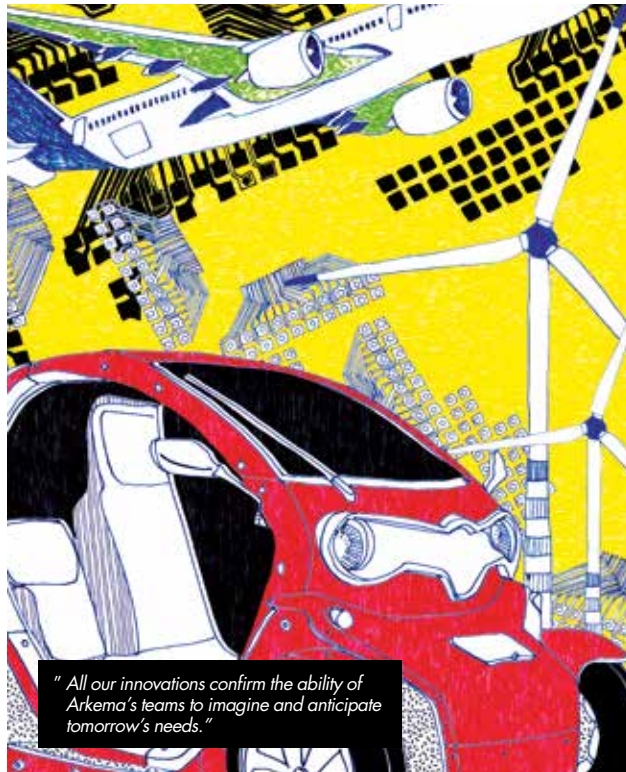
Arkema products are synonymous with performance. One of our polymers, Pebax®, is in the shoes of the world's finest athletes, scoring goals at the World Cup or breaking speed records on the feet of top sprinters at the Olympic Games. Some of our products are also breaking longevity records:

Kynar® 500, introduced into metal coatings 50 years ago, is still the architectural coating of choice to protect buildings all over the world.

Today, Kynar® fluoropolymer improves water treatment processes, protects solar panels, and improves the efficiency of batteries. Every day, Arkema chemicals help address tomorrow's societal challenges: access to clean water, lighter materials, and energy efficiency. —●

# 4 IMAGINE PASSIONATELY

**T. Le Hénaff** > Ever since its creation, the Group has put innovation at the center of its strategy – innovation produced in collaboration with partner laboratories and close to our customers. It is not by chance that Arkema, with 200 annual registered patents, is one of four French industrial groups ranked in 2014 among the 100 most innovative firms in the world by Thomson Reuters. The Group focuses its R&D activities on five technology platforms: new energies, water treatment, solutions for electronics, renewable raw materials, and lighter materials. Several innovations concerning lighter vehicles are presented in this report. Elium® thermoplastic resin composites have replaced steel and aluminum body parts in buses and boats. Kepstan® PEKK, a polymer adapted to extreme conditions, is helping reduce the weight of aircraft. All these innovations confirm the ability of Arkema's teams to **imagine** and anticipate tomorrow's needs and, above all, bring emerging technologies to industrial fruition. —●



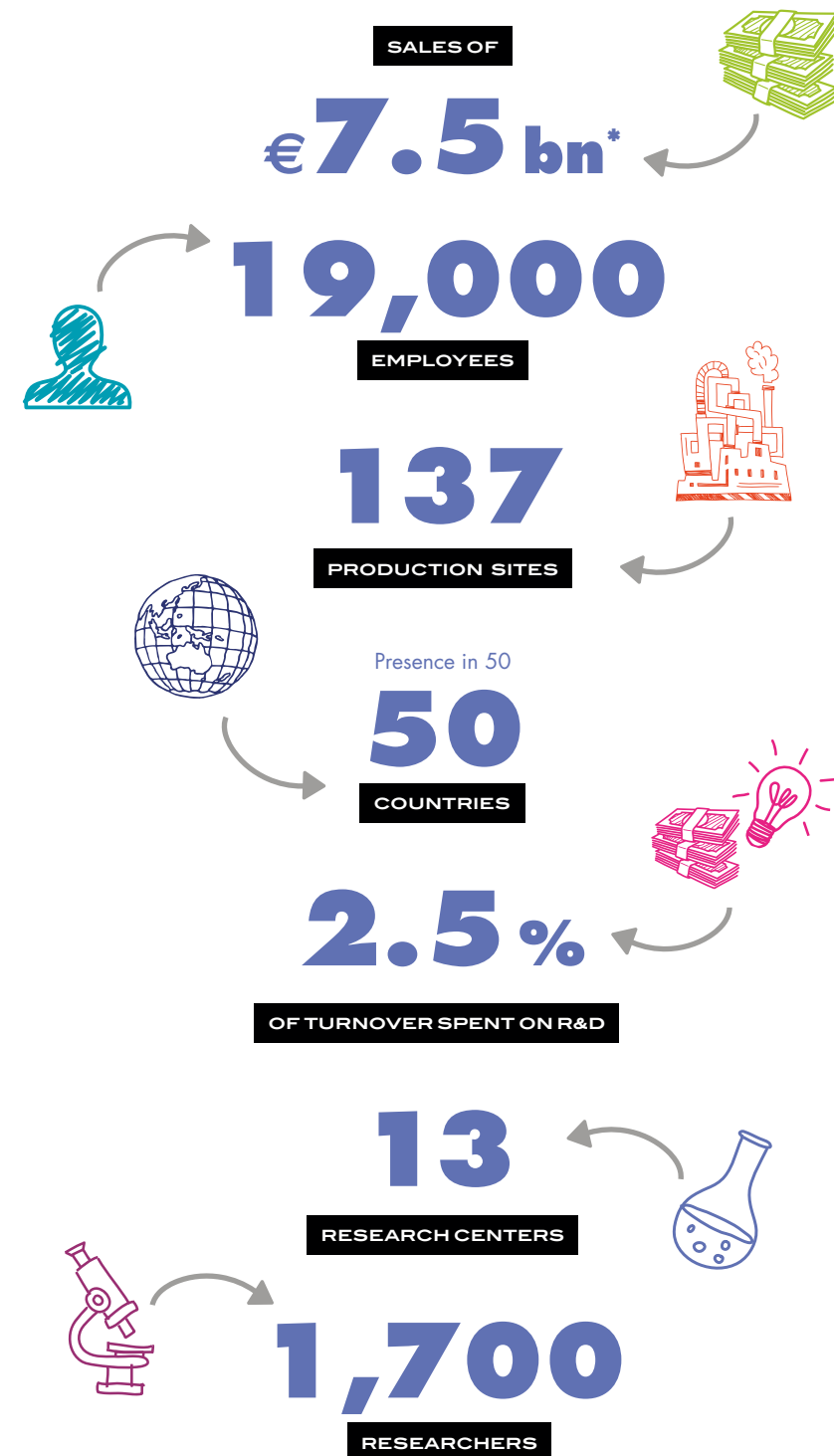
" All our innovations confirm the ability of Arkema's teams to imagine and anticipate tomorrow's needs." —●

# 5 SHARE SUSTAINABLY

**T. Le Hénaff** > I also want Arkema to act responsibly toward its employees, the environment and its stakeholders everywhere it operates. Our Corporate Social Responsibility program sets ambitious objectives that we are keen to **share** with our employees. First and foremost, safety: between 2006 and 2014, we reduced our accident frequency rate by 80%. And we don't stop there: soon the "Safety Academy" training launched in 2014 will have reminded all Arkema employees worldwide of the importance of safety. The Group's environmental footprint is constantly shrinking. Between 2012 and 2014, we reduced our greenhouse gas emissions by 30% and volatile organic compounds emissions by 20%. Again in 2014, as part of our Common ground® program, our sites around the world organized

1,000 initiatives, involving nearby residents, schools, institutions and local authorities, to improve their understanding of our business activities. This sense of responsibility, combined with a more modern image of the chemicals business, is making Arkema an attractive employer. Several new hires share their thoughts in this report. Our growth depends in part on our capacity to attract and develop talented people. —●

## ARKEMA AT A GLANCE



\* 2014 pro forma figures

# Acquisition of Bostik

- # No. 3 worldwide in adhesives
- # High value creating acquisition
- # Strong mid-and long-term growth potential
- # €1.53 billion in sales, Arkema's biggest acquisition



# Creation of Sunke

- # Arkema partners with Jurong Chemical, leader in acrylic acid production in China
- # Production capacity of 160,000 tons per year
- # Growth potential in super-absorbents, paints, adhesives, and water treatment markets



# Start up of Kerteh production unit in Malaysia

- # First thiochemicals platform in Asia
- # Strengthening Arkema's position as world leader
- # Production of bio-methionine (animal nutrition), DMDS (petrochemicals and refining)





Other highlights

JANUARY

**ARKEMA DOUBLES PRODUCTION CAPACITY OF ORGANIC PEROXIDES IN CHINA**

Leading player in organic peroxides, Arkema announces the construction of a new organic peroxides production platform at its Changshu site. This investment will enable Arkema to support strong growth in Asia of this product used for the polymerization of thermoplastics in the construction, packaging and automotive industries.



APRIL

**INAUGURATION OF NEW MEMBRANE ELECTROLYSIS AT ARKEMA'S JARRIE PLANT (FRANCE)**

The new electrolysis unit at Arkema's Jarrie plant near Grenoble (France) marks a new milestone in the site's modernization. This €100 million investment has enabled the facility to adapt to the latest regulations on industrial risks (*Plan de Prévention des Risques Technologiques* or PPRT) and convert its mercury electrolysis to the membrane technology, thereby pre-empting the mandatory deadline by several years. The plant is one of the world's leading manufacturing sites of oxygenated water and also produces chlorine and derived products.



AUGUST

**SIGNATURE OF AN AGREEMENT FOR THE SUPPLY OF PROPYLENE IN THE UNITED STATES**

As part of its procurement policy for strategic raw materials, Arkema has reached an agreement for the supply of propylene with Enterprise Products Partners L.P., a leading US energy company. Taking advantage of the development of shale gas in the United States, this contract secures a long-term supply of propylene produced by propane dehydrogenation (PDH). Propylene is the raw material for acrylics, a sector where the Group is a key player in the United States and the world's third largest player.



Other highlights

**NOVEMBER THE ARKEMA MULTI50 TAKES SECOND PLACE IN THE ROUTE DU RHUM TRANSATLANTIC RACE**



At the helm of the Arkema Région Aquitaine, Lalou Roucayrol took second place in the 2014 Route du Rhum transatlantic race, in the Multi50 category. He sailed from Saint-Malo (France) to Pointe-à-Pitre (Guadeloupe) in 11 days, 21 hours and 30 minutes, arriving less than 17 hours after the winner. "An outstanding performance for a new boat", indicates the skipper.

The Route du Rhum was the first major objective for the Arkema Multi50, launched in March 2013. This success is even more poignant given that the boat suffered damage after capsizing in late 2013. "The trimaran finished in very good condition despite the demands of the race, confirming its robustness", explains Lalou Roucayrol, who is eager to race again very soon. The next major challenge: the Jacques Vabre two-man transatlantic race in October 2015.

**A TWO-WAY TECHNICAL PARTNERSHIP**

AEC Polymers adhesives and sealants, windows made of Altuglas® ShieldUp - Lalou Roucayrol's Multi50 benefits from numerous Arkema innovations. "And we are always looking for new improvements!", says the skipper. For example: in order to reduce overall weight, Altuglas is testing thinner glazing for the deckhouse and wheelhouses. "Arkema helps me to optimize the boat's performance with the technical and materials expertise. In return, I provide immediate feedback on their prototypes. It's a two-way technical partnership", says an appreciative Lalou Roucayrol.

**EXTENDED COMMITMENT**

Arkema has decided to extend its partnership with Lalou Roucayrol and his team until 2018. In addition to the Multi50, the partnership will also cover the construction of a Mini class 6.50 mono-hull prototype, which will integrate many Arkema innovations into its design. This new technological showcase is due to be launched in 2016. The objective is the 2017 Mini transatlantic race. At the helm, a young skipper recruited from within Lalou Roucayrol's team. —●

APRIL

**CECA PARTNERS WITH WATAN INDUSTRIAL INVESTMENT TO ENTER THE OILFIELD PRODUCTION CHEMICALS MARKET IN SAUDI ARABIA**

CECA, Arkema's Filtration and Adsorption subsidiary, and Saudi company Watan Industrial Investment have set up a joint venture, majority-owned by Arkema, which will operate an oil additive blending and storage facility in Saudi Arabia. The new site enables CECA to meet the high demand for oil additives in the Gulf region.



JULY

**START-UP OF METHYL ACRYLATE PRODUCTION PLANT IN CLEAR LAKE, TEXAS**

This is the last phase of the \$ 110 million investment plan to strengthen Arkema's position in acrylics in the United States. Methyl acrylate, an acrylic acid derivative, is used in the manufacture of polymers for water treatment, elastomers and technical polymers. This start-up now makes Clear Lake one of the world's leading manufacturing sites for acrylic acid and derivatives.

NOVEMBER

**ARKEMA RANKED AMONG THE TOP 100 GLOBAL INNOVATORS**

For the fourth year in a row, Arkema has been ranked by Thomson Reuters among the top 100 global innovators from all sectors of activity.





**"In ten years we have completed twelve acquisitions enabling us to accelerate our growth and reposition our business in areas where Arkema ranks among global leaders."**

**Bernard Boyer,**  
Executive Vice President, Strategy

accelerate globally



**BERNARD BOYER**  
EXECUTIVE VICE PRESIDENT, STRATEGY

**“Looking ahead to act fast”**

“To respond to an identified market demand, we have several alternatives: invest in R&D, create new production capacity, or acquire a new business activity. The latter option is by far the fastest solution. But in order to seize the right opportunities, we have to carry out an extensive strategic analysis beforehand. Acting fast only makes sense if you have a long term vision.”

**ACQUISITIONS STRATEGY:**  
FIVE OBJECTIVES

With the creation of the Sunke joint venture with Jurong Chemical in 2014 and the integration of Bostik in 2015, Arkema is pursuing its ambitious acquisitions program aimed at accelerating the transformation of its core business. Bernard Boyer, Executive Vice President, Strategy, sheds light on the five objectives of this external growth strategy.

- 1**

**Refocusing on specialty chemicals**

“We are concentrating our investment efforts on high tech companies and sectors producing high value added materials, designed to provide custom-made solutions for our clients. At the same time, acquisition of these specialty businesses enhances the technical expertise of the Group.” —●
- 2**

**Adjusting our geographic footprint**

“In the beginning, Arkema was based mainly in Europe and the United States. Our external growth strategy has helped us balance the Group’s presence across the globe. We have enhanced our foothold in Asia in the acrylics and polyamides sectors, close to high-growth markets.” —●
- 3**

**Accelerating technology**

“Our acquisition of innovative start-ups has accelerated the industrialization of our research activities and sharpened our expertise in materials and processes, especially in high-growth sectors such as electronics, biosourced materials, and water treatment.” —●
- 4**

**Stabilizing financial performance**

“Our financial objective is to reduce the impact of economic cycles on our portfolio and achieve greater predictability and stability. We are moving towards specialty products whose performance is less cyclical and less affected by market fluctuations.” —●
- 5**

**Becoming a leader in target sectors**

“We only invest in a business activity if we are able to win a significant market share. In the specialty sectors we have targeted, we do everything necessary to acquire what we need to achieve critical mass. This was the strategy we applied to our acrylics segment.” —●

**A MORE INTEGRATED ACRYLICS SEGMENT THANKS TO ACQUISITIONS**

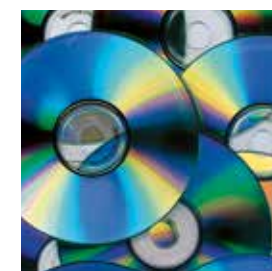
With the creation of Sunke in China, Arkema has become one of three leaders in the global acrylics market. But the Group has also relied on external growth to build three specialized acrylics-based business units (BUs).



#The Coatex BU, maker of rheology additives, principally for paper and paints, emerged from the 2007 acquisition of the Coatex company. The BU has since opened two new production sites in China and Brazil.

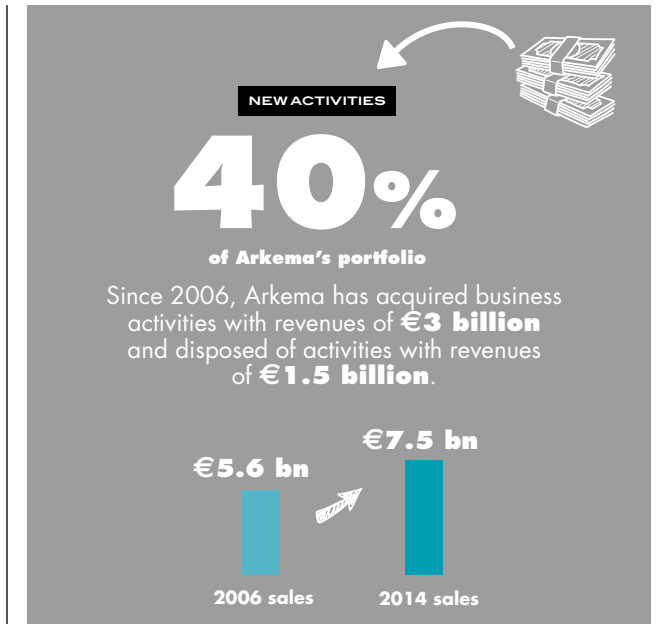


#The Coating Resins BU, which produces acrylic emulsions and resins for paints and adhesives, resulted from the purchase of Cray Valley from the Total group in 2011 and includes latex acrylic activities acquired from Dow Chemicals earlier that same year.



#The Photocure Resins BU consists of Sartomer business activities divested by Total in 2011, especially curable materials used in protective films for DVD media and fiber optics.

These three specialized BUs enjoy a secure global supply of acrylic acid from the Acrylics BU, which has expanded its production capacity around the world... thanks to targeted acquisitions! (More below) —●



**A LEVER TO BALANCE OUR GEOGRAPHICAL FOOTPRINT...**

Arkema has targeted some acquisitions to balance its global footprint. In acrylic acid, the Group increased capacity and distributed production over three continents – USA, Asia and Europe. Starting with its existing sites in Carling (France) and Bayport (USA), Arkema bought up the acrylic assets of Dow Chemicals in the United States (2009) and created the Sunke joint venture with Jurong Chemical in China (2014).

The geostrategic advantage of these acquisitions: they move us closer to emerging markets. By acquiring Casda Biomaterials and Hipro Polymers in China (2010), Arkema expanded its portfolio of specialty polyamides to capture growth opportunities in the automotive sector, especially in Asia. —●

**SPOTLIGHT**  
**Commodities or specialty products?**

#Commodities are standard chemical products that are widely available. Specialty products on the other hand are “high-performance” materials with high added value, designed to provide custom-made solutions for specific applications. Specialty products are available in much smaller quantities than commodities. —●

# THE ACQUISITIONS THAT HAVE CHANGED THE FACE OF ARKEMA

Refocusing on specialty chemicals, technology acceleration or integration in Acrylics: these 12 acquisitions made by Arkema since 2007 are a true reflection of the Group's strategy. With the permanent objective of repositioning business in areas where Arkema ranks among global leader.

**TECHNOLOGY ACCELERATION**

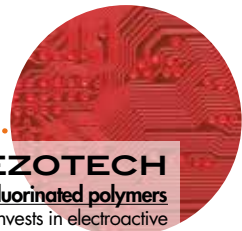
**OXFORD PERFORMANCE MATERIALS**  
Polyether ketone ketone (PEKK) polymers

Adding these technical polymers and their exceptional mechanical properties bolsters Arkema's range of high-performance materials.



**PIEZOTECH**  
Electroactive fluorinated polymers

Arkema invests in electroactive polymers that make possible tomorrow's vibrating touch screens, smart clothing, smart catheters and talking documents.



**AEC POLYMERS**  
Industrial methacrylate adhesives

Arkema acquires AEC Polymers, which uses the Group's technology to make structural adhesives for the assembly of composite materials.



**REFOCUSING ON SPECIALTY CHEMICALS**

**REPSOL PMMA BUSINESS**  
PMMA sheet and block

The acquisition of Repsol PMMA (polymethyl methacrylate) sheet and block business positions Arkema's Altuglas International subsidiary as a global leader in PMMA.



**ODOR-TECH**  
Gas odorants

Arkema's Thiochemicals BU integrates a new specialty and strengthens its position in North American gas distribution markets.



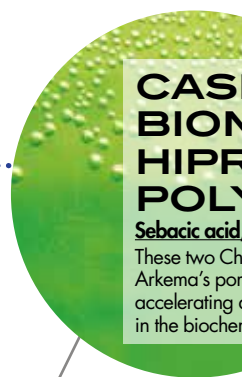
**SEPPIC ASSETS**  
Alcoylates

Arkema expands its CECA subsidiary's range of specialty chemicals: alcoylates are industrial surfactants used in public works, industrial detergents and oil extraction. They are also used in processes at Coatex and Sartomer.



**CASDA BIOMATERIALS + HIPRO POLYMERS**  
Sebacic acid, bio-based polyamides 10.10

These two Chinese companies expand Arkema's portfolio of specialty polyamides, accelerating development in Asia and in the biochemicals sector.



**BOSTIK**  
Glues and adhesives

Arkema buys Bostik – No. 3 worldwide in glues and adhesives – from the Total group. A major investment in a new field of specialty materials.



2007

2008

2009

2010

2011

2012

2013

2014

2015

**INTEGRATION IN ACRYLICS**

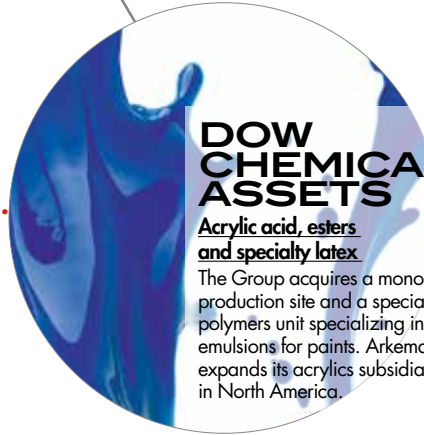
**COATEX**  
Dispersants and thickeners

Coatex, a producer of specialty acrylic polymers used as additives in paper and paint products, guarantees Arkema end markets for the monomers produced by its plants in Carling (France) and Bayport (USA). This is the first step toward the downstream consolidation of acrylics production.



**DOW CHEMICAL ASSETS**  
Acrylic acid, esters and specialty latex

The Group acquires a monomer production site and a specialty polymers unit specializing in emulsions for paints. Arkema expands its acrylics subsidiary in North America.



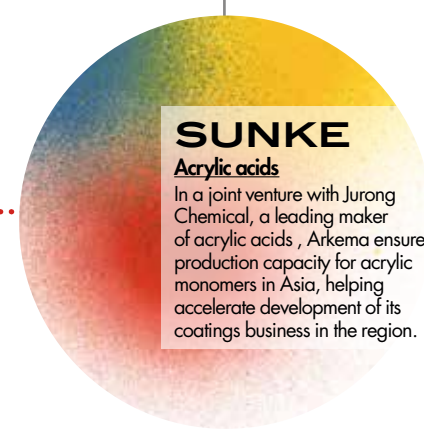
**SARTOMER + CRAY VALLEY**  
Coatings resins and photocure resins

Arkema acquires from Total two specialty acrylic businesses with a high profile in the United States, bringing significant opportunities in the paint and industrial coatings sectors as well as electronics.



**SUNKE**  
Acrylic acids

In a joint venture with Jurong Chemical, a leading maker of acrylic acids, Arkema ensures production capacity for acrylic monomers in Asia, helping accelerate development of its coatings business in the region.



# Bostik

## AN ACQUISITION WITH HIGH ADDED VALUE

In early 2015, Arkema finalized the acquisition of Bostik – world No. 3 in adhesives – from Total. Present in high-tech markets, driven by innovation, and with a strong growth potential, Bostik is helping to expand Arkema’s portfolio of high value added businesses. It will provide a new business unit for the company’s High Performance Materials segment. With this acquisition, the Group confirms its ambition to become a world leader in specialty chemicals.



### STICKING TO ARKEMA'S GROWTH STRATEGY

The acquisition of Bostik is fully in line with Arkema’s growth strategy.

With the acquisition of Bostik in early 2015, Arkema has gained a new specialty product line. “This is a perfect illustration of our growth strategy: entering high value added markets at a global level”, explains Bernard Boyer, Executive Vice President Strategy at Arkema.

In terms of global reach, Bostik is aligned with Arkema’s business development approach: an extensive global footprint with strong positions in high-growth markets. With smaller scale and more modular production units compared to the chemicals sector, Bostik will help expand Arkema’s manufacturing footprint in many countries where the Group has little or no presence: Australia, Brazil, India, Indonesia, Mexico, Philippines, Vietnam, etc.

### PENETRATION OF THE B2C MARKET

From a market perspective, Bostik provides B2B solutions for the construction and industrial manufacturing markets – transport, personal hygiene, packaging, electronics manufacturing, etc. It delivers a diverse innovation-driven business model that is balanced to withstand market fluctuations, which fits with Arkema’s growth strategy.

With Bostik, Arkema is also venturing into the B2C arena. The firm, with its distinctive gecko logo, is a major player in the consumer adhesives market. Its products are available in supermarkets and specialist DIY stores under strong local brands (Sader®, Quelyd®, Evo-Stik®, MEM®, Fortaleza®). “This business activity concentrated in several countries will help to expand Arkema’s profile”, explains Bernard Boyer.

WORLD NO. 3 IN ADHESIVES

Sales €1.53 billion

45% Construction and Consumer #No. 3 worldwide	55% Industry #No. 3-4 worldwide Non-woven #No. 2 worldwide #No. 1 in specialties
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### SALES PER REGION

29% Asia and Rest of the World	21% North America	50% Europe
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“Become the main reference in smart adhesives”

### 3 QUESTIONS FOR:

**BERNARD PINATEL**

CEO OF BOSTIK AND MEMBER OF THE ARKEMA EXECUTIVE COMMITTEE

#### HOW WILL THE ACQUISITION BY ARKEMA HELP DEVELOP BOSTIK?

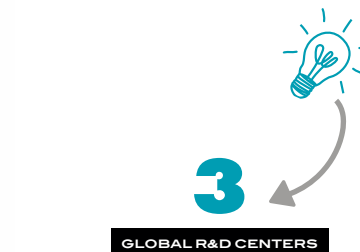
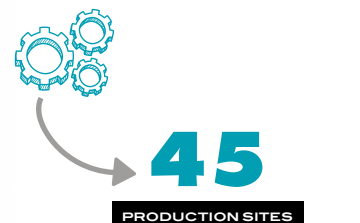
**B. P.** > In joining Arkema, Bostik is integrating with a group whose strategy focuses on specialty chemicals. This is consolidating our position as a long-term player in the adhesives market. Arkema’s R&D expertise will help us develop even more multifunctional smart adhesives that do more than just stick things together.

#### HOW DO BOSTIK AND ARKEMA COMPLEMENT EACH OTHER?

**B. P.** > Arkema brings expertise in chemical synthesis and polymerization processes. For instance, acrylics are a very important component of adhesives; this is an area that we could develop together. Bostik will be helping to raise Arkema’s profile in the construction and consumer markets. There are operational synergies that can be put in place: combined purchasing, sharing best practices for product and process development, etc.

#### IS THERE A COMMON CULTURAL BASE BETWEEN THE TWO COMPANIES?

**B. P.** > Absolutely. We share the same corporate culture of innovation and performance. We make our R&D investments in close collaboration with our customers in order to differentiate our products and become leaders in our markets – for Bostik this is the multifunctional smart adhesive solutions market. —●



## INNOVATIVE ADHESIVES FOR A SMARTER WORLD

With 125 years of history, Bostik has proven its ability to deliver adhesive solutions across diverse industries. Present in more than 50 countries, with 45 industrial sites and 4,900 employees, Bostik is No. 3 in the world adhesives market. In 2014, the company achieved around €1.5 billion in sales.



### HIGH VALUE SOLUTIONS

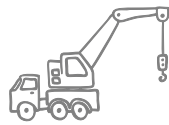
The quest for smart adhesives drives Bostik's strategy in the 21<sup>st</sup> century. The company creates products that "do more than just stick things together" and delivers high-value solutions across many major sectors. For example:



**Industrial applications, where pressure-sensitive hot melts** are highly effective for the flexible yet secure bonding needed for tapes, labels, packaging and personal hygiene products that are subject to various tensions and temperatures.



**Transportation where elastic bonding** reduces vibration while also reducing vehicle weight (and thus the emissions associated with fuel consumption); while flame retardant adhesives improve passenger safety.



**Construction in residential and industrial sectors,** as well as civic infrastructure, where polymer-modified binders offer lighter, easier-to-install alternatives to metal or mechanical joining.



**Consumer markets,** where several ranges of polymer-modified binder and elastic bonding adhesives, sealants and coatings are dedicated to home improvement tasks, from flooring to decorating, as well as repairs and craft activities.

### BOSTIK CONSIDERS FOUR KEY TRAITS WHEN DESIGNING ITS SMART SOLUTIONS:



**Safety,** through easy-to-use products that are less harmful to people (manufacturers, installers and users) and fully compliant with environmental regulations.



**Efficiency,** to reduce energy and resources required in production and enable users to improve productivity and reduce costs.



**Flexibility,** to adapt to diverse materials and conditions.



**Responsiveness,** to anticipate and meet user needs – with products that fulfill multiple functions.

## Bostik around the world

Being a global player across diverse markets gives Bostik unique insights and creates opportunities to anticipate trends and leverage innovation in selected, specialty markets.



### ASIA partnering to capture new markets

# Strong economic growth and an emerging middle class underpin Bostik's double-digit growth in Asia, which now represents 21% of the company's global sales. Changing consumer habits drive sales of a wide range of goods, such as personal hygiene products and flexible packaged food, the production of which requires an adhesive solution. Demand for larger, more comfortable housing and more frequent travelling is boosting development in construction and transportation. Across Asia, Bostik has helped long-term industry partners bring best-in-class solutions to these new markets - thanks to innovative products. Bostik is, for example, developing new partnerships to bring smart adhesive solutions to Asia's electronics manufacturing sectors. —●



### THE AMERICAS expanding penetration of established solutions

# 29% of Bostik's worldwide sales is delivered in the Americas. Bostik's strong history in North America enables the company to leverage relationships with existing customers to transfer core technologies into high growth markets. Over the past five years, strong growth in Central and South America (particularly Mexico, Argentina and Brazil) has balanced a sluggish market in North America, which now shows signs of recovery. A key support for future growth is that innovation at Bostik's US R&D facility can be rolled out to local markets and adapted through technology centers in Mexico and Brazil. —●



### EUROPE steady growth and targeted advancement

# Europe is Bostik's most mature market, accounting for 50% of global sales. Strong brand recognition puts the company in an excellent position to expand into Eastern Europe, Russia and Turkey, while new applications (or new application methods) for existing products support overall growth. Bostik recently opened a new global R&D center in Venette near Paris in October 2014 to reinforce its worldwide focus on elastic bonding adhesives and hot melts, and provide support for technical innovation in Europe. —●

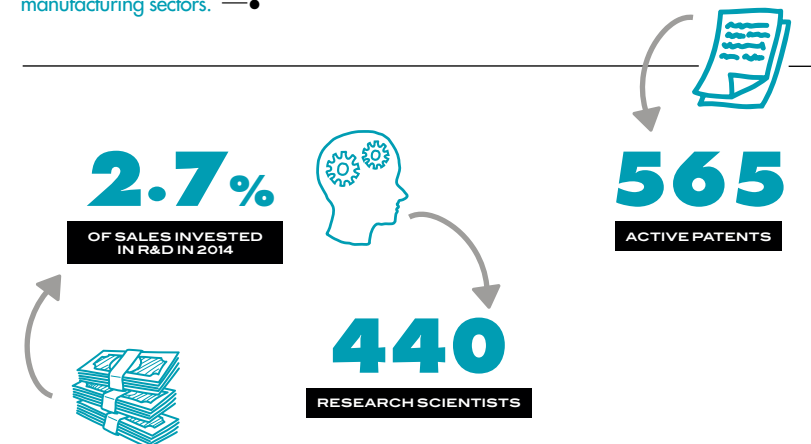
## BOSTIK: INNOVATION DRIVING PERFORMANCE

The world No. 3 in adhesives has made innovation a keystone of its growth strategy.

In 2014, 15% of Bostik's sales came from products launched in the last three years. "This will hit 20% in 2017", predicts Bruno Charrière, Research, Development & Innovation Director at Bostik. This indicator shows the vitality of Bostik smart adhesive solutions. "Bostik differentiates itself through innovation, developing products that offer our clients new benefits", he adds.

### COMBINING R&D AND MARKETING

Innovation is the result of the constant intersection of R&D breakthroughs and marketing studies. In 2014, the company invested 2.7% of sales in R&D. It has three global centers of excellence – to the north of Paris (Venette, France), in Milwaukee (United States) and in Shanghai (China) – that focus expertise on three key technology platforms: hotmelt PSA (pressure sensitive adhesives), elastic bonding and polymer-modified binders used in solutions for the construction sector in particular. Downstream, Bostik works closely with its clients through a network of regional technology expertise centers focused on local development and technical customer support. This driver of innovation has produced, for example, new hotmelt technology known as ZeroCreep Avancé™ (used in the manufacture of diapers) that requires a lower application temperature and reduced amounts of adhesive. "We are delivering industrial and environmental performance to our clients", says Bruno Charrière. Bostik R&D has also developed soundproofing adhesives for hardwood floors and fire-retardant sealing solutions for aircraft interiors and railcar windows, etc. Adhesives that fulfill their promise to do more than just stick things together! —●



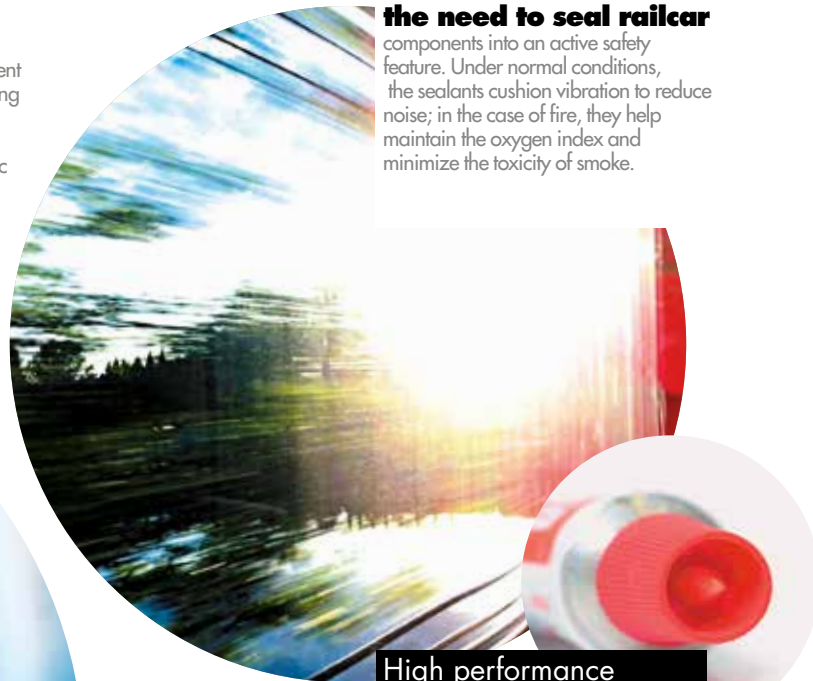
Pressure-sensitive adhesives enhance multiple products

**ZeroCreep™ and the newer ZeroCreep Avancé™** are the most robust elastic attachment adhesives on the market, establishing Bostik as the leading innovator in disposable hygiene adhesives and the world's largest supplier of elastic and stretch technology.



Fire-retardant sealing and bonding make rail travel safer

**Bostik has transformed the need to seal railcar** components into an active safety feature. Under normal conditions, the sealants cushion vibration to reduce noise; in the case of fire, they help maintain the oxygen index and minimize the toxicity of smoke.



High performance adhesives (consumer product range)

**A range of adhesives to repair and assemble**

all types of materials (wood, glass, ceramics, metal, plastic, paper, etc.) for multiple surfaces (plaster, wood, cement, glass, metal, ceramics, etc.) and under any conditions. These adhesives represent maximum strength for home improvement experts and beginners alike. They are instantly recognizable thanks to their catchy slogans: "Sader®, ça adhère!" (Sader®, it sticks!).

Wallpaper, frieze and molding adhesives

**Fancy redecorating?**

How about a trendy new wall covering? A frieze to brighten things up? Some vintage molding? As for the adhesive, the choice has to be Quelyd®. Available in all decorating and home improvement stores.



Transparent labels enhance product aesthetics

**Clear on clear adhesives** offer the highest levels of transparency and performance, including resistance to the pasteurization process, and are actively used in the food and cosmetics industries, particularly on premium glass bottles and packaging.



Reseal packaging keeps food products fresh

**Bostik's M-resins®** make it possible to open, close and re-seal packages many times – until the product is fully consumed. And food kept fresh for longer means less food is wasted.



Smart waterproofing

**Aqua Blocker & Waterstop®** offer an all-in-one solution for repairs and waterproofing. They work equally well on horizontal and vertical surfaces, and can bridge gaps of up to 5mm. The perfect waterproof membrane for indoor and outdoor applications that can be painted, covered or left uncovered.



Crystal clear grab adhesive provides the perfect finish

**With high initial tack and strong**

resistance to yellowing, this transparent Silyl Modified Polymer (SMP) product keeps bonding and sealant finishes looking fresh for many years in both indoor and outdoor applications.



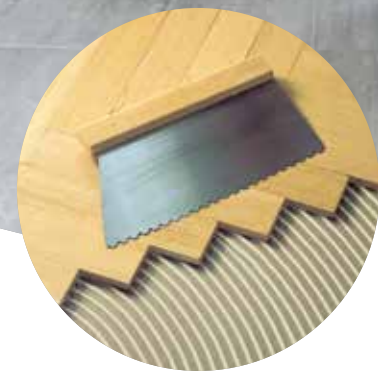
Elastic adhesives boost the longevity of vinyl flooring

**These premium adhesives,** formulated especially for premium vinyl flooring, rubbers (or slabs) and other flexible coverings, prevent movement, uplifting of joints and curling, and are four times more resistant.



Flexible cement supports large-format floor tiles

**With a lightweight formulation** offering waterproofing and highly flexible properties, Bostik's large-format tile adhesive provides an ideal solution to fix tiles up to 1m x 1m in size, in both dry and wet rooms on multiple substrates (cement, plaster, plasterboard, etc.).



Hardwood adhesive blocks moisture and reduces noise

**Axios™ Tri-linking™ polymer technology**

supports easier installation of hardwood floor and wall finishes while delivering user comfort through an anti-fracture membrane that also offers moisture protection and sound-deadening features.

A woman with long dark hair, wearing a red sleeveless dress, is seen from behind, standing in a store. She is holding two shopping bags in her left hand and pointing her right index finger at a glowing point on a digital display. The store's shelves are filled with various products, including a perfume bottle, a high-heeled shoe, a handbag, a pair of sunglasses, a stack of gift boxes, a pair of boots, and several pairs of high-heeled shoes. The lighting is bright and colorful, creating a vibrant shopping atmosphere.

**“Arkema products are improving people’s daily lives. From electronics to cars and even sports shoes worn by top athletes, the examples are endless...”**

**Guido Dona,**  
Pebax® General Manager

live fully



## THE DAILY ROUTINE WITH ARKEMA CHEMICAL PRODUCTS

We don't realize the role chemical products have in our daily routine. Unseen yet essential, dozens of Arkema products are quietly making our lives safer and more comfortable, as well as protecting our environment. Illustration through a busy day of an active family.

7.00 am

### A breakfast packed with vitamins

Orange juice for the whole the family. *The plastic and cardboard layers of the sturdy carton are glued together using Evatane® polyolefins. The juice will stay fresh for a few more days in the refrigerator that uses a Forane® fluorinated gas cooling system.*



7.30 am

### In the bathroom

A reviving shower for Dad with soap made from Oléris®, a derivative of castor oil that enhances its lemony scent.

Make-up time for Mom. Her "BB" cream ("blemish balm cream"), blusher and lipstick contain Orgasol® fine powder that makes them soft and creamy.



8.00 am

### In the car

Off to school for Dad and the kids in the family car, a low emissions fuel sipper, thanks to lighter weight components. *The motor is equipped with Rilsan® polymer tubing that is lighter than steel, the roof is made of Altuglas® ShieldUp, a lightweight plastic with the look and transparency of glass.*



8.15 am

### On the bike

Mom heads off to work on her bike: *a lightweight model with an epoxy-based composite frame strengthened by Nanostrength® additives.*

8.45 am

### At the office

Mom arrives at the glass building where she works. In this business district, the buildings wear extremely well. *The metal cladding on the buildings is protected with a Kynar® 500 coating that is UV, dirt and pollution resistant.*



10.00 am

### A low-energy building site

Dad heads to the construction site for a low-energy building project he is managing. He takes delivery of double glazed windows that offer outstanding insulation: *Siliporite® molecular sieves absorb moisture between the two window panes; their surfaces treated with Certincoat® Low E, a coating that reflects back interior heat. Durastrength® and Clearstrength® additives give the window's PVC profiles added impact and UV resistance.*



12.30 pm

### Smartphone always at hand

Dad checks his afternoon schedule on his smartphone. *A model equipped with a high-performance lithium-ion battery that uses Kynar® to fuse the electrode components.*

1.00 pm

### Ready for a run

An active lunch break for Mom: she slips on her new trainers. *The soles made of Pebax® elastomer offer light weight, energy return and comfort.*



5.45 pm

**An alternative route**

A detour on the way home for Dad: part of the road is under construction. *These road works have a limited environmental impact: the Cecabase RT® additive makes the asphalt fluid at lower temperatures, which means it doesn't require as much heating. It can also be used with recycled asphalt.*



6.15 pm

**Video games**

The two older kids are battling it out in a video game. *The polycarbonate shell of the game console contains Clearstrength®, an additive that improves impact resistance.*



6.00 pm

**A quick trip to the supermarket**

Text message from Mom: "Could you pick up some diapers for the baby? *If possible the superabsorbent ones (made from polymers derived from Norsocryl® acrylic acids). And also some spray Bleach (the generic name for Bactivel® sodium hypochlorite) to clean the kitchen?"*

6.30 pm

**DIY session**

The parents do some painting and lay a parquet floor in the baby's room. *They use an odor-free water based paint that doesn't drip and covers well, made from Synaqua® acrylic resins and Coapur® thickening agents. They use Bostik Vinyl PVC adhesive to glue the flooring - an ultra scratch-resistant parquet, varnished with Sartomer UV cured resins.*



7.45 pm

**Dinner time**

Cooking with gas to heat up dinner. All the while protected by *Spotleak®, an odorizing sulfur product added to gas so that leaks can be detected. It disappears as the gas burns.*



9.00 pm

**Getting washed**

The kids brush their teeth in the bathroom: *the Altuglas® acrylic glass furniture is both light and strong. No need to worry about splashes: the basin is sealed with Bostik Kitchen & Bathroom Silicone.*



9.30 pm

**Time to wind down with some reading**

The kids are in bed. Time for the parents to wind down with good magazines. *The pages are made from pulp bleached white with Albone® hydrogen peroxide. The Reocarb® coating additives give them a glossy finish.*

10.30 pm

**A little backache**

Before bed, Dad takes an anti-inflammatory drug to relieve a backache – probably the result of his DIY efforts. *The drug's active ingredients are made using a synthetic intermediate with a hydrazine hydrate base.*

11.00 pm

**The end of a long day made more comfortable by Arkema products!**



# PEBAX®

## ITINERARY

### OF A TALENTED POLYMER

**Sports shoes, medical equipment, textiles, electronics... Pebax® elastomer resin has conquered multiple markets, where its combination of resistance, elasticity, lighter weight and flexibility make possible high-performance end products.**

In 1981, the chemical industry faced a shortage of plasticizing additives - molecules added to materials to improve performance. In the Arkema labs, researchers went in search of a polymer "talented" enough to perform without additives. They combined the rigidity of a block polyamide with the flexibility of a polyether block and produced Pebax®, a thermoplastic elastomer (TPE) whose properties - flexibility, elasticity and energy return, resistance to fatigue, impact and tear resistance - can be modulated by altering the ratio between polyamide and polyether. Pebax® resin is also lighter than traditional TPEs. It is waterproof and breathable - meaning it doesn't retain humidity. And it maintains all its properties even in extreme cold environments. In short, it is indeed a talented polymer.

#### PRESENT IN ALL FIELDS

One of the key markets for Pebax® TPE is technical sports shoes. Nike, Puma, The North Face and Mizuno - major brands

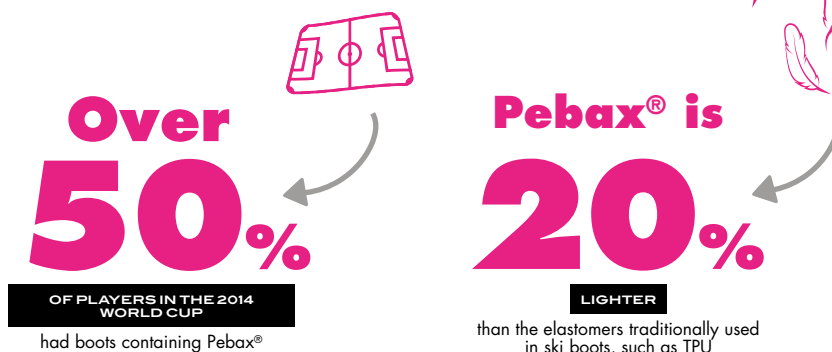
that have adopted Pebax® resin for their designs of "high performance" soles for soccer and rugby boots, running and tennis shoes, even hiking boots. More than half of the players in the 2014 World Cup were equipped with Pebax®-soled boots, celebrated for their combination of elasticity, lighter weight and strength. This polyvalent elastomer is also used in the manufacture of ski boot shells for major brands like Scarpa, Dynafit, Scott and Fischer, where its properties are all the more appreciated because they remain unaffected by very low temperatures.

#### A WHOLE RANGE OF APPLICATIONS

Pebax® resin is also used in many other applications: in industry and transport (for flexible joints, films, and transport or transmission belts), in textiles (as breathable waterproof clothing), in electronics and electrical applications (as an antistatic additive), and in medical applications (for catheters, tubes, surgical gowns and gloves). The range was recently updated with innovations like Pebax® Rnew, the first bio-based TPE, or transparent Pebax® Clear resin, which is expanding design potential and usage.

#### "PEBAX® POWERED," AN ASSET FOR SPORTS BRANDS

Several sports equipment manufacturers have incorporated the Pebax® brand into their marketing strategy, by highlighting its use in their sports shoe models. In 2015, Arkema will be assisting them with a new global marketing campaign focused on three main areas: enhanced partnerships with brands; creation of a "Pebax® Powered" logo to be featured on articles; and finally, a series of advertising campaigns targeting athletes, who are the first to benefit from this technology. "Because it makes a real difference in terms of comfort and performance, Pebax® resin significantly increases a brand's attractiveness", concludes Guido Donà, General Manager at Arkema. —•



### Pebax® in the spotlight at the World Cup

# Arkema's Pebax® elastomer is used in the latest **evoPOWER** soccer boots manufactured by sports company Puma. The model, characterized by its unique design and the shooting power it offers, was worn by many players during the 2014 World Cup in Brazil. —•

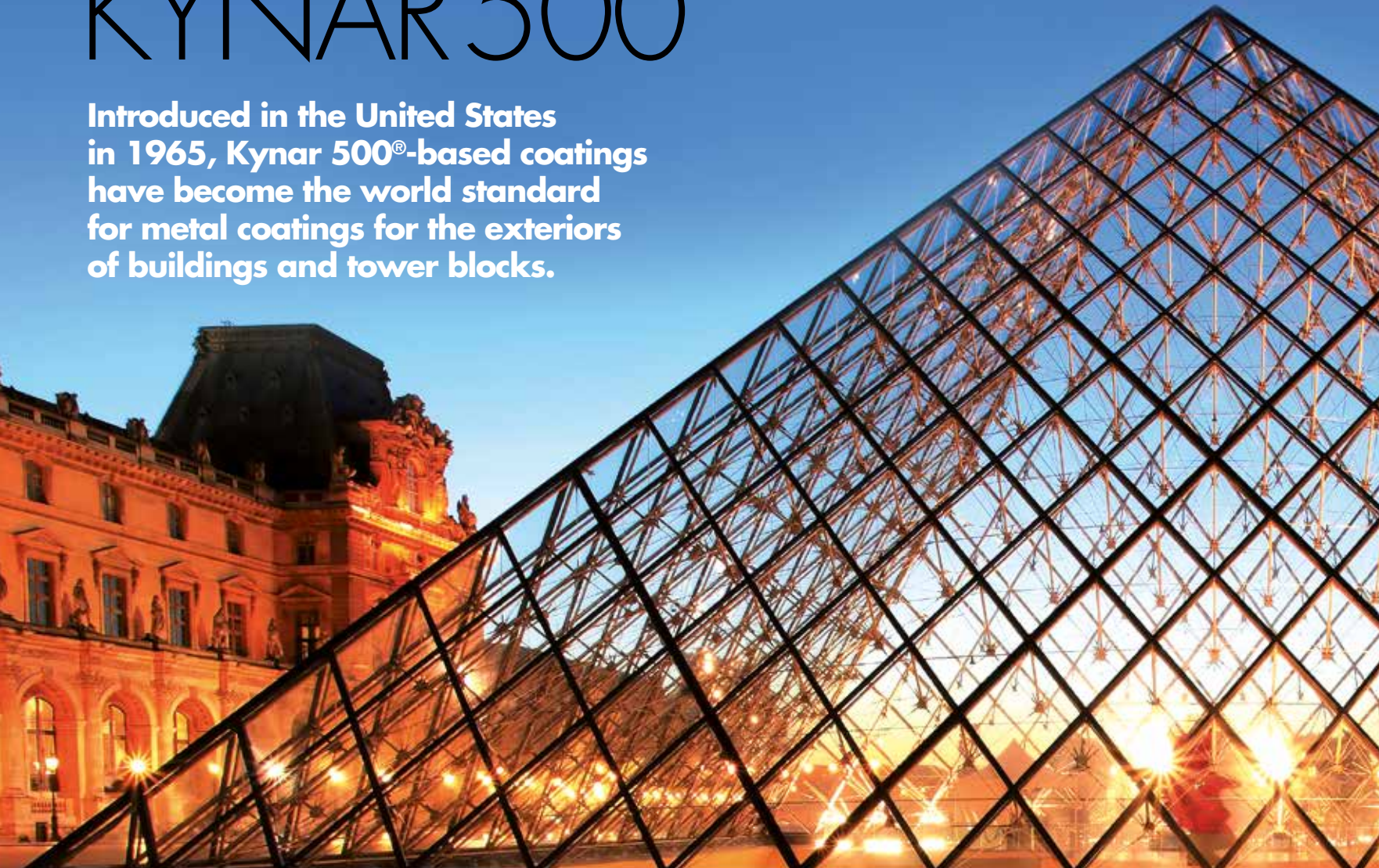


"The shell of our new ski boot Celeste and Cosmos is made entirely of Pebax® Rnew, an elastomer that offers exceptional strength, lighter weight and comfort, even in extreme cold. For our customers, its technical performance and environmental advantages offer convincing sales arguments. So we are keen to highlight this technology with specific 'Pebax® Powered' labeling."

**ALESSANDRO MORANDIN,**  
Scott Sport, R&D Manager

# 50 YEARS OF KYNAR 500®

Introduced in the United States in 1965, Kynar 500®-based coatings have become the world standard for metal coatings for the exteriors of buildings and tower blocks.



This durable coating, lasting well over 20 years, has been chosen to protect iconic structures around the world, including the Louvre Pyramid in Paris, the Oriental Pearl tower in Shanghai, and famous build-

ings, including major hotels, from Las Vegas to Dubai. The success of Kynar 500®-based coatings is matched by the success of the family of materials to which it belongs – PVDF or polyvinylidene fluoride

resins, marketed by Arkema under the Kynar® brand. Fifty years of R&D and innovation have resulted in a multitude of PVDF applications, including chemical engineering, water filtration and photovoltaics.

Today, Arkema is the world leader in PVDF resins with an estimated 40% market share. The Group has worldwide capacity with production plants in the United States, France and, as of 2011, China. —●

## AN AMBASSADOR FOR THE KYNAR® BRAND

Used for half a century as a coating to protect major buildings around the world, Kynar 500® has helped to forge the image of Arkema's fluoropolymer brand.

In 1965, American company Penwalt – acquired about 25 years ago and now an integral part of Arkema – launched Kynar 500®, a specific grade of PVDF resins. Kynar 500® resin is the foundation of highly durable coatings that are factory applied to the metal facades and curtainwalls of buildings. "We succeeded in inventing a resin that could be used as a base for coatings capable of resisting UV, weathering and dirt for more than 20 years!" recalls Dave Seiler, now head of US Industrial Markets at the Fluoropolymers BU.

Kynar 500® coatings developed very quickly in America during the construction boom. Five years after it was launched, revenue had exceeded the other two existing PVDF applications in the US - Kynar® was already being used in industry for the manufacture of pipes for chlorine compounds, and in the electricity sector for cable sheathing in extreme environments. —●

## Impressing architects ...

### TO WIN OVER PAINT MANUFACTURERS

The teams that were initially charged with Kynar 500® marketing didn't just target paint manufacturers, their direct clients. "In order to create demand, very early on our teams met with architects, explaining how they could give free rein to their imaginations with finishes that wouldn't need to be repainted or cleaned every five years!," explains Jay Carroll, head of the Fluoropolymers BU in the US. Today, Kynar 500® is still the brand of choice for major architect firms all over the world! —●



ARKEMA No. 1 WORLDWIDE FOR PVDF RESINS



THE SHARE OF TURNOVER

that the Fluoropolymers BU invests in R&D

## KYNAR® PVDF - A WORLD OF INNOVATION

In 50 years of R&D, Kynar® resin has found multiple applications.

### A SOUND CHOICE FOR EXTERIOR FINISHES

Kynar® PVDF remains widely used in its initial application - architectural coatings - a sector for which Arkema now produces the fluorosurfactant-free Kynar 500® FSF®. In 2010, the Group launched Kynar Aquatec®, a grade of PVDF acrylic resin designed for water-based emulsion paints that can be sprayed or applied by brush directly onto all types of surfaces. Highly durable, these paints can also be used for reflective "cool roofing" to reduce air-conditioning demands.

### A POLYMER FOR EXTREME ENVIRONMENTS

Another traditional application is industrial engineering. Waterproof, chemically and thermally resistant, Kynar® resin has been used since the 1960s in tubing, pumps, fittings for the chlorine and paper industries, in petrochemicals and the transportation of fuels. In the 1990s, prized for its high purity, Kynar® resin was adopted by the semi-conductor industry. Kynar® resin is also used in military equipment and fire alarms as sheath-

ing for electrical and fiber optic cables exposed to high-temperatures. Since 1980, Kynar® resin has been used in fireproof cables meeting strict construction standards in the United States. In the late 1990s, a Kynar® grade was developed to meet the extreme pressure and temperature requirements of flexible pipes used on offshore oil platforms.

### EMERGING APPLICATIONS

Since the mid-2000s, Kynar® has been used in lithium-ion batteries for electronic equipment. "Without knowing it, tablet and smartphone users have up to 1g of Kynar® in their hands," points out Erwoan Pezron, Global Managing Director of Fluoropolymers BU. Kynar® resin is also used in the manufacture of electrodes for the batteries in hybrid and electric vehicles.

Arkema continues to invest heavily in R&D and the development of emerging Kynar® applications. The Group has designed a Kynar® grade specifically for weather and UV resistant

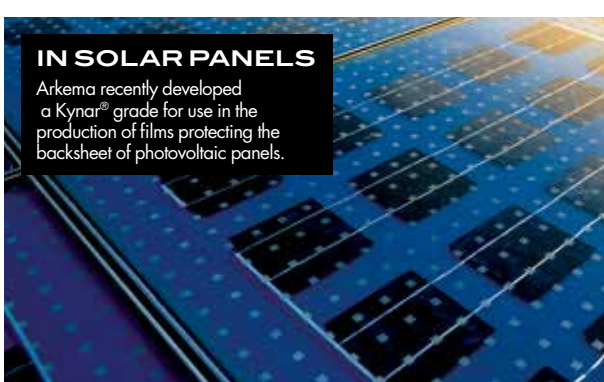
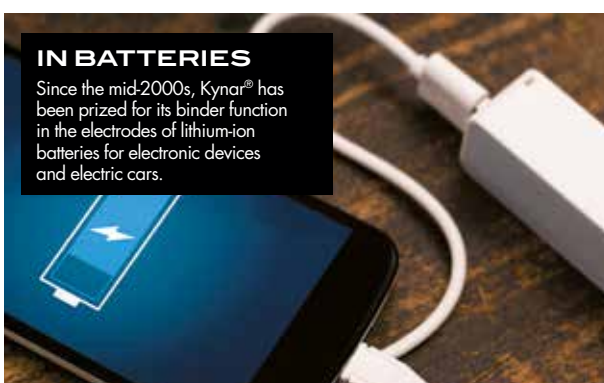
films that protect the rear surfaces of solar panels. And Kynar® resin is part of a new generation of nanostructured membranes that can increase water filtration rates by 20%.

Fire-resistant Kynar® foam is replacing some metal fittings in aircraft, including window frames and air-conditioning vents. "Kynar® foam saves the equivalent weight of one passenger in a commercial aircraft," says Anthony Bonnet, Head of Kynar® R&D. —●

## Globalized production capacity

Since its launch in the United States, Kynar® resin has found applications all over the world. "Since the 2000s, Kynar® has experienced high growth in Asia within the battery and photovoltaic sectors," explains Julie Zhang. "We are also developing industrial markets in South America," adds Dave Seiler.

To meet increasing demand, Arkema has developed its production capacity over all the continents. In 2011, it opened a production plant in Changshu, China - sized to handle the large volumes required by the Asian market. This complements existing manufacturing in Calvert City (Kentucky, United States), which produces a wide range of grades, and Pierre-Bénite (France), which specializes in high purity Kynar® grades. "Our processes and our production plants maintain a high level of flexibility. For each major grade, we have two possible production sites," indicates Erwoan Pezron. —●



**IN ARCHITECTURAL COATINGS**  
For the past 50 years Kynar® 500 has been protecting prestigious buildings and monuments around the world, including the Grande Arche in La Défense, Paris.

**IN ELECTRIC CABLE AND WIRE SHEATHING**  
Since the 1980s Kynar® has been used to manufacture fire-retardant cables meeting building standards in the United States.

**IN BATTERIES**  
Since the mid-2000s, Kynar® has been prized for its binder function in the electrodes of lithium-ion batteries for electronic devices and electric cars.

**IN SOLAR PANELS**  
Arkema recently developed a Kynar® grade for use in the production of films protecting the backsheets of photovoltaic panels.

### MARKET SHARES



## On all continents

# Introduced into Europe in the early 1970s, Kynar 500® coatings developed at a phenomenal rate over the space of a few years. The story was the same in the Asia-Pacific region in the early 1980s, first in Australia, then in Japan, South Korea and, of course, China. "Up until the 1990s, Kynar 500®

coatings were the main development in fluoropolymers in Asia," explains Julie Zhang, head of the Fluoropolymers BU in Asia. In 1980s, having proven durable over time, Kynar 500® established itself as a leading brand. It has been used on iconic buildings around the world,

including the roof of Court One at Wimbledon in London (United Kingdom), the Dallas Convention Centre (United States) and monumental tower blocks such as Tomorrow Square in Shanghai (China). —●

**"There is no real innovation without anticipation. To imagine tomorrow's chemicals, we need to be in touch with our clients' needs, but also be able to identify the next big breakthrough."**

**Christian Collette,**  
Vice President, Arkema R&D

imagine passionately

## HOW ARKEMA IS KEEPING ONE STEP AHEAD

As shown by its research programs dedicated to composites, organic electronics and piezoelectric materials, Arkema is supporting and anticipating the needs of its markets. Christian Collette, Arkema Research & Development Vice President, explains this approach to imaginative and collaborative innovation.

1

### LEGITIMACY:

**Expertise in the chemistry of high performance materials**

**"Arkema is applying its capacity for innovation to major social challenges"**

Since 2009, the Group has been focusing its research on high performance and specialty materials that address major social challenges such as conserving fossil fuel resources and encouraging the development of new energies. For example, answering the needs of auto manufacturers for lighter, more fuel efficient vehicles, Arkema's innovative thermoplastics are increasingly being used to replace steel fuel lines and glass windshields. Arkema is also investing in liquid thermoplastic resins (see page 44) to provide a recyclable alternative to thermoset composites. The Group is currently involved in more than 200 research programs to develop components for automotive, industrial and consumer goods. Several of these will have entered the commercial phase by the end of 2015. —●

2

### COMMITMENT:

**Open innovation**

**"A window on the world"**

Innovation at Arkema is open, connected and directly related to its environment. This is what's known as "open innovation". Always on the look out for scientific expertise, the Group relies on its partnerships with about fifty major engineering schools, universities and public research organizations to monitor future technologies. The research labs that the Group runs in France with the Eastern France Plastics Cluster and the CEA (French Atomic Energy Commission) for example, have contributed to recent advances in composites and piezoelectric research (see page 48). But Arkema is also bolstering its application expertise via industrial partnerships. There are thirty different industrial partnerships currently in place, including equity investment in start-ups, creation of co-development labs and participation in competitiveness clusters. —●

3

### VISION:

**Anticipation supported by breakthrough programs**

**"We are constantly striving towards the next big breakthrough"**

In order to anticipate market needs 20 or 30 years from now, Arkema is working now on breakthrough programs and is committed to long-term innovation. This ambition is supported by a dedicated internal structure known as the "Arkema incubator" that develops innovative products and focuses on their future commercialization. It targets technologies that require medium- to long-term development. Eight programs are currently incubating, mainly in the fields of very high performance polymers and nanomaterials. Created in 2008, the incubator works as an independent business unit and has its own production facilities. —●

4

### MISSION:

**acquisition of start-ups and leading-edge technologies**

**"Once they have been integrated, start-ups can concentrate entirely on their industrial and commercial development"**

Arkema is also tapping into the potential of its incubator to identify technologies and products that are compatible with the Group's business strategy. The aim is to accelerate the development phases by focusing on the best start-ups in target technologies, with the support of its network of university connections. For example, Piezotech (piezoelectric polymers) and AEC Polymers (nanostructure adhesives) are some of the latest acquisitions to be hosted by the incubator. The Group provides them with the necessary resources and expertise so that they can grow in an environment conducive to the development of new applications. —●

# 5

## main areas of research

- # Materials for new energies
- # Products from renewable raw materials
- # Lightweight energy-saving materials
- # Water treatment solutions
- # Organic electronic materials



"Arkema has never had so much professional recognition"

### 3 QUESTIONS FOR:

**CHRISTIAN COLLETTE**  
ARKEMA RESEARCH & DEVELOPMENT VICE PRESIDENT

#### WHAT SIGNS INDICATE THAT INNOVATION IS THRIVING AT ARKEMA?

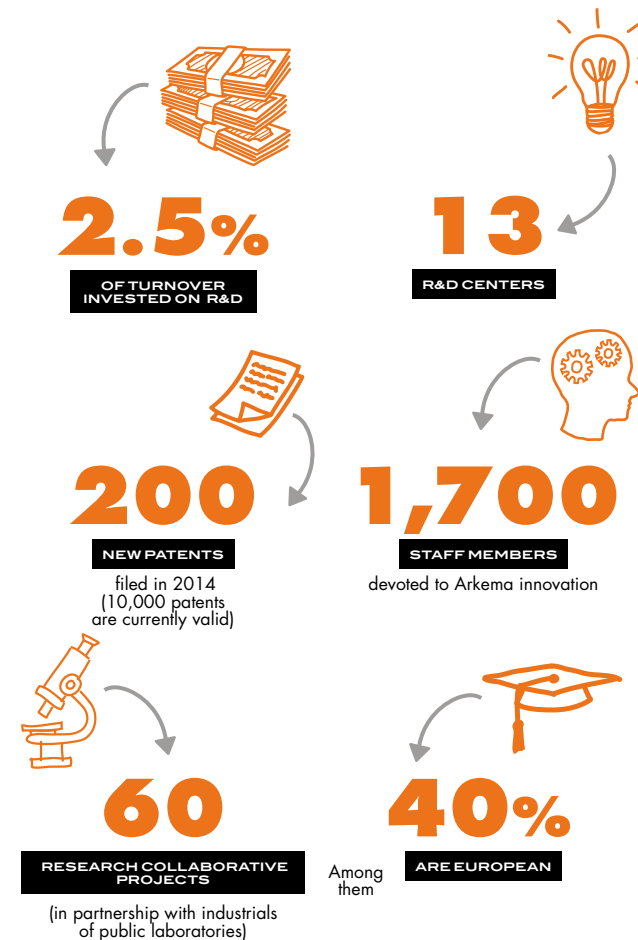
**C. C.** > In 2014, for the fourth year running, Arkema was ranked by Thomson Reuters among the 100 most innovative companies worldwide, all sectors combined. Since 2010, the Group has won over twenty international awards, including the prestigious Pierre Potier Prize four times. As well as these distinctions, there has been significant progress in the number of patents being filed: 200 in 2014.

#### HOW WOULD YOU EXPLAIN THIS SUCCESS?

**C. C.** > Arkema has chosen to invest heavily in innovation, giving priority to technical resources. But we have also strengthened our intellectual property management: the way we use patents now gives us more protection than in the past.

#### WHERE DO THE GROUP'S STRENGTHS LIE IN TERMS OF INNOVATION?

**C. C.** > We take controlled risks. Starting up an R&D project requires major investment. We therefore need to be persistent but not obstinate: our organization enables us to re-evaluate the potential of a given program at the end of each stage of development, with reference to the initial objectives. —●



# LIGHTWEIGHT MATERIALS

## THERMOPLASTICS MAKING LIGHT WORK OF TECHNOLOGICAL CHALLENGES

Lightweight, high-performance and recyclable - Arkema thermoplastics, like the new Elium® liquid resin for composites, are helping auto makers design cleaner and more fuel-efficient vehicles.



### THE RACE FOR LIGHTWEIGHT VEHICLES

By 2020, all cars sold in the EU will have to average less than 95 grams of carbon emissions per kilometer, compared with the current limit of 160 grams. *"This objective will require a drastic reduction in vehicle weight, which can be achieved by replacing metal with high-performance plastics and composites,"* explains Michel Glotin, Scientific Director at Arkema. In this bid to make lighter vehicles, the Group has partnered with auto manufacturers, offering a range of high-performance thermoplastics including Rilsan® polyamide 11 and Rilsamid® polyamide 12, as well as Rilsan® HT, a grade which can withstand the very high temperatures under the hood. Six times lighter than steel, three times lighter than aluminum, and offering equivalent reliability, impact and heat resistance, these polyamides have already replaced metal for liquid lines in some car models.

In the thermoplastics family, Arkema has also developed Altuglas® Shield-Up. This nano-structured PMMA acrylic glass is 50% lighter than traditional glass and used for the windows of the Twizy, the small electric car manufactured by Renault.

In the intermediate term, the introduction of thermoplastic components into the vehicle chassis – body in white – should generate the biggest weight savings. The Group is contributing to this revolution in France within the ADEME\* supported "Compofast" project, involving about ten laboratories and industrial players like Plastic Omnium, PSA and Renault.

\* Organization working for the environment.

### ELIUM® INNOVATION: RESILIENCE OF A COMPOSITE, RECYCLABILITY OF THERMOPLASTIC

Another way to reduce weight is to manufacture parts using composites, very durable materials that blend plastic resin with carbon or glass fibers. Thermosetting composites are 50% lighter than steel, 30% lighter than aluminum and remarkably strong. They have many applications in the nautical and transport industries. However, they present one major drawback - they can't be melted down or recycled. End-of-life thermoset composites are usually incinerated or buried.

To make composites recyclable, Arkema has launched Elium®, a unique range of liquid thermoplastic resins that can be processed in the same way as thermoset resins. Composite parts made from Elium® have the same outstanding mechanical properties but are easily recycled. *"Another advantage of Elium® based parts is that they can be thermoformed or welded, whereas thermoset components require bonding, which is often quite difficult to master,"* explains Michel Glotin.

### WIND POWER

Arkema's lightweight materials are attracting interest in many other markets beyond automotive. For example, Kepstan® PEKK combines light weight, mechanical toughness and non combustibility, making it a high grade thermoplastic. It can be used for templates to manufacture structural components of carbon fiber composites for the aviation or offshore oil industry, as a replacement for metal or thermoset composites.

Finally, a new high potential market is opening up - wind power. As part of the "Effiwind" project, which includes other cutting-edge technology companies, Arkema is using its Elium® resins to develop blade prototypes. *"In 2013, some 530,000 tons of thermoset composites were required to manufacture new wind turbines installed around the world. In 2020, the requirement will reach one million tons and, at end of life, all the thermoset products will require burial. We need to develop alternative solutions today. Blades manufactured using Elium® are fully recyclable,"* concludes Michel Glotin. Thermoplastics have a bright future. —●

ONE CAR



- 100 kg



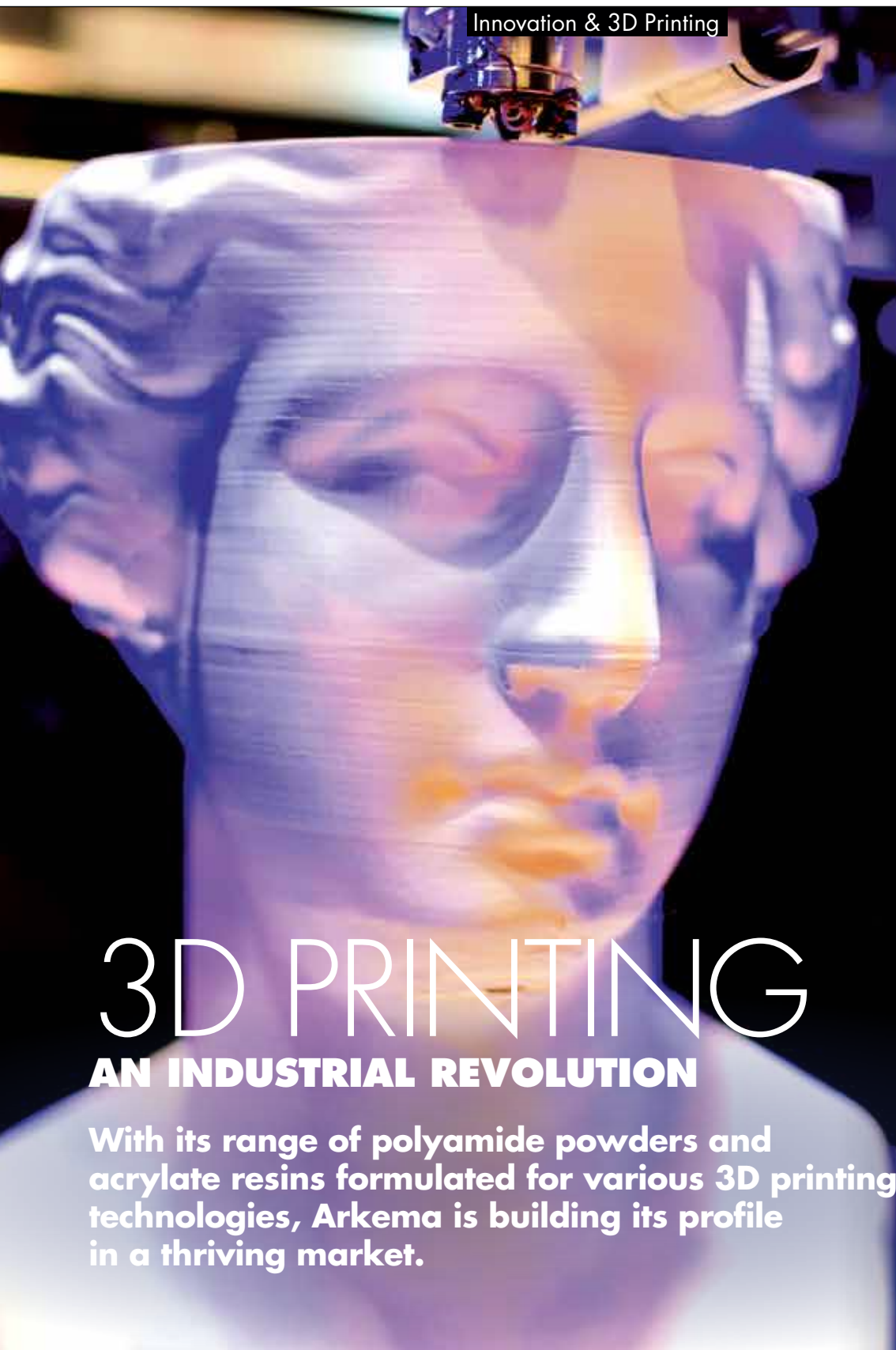
- 0.4 l / 100 km



- 10 g / km

According to a study carried out by JEC Magazine, thermoplastic composites represent just a small segment of the composites market, but annual growth is 10% compared to 3% for thermoset composites.





# 3D PRINTING

## AN INDUSTRIAL REVOLUTION

With its range of polyamide powders and acrylate resins formulated for various 3D printing technologies, Arkema is building its profile in a thriving market.

### HUGE POTENTIAL

According to Xerfi, an independent publisher of sector-based economic studies, the global 3D printing market (machines, materials and services) reached €2.9 billion in 2014. The market is expected to grow by 20% per year until 2020. Professional and industrial applications account for 85% of the total market.

*"3D printing offers total freedom of design for complex parts and eliminates the need for molds, which are often time consuming and expensive to develop. The resulting flexibility and time-saving also mean significant financial savings for design offices and industrial companies when it comes to producing prototypes and limited runs,"* explains Ilias Iliopoulos, Scientific Director at Arkema.

3D printing technology could totally revolutionize our methods of production and our consumer habits. Everyday objects could someday be 3D printed models. At the moment, equipment costs and lengthy printing times are keeping this technology from people's homes. But the general public might soon be sending models over the Internet to local service providers for printing. Or industrial users might no longer stock spare parts, but print them on demand.

### ORGASOL®, RILSAN® AND KEPSTAN® MAKING THEIR MARK IN 3D PRINTING

Arkema is developing high performance materials for the main 3D printing technologies currently being used by professionals. The Group produces two ranges of fine polyamide powders that offer excellent mechanical properties for laser sintering, a manufacturing technique that uses a laser beam to fuse together thermoplastic powders

layer by layer. Orgasol® Invent Smooth provides a smooth high quality finish, excellent detail and efficient recycling of leftover powder. Rilsan® Invent Natural, is 100% sustainably biosourced and can be used to create parts with unmatched mechanical properties.

Arkema is also working to develop a range of specific grade of Kepstan® PEKK powders, - an advanced performance polymer - that can be used in laser sintering processes to make parts exhibiting extreme toughness. Prototypes, limited runs and spare parts are increasingly being produced using laser sintering techniques in the medical sector (dental implants, orthotic devices, and surgical guides) and in industry (aerospace, automotive, sports, and equipment). *"Smooth finish, complex and mechanically resilient components: we are opening the way to unlimited creativity,"* says Adrien Lapeyre, Global Marketing Manager at Arkema.

### SARTOMER RESINS, A TOP QUALITY FINISH

Sartomer, a subsidiary of Arkema, produces another large family of materials, acrylate resins, used in PolyJet and stereolithography. The technique involves a UV curing process - the object is created using a liquid resin that hardens under ultraviolet light. The result is a very fine grain, a smooth finish, a variety of colors, and the possibility of printing the same object using different materials with specific mechanical characteristics. UV curing is the top choice for a quality finish (e.g. presentation prototypes, architect or designer models, and custom-made products). *"We are also working on resins with increased mechanical properties so that UV curing can expand from prototyping to the manufacturing of limited*

*runs,"* explains Hervé Cavalié, Business Manager Europe at Sartomer.

### R&D, THE KEY TO SUCCESS

To guarantee both choice and performance, Arkema relies on collaborative cutting-edge research. *"We are working with manufacturers of 3D printers to optimize existing technologies and anticipate future developments. The market is evolving rapidly and this particular industrial revolution has only just begun,"* confirms Ilias Iliopoulos. —●



€2.9 bn

THE GLOBAL 3D PRINTING MARKET

85%

FOR PROFESSIONAL AND APPLICATIONS

+20%

ANNUAL MARKET GROWTH



# PIEZOTECH

## POLYMERS CAUSING A SENSATION!

**Vibration, sound, temperature measurement, Piezotech electroactive polymers are going to bring sensory functions to the robotics, aeronautics, medical, automotive and electronics industries. Spotlight on polymers that move.**

Acquired by Arkema in 2010 and since hosted by the Arkema incubator, Piezotech is developing a range of very different PVDF-based polymers. How different? *"They are electroactive, meaning that they are deformed by an electric current or field and they generate an electric current in response to mechanical pressure"*, explains Fabrice Domingues Dos Santos, CEO of Piezotech. As powders, thin films or inks, these innovative polymers will eventually be included in many everyday interactive and connected devices.

### SOON, A FLEXIBLE TOUCH KEYBOARD

These polymers are already incorporated into the design of sensors capable of measuring temperature, detecting blood pressure or even converting mechanical energy and storing it as electricity. Integrated into textiles, they make smart clothing. Applied as ink on special paper, they turn documents into loud speakers. Piezotech is developing this application in partnership with CEA, the French public research agency, and Arjowiggins Creative Papers, world leader in technical paper products.

Electroactive polymers are also part of new sensitive interfaces that transmit realistic vibratory sensations (see testimonial below). Soon flexible touch keyboards will be as thin as paper. In addition to haptic applications for consumers (see box), these polymers are also being developed for precision-guided medical catheters and surgical aids. *"Our polymers will be part of wearable technologies—smart watches, glasses and even medical assistance devices implanted into clothing—providing specific haptic or sensory properties"*, predicts Fabrice Domingues Dos Santos.

### THE PRINTED ELECTRONICS REVOLUTION

Another emerging market for Piezotech polymers is printed electronics. Simple electronic components, like transistors, sensors and connections, can now be printed using conductive inks and extremely thin layers of electroactive polymers. This produces electronic components on flexible surfaces such as fabric, paper or plastics—even over large surface areas—at a reduced cost. *"Numerous applications will benefit from large-scale printed electronics, including smart labels, flexible screens and ultra-thin sensors"*, says an enthusiastic Fabrice Domingues Dos Santos. These polymers offer many surprising moves. —●



### Did you say "haptic"?

# Haptics is the science of touch—just as optics is to light and acoustics is to sound. According to the research firm Markets & Markets, haptics could be worth almost 51 billion dollars by 2018. Keyboards, glasses, smart clothing, jewelry... in the future, many consumer goods will offer greater physical interaction. A tablet surface or a car dashboard could transmit tactile information—a vibration—at the point of contact with the user's fingertip. New sensations made possible by the movements of Piezotech electroactive polymers. —●



### Information delivered on contact

# "Novasentis is capitalizing on the properties of Piezotech electroactive polymers to develop a new generation of highly miniaturized haptic actuators. Positioned for example inside the strap of a smart watch, they can produce a variety of vibrations: left, right, circling the wrist, etc. These sensations on contact with the skin are revolutionizing the way we receive information from our connected devices. We intend to market our first applications by early 2016."—●

**FRANÇOIS JEANNEAU,**  
CEO of Novasentis, a pioneering start-up in haptics



# PEKK

## PUSHING BACK THE BOUNDARIES

Among high-performance polymers, PEKK (Poly-Ether-Ketone-Ketone) offers exceptional resistance to extreme environments, like those in aerospace and oil exploration. Arkema's commercial production is a success and it's ready for take off!

### LIGHTWEIGHT, STRONG AND RESISTANT TO (ALMOST) EVERYTHING

PEKK has an extremely high melting point (300°C to 360°C depending on the grade) and provides excellent resistance to chemicals and abrasion. Reinforced with carbon fibers, it is as rigid as some metals, but very much lighter. It is non-flammable and doesn't generate toxic fumes. All this plus it is easily shaped above its melting point: "In one application, we work PEKK at 385°C for an hour without affecting its properties when returned to a solid state", explains Philippe Bussi, Director of advanced materials. More conventionally, it can also be injected into molds or extruded to produce tubes or films.

### FROM COMMERCIAL AIRCRAFT TO OFFSHORE OIL PLATFORMS

PEKK can replace some metal components in highly demanding environments to achieve economies in weight. Starting with aerospace—the polymer can easily withstand the extreme conditions found in motors. And it is being considered in the fuselage design for a new generation of commercial aircraft. "We have agreements with the leading equipment suppliers in aerospace sector", specifies Philippe Bussi. Another important market is offshore oil and gas. "When you drill 2,000 meters down to extract oil, the sheer weight of the metal pipes can be enough to distort them. Pipes made of PEKK, reinforced with carbon fibers, are approximately half the weight yet offer the same rigidity."

Finally, it turns out that PEKK is fully compatible with additive manufacturing –3D printing (see page 46)– for small and medium runs, for example in military and aerospace applications or for Formula 1 racing. —●



### INDUSTRIAL PRODUCTION CAPACITY

#### A first in Europe

# PEKK was invented in the 1960s as part of the Apollo space program. But commercial production requires a complex process and heavy financial investment. Following the 2009 acquisition of American company Oxford Performance Materials (OPM), Arkema took up the PEKK challenge. In partnership with chemicals company PCAS, the Group set up Europe's first industrial production facility for this polymer in France. After several years of investment in R&D, the manufacturing process is now commercial: "In 2014, our Kepstan® PEKK production showed consistent quality and compliance with specifications", says Philippe Bussi. A second even larger production unit is currently under development in the US. This is a strategic project for Arkema, which is positioning itself as the world leader in PEKK. —●



"Demand for PEKK has been driven by the need for lighter materials in rigorous applications like aerospace and offshore oil extraction. Kepstan® PEKK combined with carbon fibers offers a high performance alternative to some metal components... with just half the weight."

**PHILIPPE BUSSI,**  
Director of Advanced Materials

**“Shared with every employee,  
our CSR (Corporate Social  
Responsibility) policy is a source  
of progress that irrigates the whole  
company.”**

**Luc Benoit-Cattin,**  
Executive Vice President, Industry

A photograph of two children walking away from the camera on a wet, paved street. The child on the left is wearing a bright blue raincoat with a yellow car sticker on the back and yellow boots. The child on the right is wearing a pink raincoat with a white rabbit sticker on the back and pink boots. They are holding hands. The background is a wet, grey pavement with some green moss or algae in the cracks.

share **Sustainably**

# ARKEMA IS COMMITTED TO PROGRESS THROUGH CSR

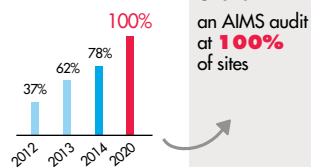
Arkema's goal is to rank among the world's best chemical producers in Corporate Social Responsibility (CSR). The Group has set five commitments and seven safety and environmental objectives to be achieved no later than 2020. In 2014, various initiatives were organized to achieve these commitments.

## 1 BE A TOP QUARTILE PERFORMER IN SAFETY IN THE CHEMICAL INDUSTRY

Arkema's industrial safety process is deployed globally and focuses on three interrelated areas: technical, organizational and human.

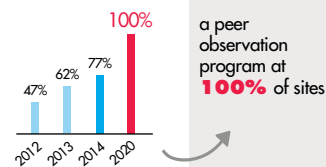
### Three indicators have objectives for 2020

# The Arkema Integrated Management System (AIMS) combines into a single audit all the audits related to safety, environment and quality carried out by the Group.



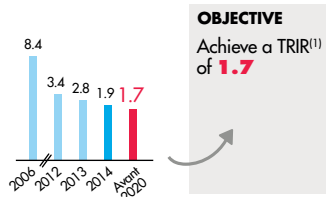
**OBJECTIVE**  
an AIMS audit at **100%** of sites

# The use of peer observation of tasks stimulates risk awareness to reduce the number of workplace accidents.



**OBJECTIVE**  
a peer observation program at **100%** of sites

# The measurement of the accident rate per million hours worked for employees and subcontractors working at sites.



**OBJECTIVE**  
Achieve a TRIR<sup>(1)</sup> of **1.7**

<sup>(1)</sup> Total Recordable Injuries Rate = number of accidents per million hours worked

Arkema has launched "Safety Academy", a training program that strengthens the safety-related behaviors of each employee.

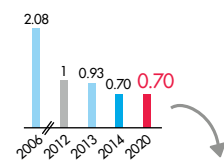
**100%**  
OF EMPLOYEES TRAINED IN 2 YEARS

## 2 REDUCE THE ENVIRONMENTAL FOOTPRINT OF OUR ACTIVITIES

Shrinking our environmental footprint means curtailing emissions from our activities, cutting our resource consumption and stepping up our use of renewable resources. We also assure that our products do not harm either human health and safety or the environment.

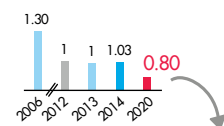
### Four indicators have objectives for 2020 compared to 2012

# Impact of Arkema activities on CLIMATE



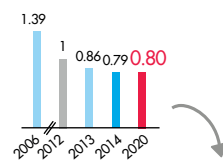
**OBJECTIVE**  
Reduce greenhouse gas emissions (GHG) by **30%**

# EMISSIONS TO WATER



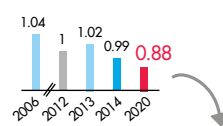
**OBJECTIVE**  
Reduce chemical oxygen demand emissions (COD) by **20%**

# EMISSIONS TO AIR



**OBJECTIVE**  
Reduce volatile organic compound emissions (VOC) by **20%**

# ENERGY consumption



**OBJECTIVE**  
Reduce net energy purchases by **1.5%** on average per year

Arkema recycles or enhances as energies much of its hazardous waste.

**16%**  
RECYCLED MATERIALS

**46%**  
RECOVERED AS ENERGY



"Our CSR policy is a source of progress that irrigates the whole company. It makes us more efficient, more innovative, more responsible and strengthens our operational excellence"

**LUC BENOIT-CATTIN**,  
Executive Vice President, Industry

## 3

### PLACE SUSTAINABLE DEVELOPMENT SOLUTIONS AT THE HEART OF OUR APPROACH TO INNOVATION POLICY AND IN OUR PRODUCT RANGE

Our product R&D and marketing teams focus on sustainable development and the major challenges facing the planet, including developing new energies and lighter materials, combating climate change, improving access to clean water, and increasing the use of bio-sourced raw materials and recycling.

**40%**  
OF PATENTS REGISTERED

In 2014, were related to innovations in sustainable development.

**13%**  
OF REVENUE

achieved through biosourced products

## 4

### ENCOURAGE OPEN DIALOGUE WITH ALL OUR STAKEHOLDERS

We strive through our Common Ground® initiative to talk about our activities and products with all stakeholders, including those living and working near our facilities, civic organizations and associations, educators, and our suppliers, to foster balanced, long-term relationships based on trust.

Arkema has joined the Together for Sustainability (TFS) platform, whose goal is to evaluate and audit suppliers in the chemical industry to improve sustainable development practices. In 2015, Arkema plans to evaluate.

**200** SUPPLIERS INCLUDING **20** AUDITS

AND WILL HAVE ACCESS TO MORE THAN **2,000** EVALUATIONS

## 5

### PROMOTE THE INDIVIDUAL AND COLLECTIVE DEVELOPMENT OF ALL OUR EMPLOYEES

All over the world, our employee relations policy focuses on two concerns: our employees' personal development and initiatives for social development that improve working conditions.

**34 hours**  
OF TRAINING PER EMPLOYEE

on average in 2014, compared to 23 hours in 2013.

**86%**  
OF EMPLOYEES

attended at least one training session, compared to 75% in 2013.

# AIMING FOR ZERO ACCIDENTS WITH "SAFETY ACADEMY"

"Safety Academy" is an ambitious internal training program that supports Arkema's approach to safety. It will be rolled out to all Group employees in 2015 using an interactive module.

## A SHARED SAFETY CULTURE

To promote the safety of our people and assets, Arkema is committed to promoting responsible behavior. Over the past few years, the Group has improved overall safety performance through initiatives rolled out at each site and in each country according to local practices. The "Safestart®," "Human Performance Factors and Safety Organization," "Behavior Based Safety" (called "Safety Observation System" in Asia) and "Essentials" programs have all laid the foundations for a global safety culture.

## A COMMON REFERENCE AT GROUP LEVEL

To reinforce this safety culture, Arkema created "Safety Academy" in 2014. This program synthesizes all the components of the Group's safety policy into a single roadmap that strives towards a single objective: zero accidents. "Safety Academy" sets out safety policy at Group level in a way that can be circulated and shared. It provides every employee with a common reference tool, regardless of position, responsibility level, business unit, or workplace. —●



## "Our safety culture"

### AN INNOVATIVE INTERNAL TRAINING

# All Arkema personnel will receive Safety Academy training through an innovative module entitled "Our safety culture". The session lasts about 2 ½ hours and is designed as a structured exchange that encourages participants to think about the most effective strategies for achieving zero accidents. It is run by a local staff member specially trained as a "facilitator." The module is rolled out to groups of 8 to 10 people selected from different jobs and levels of responsibility. In this way, the participants become familiar

with the company's global safety issues, the objectives and the tools. Around 1,000 general managers and HSE managers from Arkema sites around the world completed the module in 2014. About 150 "facilitators" have also been trained and are ready to deploy the module locally. It is estimated that by mid-2015, all Arkema employees in Europe, Asia and the United States will have completed the "Our safety culture" session. —●

## SAFETY ACADEMY



**PAUL LÉONARD,**  
Vice President of Health,  
Safety and Environment at Arkema

"The zero accident target is well within our reach, as can already be seen from performances at various Arkema sites. With Safety Academy, this objective is being embedded in our shared safety culture."



## testimonials

### GILLES CARRAZ

DIRECTOR OF THE SAINT-AUBAN SITE (FRANCE)

"Safety Academy" makes the zero accident target a common goal that everyone can aim for."



240 employees how important this initiative is to me.

During the training sessions, we ask participants to think about where they have come from, where they are now, where they would like to go, and the reasons why. The zero accident target then ceases to be a mantra and starts to become a tangible goal. Everyone, from director to operator, can then start owning the concept.

"As factory manager, I completed the 'Our safety culture' module. I was immediately impressed by the international and multidisciplinary approach. I also liked the quality of the exchanges between colleagues from all different backgrounds. I then trained as a 'relay facilitator' so that I could run a number of sessions at Saint-Auban. I wanted to show our

Currently, Arkema has all the safety tools necessary to achieve the zero accident target. The Safety Academy offers an ambitious approach because it gives us a global framework and a coherent vision to secure these tools." —●

### CHAD CRITTENDON

MANUFACTURING DIRECTOR - AMERICAS, FUNCTIONAL ADDITIVES BU, ARKEMA INC., KING OF PRUSSIA (UNITED STATES)

"The 'Our safety culture' module places value on the safety heritage of the various Arkema business units, as well as the wide range of tools available."

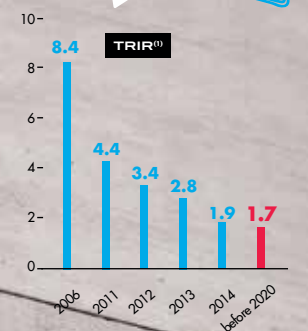


The module places value on the safety heritage of the various Arkema business units as well as the wide range of tools available.

It encourages us to think over the long term and commit to following up the process and the discussion. I am very enthusiastic that it is being rolled out here. The challenge will be getting the participants together in one place and having mixed groups because our plants are located so far from each other. But we will take on the challenge because Safety Academy needs this collective ownership of the commitment to zero accidents." —●

"For Americans, the Safety Academy module is very different from what we're used to. But once they get started on the interactive training module, our colleagues are pleasantly surprised by the power of the process.

NUMBER OF ACCIDENTS on all Arkema's plants worldwide (Arkema's and contractors employees)



<sup>(1)</sup> Total recordable injury rate = number of accidents per million hours worked

## DECLINE IN THE NUMBER OF ACCIDENTS

**1 per day**  
at Arkema's  
plant worldwide  
in 2005

**1 every 4 days**  
in 2013

**1 every 6 days**  
in 2014

## COMBINING INDUSTRIAL OPERATIONS, WATER QUALITY AND BIODIVERSITY

Arkema limits the impact of its activities on water by reducing water consumption, recycling water, and treating water using systems that minimize discharges to rivers and improve water quality. The Group has also begun to enhance biodiversity at some of its sites. A brief look at four sites in Europe and China.

FRANCE

### Restoration of a reed bed at Pierre-Bénite

In partnership with the Naturama environmental education association since 2010, we have refurbished areas of our Pierre-Bénite industrial site in France, including the restoration of a reed bed by appropriate plantings and the elimination of invasive plant species. Since 2013, landscaped flower meadows and ponds have replaced old buildings inside the boundaries of the site, offering an abundance of biodiversity. These environments are now home to many varieties of plants, insects and birds. —●



**CHRISTOPHE DARPHEUIL,**  
Head of the Naturama association

"This site fits perfectly with the objectives of the Grenelle environmental summit, which encouraged blue and green belts in urban areas. Today, beavers have come to inhabit the area, a sign of successful landscaping and ecological integration."



### FRANCE Carling, REHABILITATING THE LANDSCAPE

"The presence of ground-nesting birds like skylarks, fragile insects such as dragonflies, and green toads reflects a healthy environment conducive to reproduction ... a few meters from an industrial site!"

**JEAN-BAPTISTE LUSSON,**  
Head of environmental studies,  
Atelier des Territoires

Environmental specialists *Atelier des Territoires* were asked to rehabilitate a former water treatment lagoon at our Carling industrial site in France. Following an analysis of the species present within the 3.5-hectares area, they restored hedgerows and ponds, improved open meadows, and landscaped boundaries; all of which increased biodiversity in both plants and animals. —●

### ITALY Boretto, A PHYTOREMEDIATION LAGOON

# Our Boretto industrial paint resins site in Italy uses phytoremediation, a natural water treatment system, to restore the ecological balance of its aquatic and humid environments. One part of the site was transformed into marshland partially planted with reeds. In another part, a short stream and pond were created, now home to a thriving aquatic ecosystem including crayfish, frogs and water snakes, as well as numerous species of songbirds and ducks. This natural water purification system is the final stage in a treatment process that includes flocculation, microfiltration and active carbon treatments, and reduces surfactants and overall chemical oxygen demand (COD) in the discharged water. —●



"When we were approached regarding the feasibility of a joint project, we asked ourselves what could *Consorzio di Bonifica*<sup>(1)</sup> and a chemicals company have in common. After we met with the Director, we realized that, in fact, we had the same objective: water quality. On the one hand, there was an industrial plant with a source of water, and on the other, *Consorzio di Bonifica* with a need for good quality water".

**M. TACCONI,**  
Director of the local environment agency at the time the phytoremediation system was installed

<sup>(1)</sup> The Arkema Boretto plant is located in the Po River delta, which is impacted by activities upstream in Italy's most populated and industrialized region. In this context, *Consorzio di Bonifica* (the local water authority) has established a "river mouth contract" to improve environmental and water quality.



**GÉRARD LANGLAIS,**  
Vice President  
Sustainable Development

"These actions, which are diverse in nature and location, are proof that industrial operations, biodiversity and water quality can coexist. They show Arkema's ambition to combine chemical performance with responsible growth".



CHINA

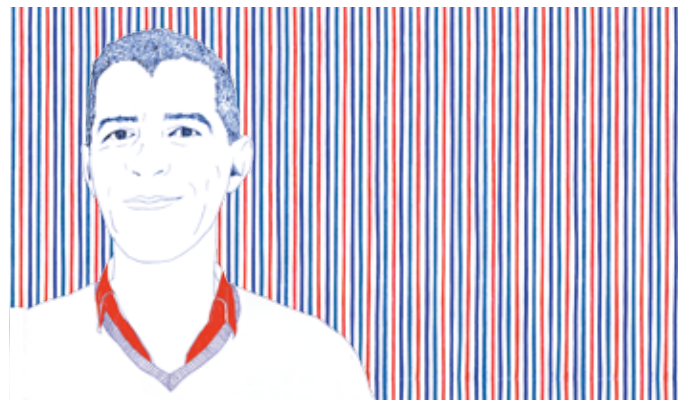
### Hengshui: effluent fully recycled on site

At the Hengshui industrial site in China, sodium sulfate wastewater generated in the sebacic acid manufacturing process is concentrated and treated rather than being diluted and discharged. In addition to recycling the sodium sulfate, the concentration process also significantly reduces water consumption, since the treated water is recycled into the production process.



"This recycling of effluents substantially reduces the environmental footprint of our plant; the sodium sulfate is recovered, the treated water is reintroduced into our process, and we reduce our energy consumption and our sulfur dioxide emissions".

**LAN SHU-GANG,**  
Deputy General Manager, Casda



**Jérémy Guilbert,**  
39, ACRYLATES PRODUCTION OPERATOR (CARLING, FRANCE)  
**Responsibilities in production**

In November 2014, I was hired by Arkema as an acrylates production operator at the Carling site, after completing a company training program as part of a retraining scheme. Before this, I had worked, after completing my professional high school diploma, for eleven years as an operator in the steel industry and completed a one-year training course in plumbing and heating. Today, I am proud to be in charge of equipment that produces high quality acrylic acids.

I am responsible for making sure that the facilities are operating properly. I deal with any anomalies that may occur, in order to prevent accidents and production shutdowns. The stakes are important: respecting load plans and above all safety – a priority for Arkema. We are trained to make the right decisions and are fully up to date on operating methods, regulatory procedures, installations and processes.



**Stefania Cassiano Gaspar,**  
28, RESEARCH ENGINEER (CERDATO, FRANCE)  
**International dimension**

I am Brazilian and I studied in France. I was attracted to Arkema because of its international dimension and its cultural diversity. At the start of 2014, I joined the materials synthesis center at the Serquigny research lab (Cerdato), as a research engineer. I work on the development and optimization of Hiprolon® polyamides produced by Hipro Polymers in China. I like the straightforward contact I

have with the teams based in Asia and with my French colleagues. Although we all come from different cultures, we share the same incentive – stay mobilized around innovation challenges. Research has to adapt quickly to the needs of the client, even more so in highly competitive international markets.

## WHEN NEW SKILLS ARE OPTIMIZED

Approximately 1,000 new recruits joined the Group in 2014. Arkema provides a stimulating environment where they can apply their skills. Eight new recruits share their experiences.



**Jarrett Scherrer,**  
26, LOGISTICS PROCUREMENT DATA ANALYST (KING OF PRUSSIA, USA)  
**Autonomy and teamwork**

Before I interviewed, I reached out to several current employees who graduated from the same program and university I attended. From these first contacts, I was given the impression that the Group places high value on its employees and drives a collaborative work environment focused on performance. This impression was confirmed when I joined Arkema in August 2014 as a logistics procurement data analyst. I have a high level of autonomy on a daily basis, acting as a liaison between our carrier base and internal supply chain personnel. However, the success of my assignment also relies on cohesion and teamwork among my department and across Arkema as a whole.



**Pierre-Emmanuel Conoir,**  
24, PROCESS ENGINEER (CARLING, FRANCE)  
**Incubator for ideas**

After my studies in engineering, I had the chance to complete a work-study program financed by Arkema, before being hired in early 2014. Today I work at the interface between teams from R&D and production. My job is to put forward new ideas to optimize the performance of business units at the Carling (France) and Clear Lake (USA) sites. While respecting all the safety considerations of course! This is a challenge for a young engineer and especially stimulating given that Arkema is always open to new proposals – including from new recruits, even if this means shaking things up a bit! I see the company as a young and dynamic Group that is fully integrated in a process of constant innovation. It is this incubator for ideas that I find attractive.

**Xiaotian Yang,**  
35, PRODUCTION MANAGER (CHANGSHU, CHINA)  
**Industrial risk management**

I joined Arkema in 2007 after studying chemical engineering at Shanghai University. During my interview, I was impressed by the cleanliness and the safety measures in place at the Changshu production unit. Today, I am in charge of production for the Arkema and Daikin joint venture, specialized in refrigerants. This is a wide-ranging position that combines production plan and teams management



**Nick Walker,**  
23, ACCOUNT REPRESENTATIVE (KING OF PRUSSIA, USA)  
**New challenges every day**

I service accounts for the western half of the US for the fluoropolymers business unit. After I was hired in early 2014, I went through a six month rotational sales training program. I was able to rotate among the five different business units. Access to this training course was a key factor in my decision to apply to Arkema. I am well equipped to meet the daily challenges of my job: achieve my targets, have up-to-the-minute information to support my arguments, follow up ongoing client inquiries, make each trip time-efficient. I am also lucky to be working within a small team that is tight-knit and really determined.



with safety and environmental protection as the main concerns. In 2008, I had three weeks of industrial risk management training in France. I gained a much better understanding of the process, which helps me to evaluate the risk and impact of each of my decisions.



**Armelle Gobin,**  
41, SPENDING CONTROL, SECONDED TO PURCHASING DEPARTMENT (MARSEILLE, FRANCE)  
**Contact and budget control**

A few years ago, I was temporarily assigned to the purchasing department at Arkema and found that it was dynamic, structured, and offered lots of opportunities. I wanted to come back and work for the company, which I did in 2014. My new job includes checking that maintenance and service contracts between our teams and our suppliers are properly fulfilled. The objective is to make sure that Arkema pays the price agreed in the contract. I also carry out campaigns that raise awareness and eliminate the discrepancies that we have seen in the past. This means that I get to interact with operators and supervisors, suppliers and business managers. I really appreciate the depth and diversity of these exchanges.

**Wei Qing Liu,**  
30, PRODUCT DEVELOPMENT ENGINEER, SPECIALTY POLYAMIDES (CRDC, CHINA)  
**Helping to grow the Group**

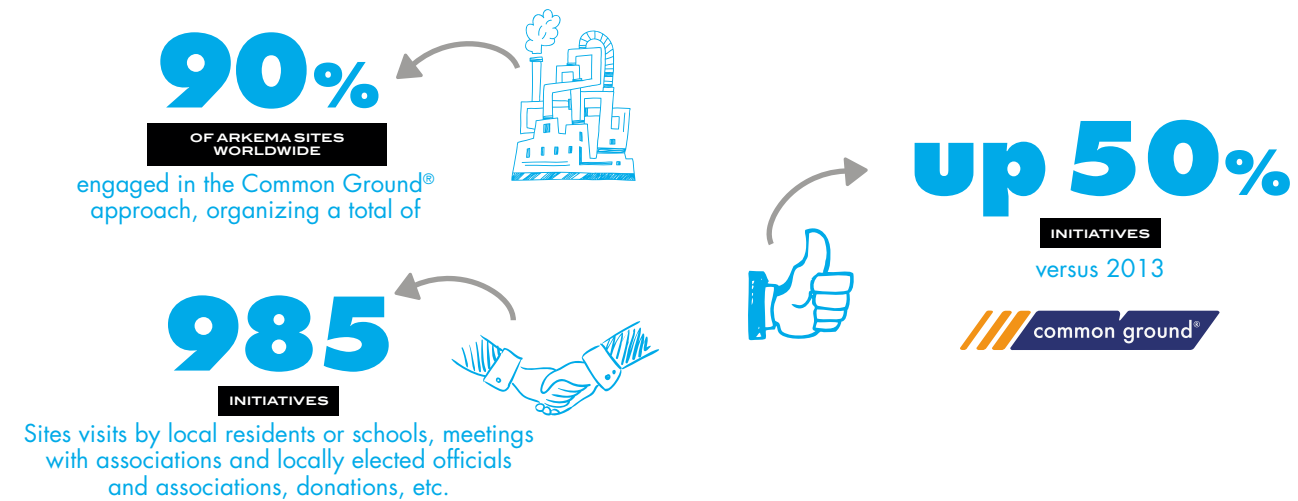
I first heard about the Group through a partnership with my engineering school and the French lab where I did my thesis. I got my first job at the new Arkema R&D center at Changshu in China (CRDC) in 2012. I contribute to growing this site by developing and improving products for our customers in Asia, working in partnership with my colleagues in France. I also provide R&D support for the Hipro Polymers plant – also close to Shanghai – acquired by Arkema in 2012. It is very exciting to be involved in the start-up and integration of these units, in what is an area of high growth for the Group.



## INSPIRING TRUST LOCALLY

Launched in 2002, the Common Ground® approach aims to raise awareness and integrate Arkema operations into their local environment. Whether it's meeting with residents neighboring a production plant or providing local decision-makers with input for a debate, all over the world Arkema is committed to engaging with stakeholders.

In 2014



## FRANCE

### DIALOGUE TO MAINTAIN OPERATIONS

In the heart of the 11<sup>th</sup> district of Marseille, an Arkema plant enjoys a positive reputation among neighboring communities, environmental protection associations, administrations and locally elected officials. Yet the site is classified Seveso 2 high threshold, requiring the development of a technological risk prevention plan (PPRT) in 2006. This resulted in residents having to install containment facilities in their homes. The support of the 150 households concerned was won over through dialogue over a number of years between the plant's management and third-party stakeholders. "Residents didn't understand why they had to adapt their homes, when some had been living there for 40 or 50 years," explains Claude Erre, Head of Operations Support. "Residents and local officials helped us to reach a solution that was jointly financed by Arkema, national government and local authorities." And in the end, there were only a few votes in favor of moving the site.

In order to build this level of trust, "you need to reach out to people, listen and show that you are a responsible industrial company, relating closely to them in all circumstances," observes Roch Munier, director of the plant. Managers from the plant attend general assembly meetings organized by local committees, arrange visits to the facilities, discuss issues with local elected officials and even make house visits to local residents when any problems arise.

Although nothing can be taken for granted, dialogue helps to foster acceptance and sustainability for the plant. "We are one of the few remaining industrial companies located in Marseille. Our local communities know this. By giving us their trust, stakeholders and local communities are helping us to maintain our business activity and protect 300 jobs in the area." —●

## USA

### LONG-STANDING TRUST

In Beaumont (Texas), Arkema produces mercaptans and sulfides, which are strong-smelling and highly inflammable products, in a business park where other classified industrial companies are located. For the past 25 years, the plant has maintained a close relationship with local communities by taking part in a Community Advisory Panel. "It's one of the longest standing CAP's in the area. There are sometimes three generations of the same family involved in the advisory panel meeting," explains Chad Anderson, Operations Manager of the site.

The advisory team is made up of 75% local residents and 25% academics from the local Lamar University. The committee meets each quarter and the meetings are attended by the Site Leadership Team. "We review safety issues, environmental compliance issues and overall performance of the site," explains Chad Anderson. "Then we tackle specific topics on the agenda. Last time we talked about safety protection equipment for our employees. We brought along examples of equipment that everyone was able to try on." Contact and feedback is positive. "We are up-front and people appreciate the openness and candor. Their suggestions are always welcome and taken into consideration," says the Operations Manager. The Beaumont site also sponsors various activities organized by local communities, including a livestock fair and a science awareness program for schools. —●



## SOUTH KOREA

### DECISION-MAKERS ARE BETTER INFORMED

The Common Ground® approach also extends to action taken by Arkema to create favorable conditions for its business operations. This is the case in South Korea where the Group operates two production units, South Korea is currently looking at introducing regulations, similar to the REACH system in the EU, to improve the management of chemical substances and better address their impact on health and the environment.

Consequently, in 2014, Arkema teamed up with other major chemicals firms to create a working group within the European Chamber of Commerce in Korea. "We discuss issues with Korean decision-makers regarding all aspects of the future regulations. We are helping them avoid reinventing what already exists and calling their attention to any unnecessary administrative red tape," explains Denis Tual, Director of Arkema Korea.

Regular meetings are also held with the relevant ministries, chambers of commerce, sector professionals, and university chemicals committees, among others. "By sharing our expertise with Korea, we are helping to embed our presence here and strengthen our reputation in the area," adds Denis Tual. "We are also showing that Arkema is innovative, open and dynamic." —●



## BOARD OF DIRECTORS

### STRONG INVOLVEMENT ON MAJOR DECISIONS IN 2014

**Arkema's Board of Directors is chaired by Thierry Le Hénaff and has nine independent members and a director representing shareholder employees. It meets at least four times a year and as often as it is in the interest of the company.**

Like most major French groups listed on the stock exchange, Arkema's Board of Directors in 2006 appointed Thierry Le Hénaff to both roles of Chairman of the Board and Chief Executive Office, to facilitate a simple and reactive decision-making process.



**Thierry Le Hénaff**  
CHAIRMAN AND CHIEF EXECUTIVE OFFICER, ARKEMA



**Patrice Bréant**  
DIRECTOR REPRESENTING SHAREHOLDER EMPLOYEES



**Isabelle Boccon-Gibod**  
PERMANENT REPRESENTATIVE OF FONDS STRATÉGIQUE DE PARTICIPATIONS



**Claire Pedini**  
SENIOR VICE PRESIDENT FOR HUMAN RESOURCES, COMPAGNIE SAINT-GOBAIN



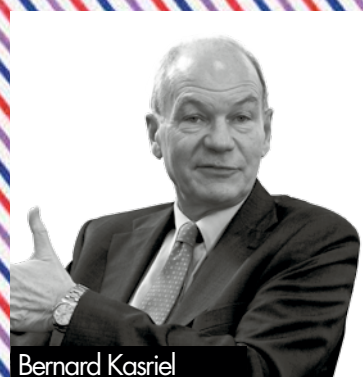
**Marc Pandraud**  
VICE-CHAIRMAN, DEUTSCHE BANK FRANCE - MIDDLE EAST AND AFRICA



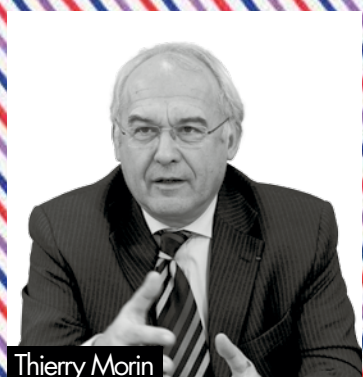
**Philippe Vassor**  
CHAIRMAN, BAINVILLE S.A.S.



**Victoire de Margerie**  
CHAIRMAN RONDOL INDUSTRIE



**Bernard Kasriel**  
FORMER SENIOR EXECUTIVE, LAFARGE



**Thierry Morin**  
CHAIRMAN OF TMC AND CHAIRMAN OF THE MANAGEMENT BOARD: UNIVERSITÉ DE TECHNOLOGIE DE COMPIÈGNE



**Laurent Mignon**  
CHIEF EXECUTIVE OFFICER, NATIXIS



**François Enaud**  
CHIEF EXECUTIVE OFFICER SOPRA STERIA GROUP UNTIL MARCH 2015

**The Board of Directors has established two permanent expert committees: an Audit and Accounts Committee and a Nominating, Compensation and Corporate Governance Committee. In 2014, the former Strategy Committee was replaced by an annual strategy seminar attended by all the directors.**

### The audit and accounts committee

# This committee is chaired by Philippe Vassor, and includes two other directors, Claire Pedini and Isabelle Boccon-Gibod. In accordance with the AFEP-MEDEF Code, the members of the Audit and

Accounts Committee all have financial or accounting expertise. In 2014, the Audit and Accounts Committee met six times with a 100% attendance rate. The meetings in 2014 focused in

particular on the review of the financial statements, approval of auditors' fees, a review of internal control procedures and the program of internal audits, and a review of the Group's risk management.

The Committee also focused on the acquisition of the Bostik Group and related financing arrangements. —●

### Nominating, compensation and corporate governance committee

# This committee is chaired by Thierry Morin, and has three other members, François Enaud, Bernard Kasriel and Victoire de Margerie. In accordance with the AFEP-MEDEF Code, no member of this Committee holds a management position in the Company, and every member of the Committee

has been qualified as independent by the Board of Directors. In 2014, the Committee met three times with a 100% attendance rate. Work in 2014 focused mainly on compensation of the Chairman and Chief Executive Officer and the Executive Committee members as

well as executive officers, the annual assessment of the Board of Directors and the Committee, the examination of profiles (appointment and reappointment) for the post of director, the evolution of long-term incentive programs, the implementation of performance share allocation plans,

and finally on the succession plan for Executive Committee members with the replacement of Pierre Chanoine (retiring) by Bernard Pinatel. —●

## THE MANAGEMENT TEAM

### LOOKS BACK ON 2014

Arkema's Executive Committee changed in early 2015 following the acquisition of Bostik. Bernard Pinatel, Chairman and CEO of Bostik, was appointed member of the Arkema Executive Committee. He replaces Pierre Chanoine who is retiring.

Chaired by Thierry Le Hénaff (Chairman and Chief Executive Officer), the Executive Committee has two Executive Vice Presidents in charge of operations; Bernard Pinatel (High Performance Materials business segment) and Marc Schuller (Industrial Specialties and Coating Solutions business segments) and four Executive Vice Presidents with functional responsibilities: Luc Benoit-Cattin (Industry), Bernard Boyer (Strategy), Michel Delaborde (Human Resources and Communication) and Thierry Lemonnier (Finance).



**Thierry Le Hénaff**  
CHAIRMAN AND CHIEF EXECUTIVE OFFICER, ARKEMA

" 2014 will remain a crucial year in the history of Arkema, with the successful completion of three major projects to support the Group's future growth. The acquisition of Bostik, which is raising Arkema's profile and the capacity of our High Performance Materials business segment — by bringing high quality brands, technology and geographical presence —, the acquisition of acrylics production capacity with Sunke creation in China and the launch of our thiochemicals plant in Malaysia, give us three promising platforms for future growth. "

BERNARD PINATEL  
**joins Arkema's Executive Committee**

Pinatel began his career at Booz Allen & Hamilton and joined the Total Group in 1991 where he held a series of operational positions at Hutchinson, Coates Lorilleux, Bostik, and Cray Valley. Currently the Chairman and CEO of Bostik, he joined Arkema and its Executive Committee in February this year.



**Bernard Pinatel**  
EXECUTIVE VICE PRESIDENT IN CHARGE OF BOSTIK AND HIGH PERFORMANCE MATERIAL BUSINESS SEGMENT

Bernard Pinatel, 53, is a graduate of École Polytechnique engineering school in Paris and the Paris Institute of Political Studies (IEP), and holds an MBA from the European Institute of Business Administration (INSEAD). He is also a qualified statistician-economist (ENSAE Graduate School of Economics, Statistics and Finance). —●

" With the Arkema acquisition Bostik is entering a new accelerated, phase in its history. The acquisition is in line with Arkema's long-term growth strategy. It also consolidates Bostik's position as a leading player in adhesives. I share with the Executive Committee the same expectations when it comes to work and the same management values. I am very attached to teamwork, collective intelligence and complementarity, to being more effective together. And I am confident that our collaboration will be a success. "



**Marc Schuller**  
EXECUTIVE VICE PRESIDENT IN CHARGE OF INDUSTRIAL SPECIALTIES AND COATING SOLUTIONS BUSINESS SEGMENTS

" We have had a busy year in two of our main businesses. Completing the acrylics acquisition in China and launching our Kerteh site in Malaysia, the biggest thiochemicals platform in Asia, both in the same year was no mean feat and we can all be proud of what has been achieved. "



**Luc Benoit-Cattin**  
EXECUTIVE VICE PRESIDENT, INDUSTRY

" The continued improvement in our safety results in 2014, including significant progress at our French sites, is a real source of satisfaction. This progress is coupled with improvements in industrial performance and a reduction in our environmental footprint. Notably, this year we already reached our 2020 targets for reducing air emissions of greenhouse gases by 30% and volatile organic compound emissions by 20%. "



**Michel Delaborde**  
EXECUTIVE VICE PRESIDENT, HUMAN RESOURCES AND COMMUNICATION

" With the acquisition of Bostik, Arkema is gaining almost 5,000 employees. The corporate culture shared by the two Groups, the quality of the Bostik teams, the motivation to work together and share expertise, makes me confident in Arkema's capacity to grow and advance. "



**Thierry Lemonnier**  
CHIEF FINANCIAL OFFICER

" We were able to organize financing for the Bostik acquisition on a very tight schedule, which was a great source of satisfaction for the teams. The financing of this acquisition was successfully finalized in early 2015 through a €700 million bond issue with a 1.5% coupon that complemented the hybrid bond issue conducted in October 2014 and the share capital increase completed in December 2014. "

**Bernard Boyer**  
EXECUTIVE VICE PRESIDENT, STRATEGY

" Bostik is Arkema's 12th acquisition since 2006, by far the most significant and the most strategic. It completes the program that we announced in 2012. Arkema's profile has considerably changed. These acquisitions have made the company bigger and more resilient, and have consolidated our leadership and position. This holds real promise for the future. "



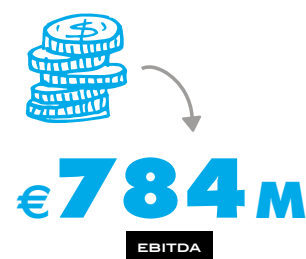
## 2014 FINANCIAL PERFORMANCE

# Financial performance was affected by challenging market conditions in two product lines: fluorogases and acrylics.

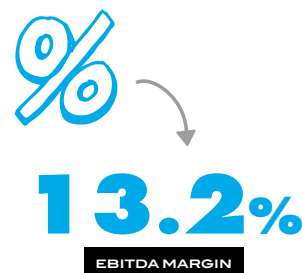
# A very important year in the Group's transformation, with investments in three promising growth platforms for the years ahead, positioning Arkema on a path for sustainable growth.



In a moderate global growth environment, sales were down 1.4% compared to 2013 at constant scope of business and foreign exchange rate. The increase in volumes, particularly in the High Performance Materials and Industrial Specialties segments, did not fully compensate the unfavorable market conditions in fluorogases and the high basis of comparison of 2013 in polyamide 12.



The decrease in EBITDA compared to 2013 reflects challenging market conditions in fluorogases, unit margins close to a cyclical low in the second half of 2014 in acrylic monomers, and specific and temporarily unfavorable factors in polyamide 12. The other Arkema product lines reported a good performance, up +8.5% on 2013.



EBITDA margin held up well confirming the overall quality of the Group's portfolio of businesses. For some of these, the Group will pursue its actions to improve profitability.



Net income Group share is stable compared to 2013. Excluding the impact of non-recurring items, adjusted net income in 2014 amounted to €239 million i.e. €3.62 per share.

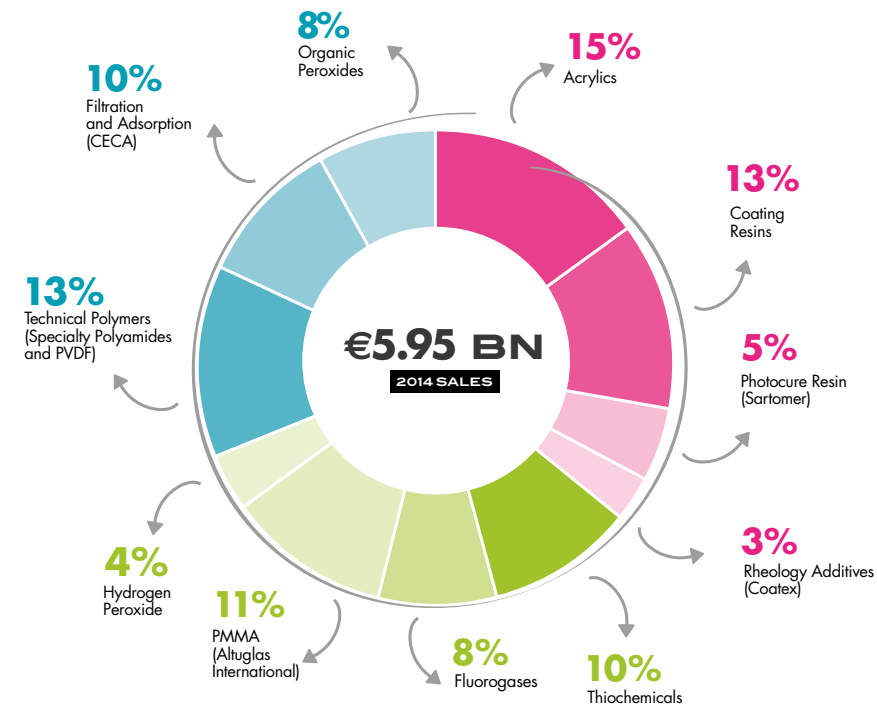


The very low level of net debt at 31 December 2014 reflects equity financing with a gross €700 million hybrid bond issue achieved in October 2014 and a €350 million net share capital increase with preferential subscription rights finalized in December 2014, both completed as part of the Bostik acquisition, finalized on 2 February 2015.



2014 marks the end of an important period of investment, including the construction of the thiochemicals platform in Malaysia. Capital expenditure in 2015, including for Bostik, should represent approximately €450 million. The Group aims at annual capex representing around 5.5% of sales.

## KEY FIGURES BY BUSINESS SEGMENT



### 31% HIGH PERFORMANCE MATERIALS

• Results reflect the high basis of comparison of 2013 in polyamide 12.  
• Overall performance of other product lines up YoY, supported by the innovation momentum.

Sales: €1,826 M  
EBITDA: €284 M  
EBITDA margin: 15.6%

### 36% COATING SOLUTIONS

• Margin in the second half of the year impacted by the start-up of new capacities in Asia.

Sales: €2,131 M  
EBITDA: €245 M  
EBITDA margin: 11.5%

### 33% INDUSTRIAL SPECIALTIES

• Performance that varied by product line.

Sales: €1,972 M  
EBITDA: €300 M  
EBITDA margin: 15.2%

## KEY FIGURES

	2014	2013
<b>ELEMENTS OF THE INCOME STATEMENT</b> (in millions of euros unless otherwise indicated)		
Sales	5,952	6,098
EBITDA	784	902
EBITDA margin (in %)	13.2%	14.8%
Depreciation and amortization	(337)	(314)
Recurring operating income	447	588
Operating income	364	383
Net income - Group share	167	168
Earnings per share <sup>(1)</sup> (euros)	2.53	2.59
Adjusted net income per share <sup>(1)</sup> (euros)	3.62	5.67
Dividend per share (euros)	1.85 <sup>(2)</sup>	1.85
<b>ELEMENTS OF THE BALANCE SHEET</b> (in millions of euros unless otherwise indicated)		
Shareholders' equity	3,573	2,349
Net debt	154	923
Gearing (in %)	4%	39%
Capital employed	4,565	4,070
Working capital to sales ratio (in %)	16.1%	14.9%
Net provisions <sup>(3)</sup>	751	698
<b>ELEMENTS OF THE CASH FLOW STATEMENT</b> (in millions of euros unless otherwise indicated)		
Cash flow from operating activities	507	467
Cash flow from investing activities	(670)	(389)
Cash flow from financing activities	928	(60)
Capital expenditure	470	481

<sup>(1)</sup> For 2013, the adjusted net income per share and the net income per share have been adjusted to take account of the share capital increase with preferential subscription rights achieved in December 2014

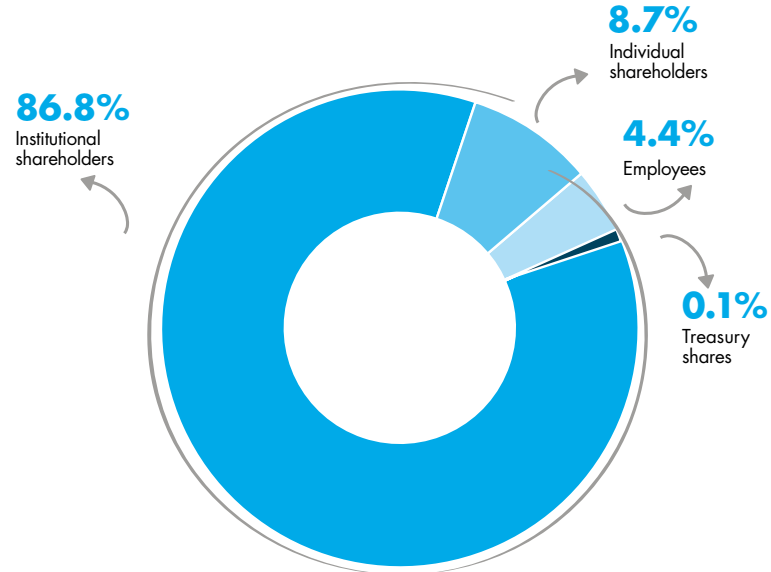
<sup>(2)</sup> Dividend proposed at the shareholders' annual general meeting on 2 June 2015

<sup>(3)</sup> Provisions net of non-current assets as defined in paragraph 4.1.7 of 2014 reference document

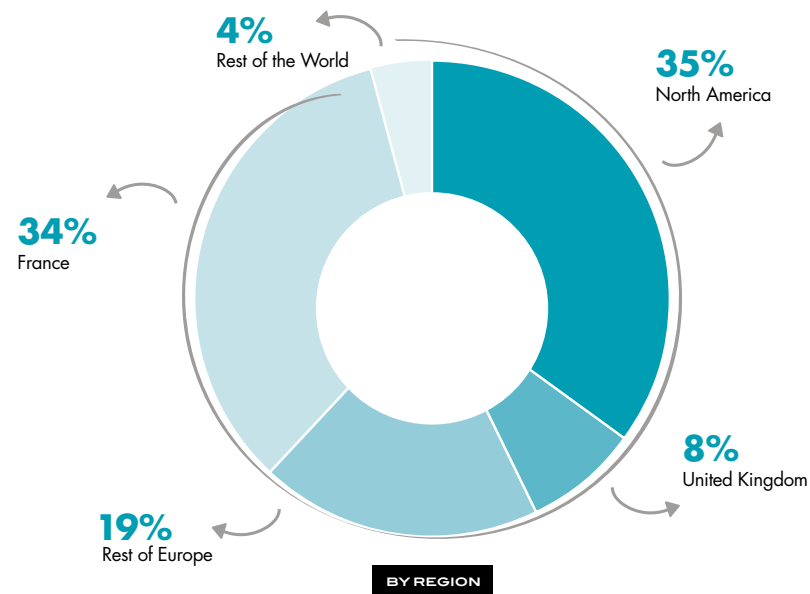
# INVESTOR RELATIONS AND SHAREHOLDERS

Arkema is committed to transparent and close financial relations with its investors and shareholders, holding many meetings throughout the year.

## SHARE OWNERSHIP



### BY TYPE OF INVESTOR



### BY REGION

## STAYING IN TOUCH WITH INSTITUTIONAL INVESTORS

The Group strives to maintain active, regular dialogue with institutional investors and financial analysts, through road shows and conferences in particular, attended by the Chairman and CEO, the CFO and the investor relation team. Arkema representatives regularly meet with portfolio managers and financial analysts in the leading financial centers in Europe and North America. In 2014, the Group held roughly 600 meetings to inform the market about Arkema's results and main transactions and improve investor and analyst understanding of its activities, its strategy and its outlook.

## SHAREHOLDERS' CLUB

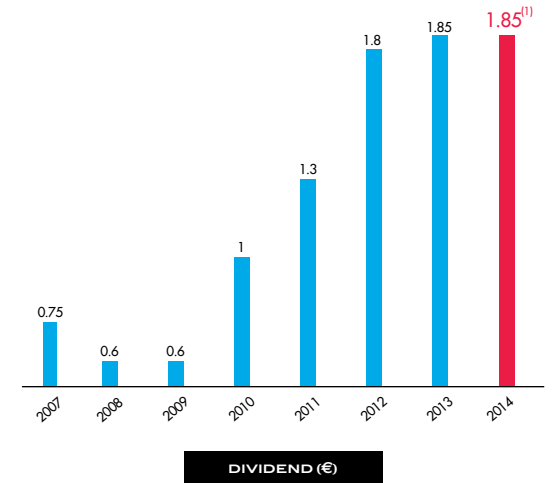
Arkema also meets regularly with its individual shareholders, in particular at its Annual Shareholder's Meeting that offers a key opportunity to talk about the Group's strategy and outlook, during shareholder meetings organized every year in France (in 2014 in Rennes, Dijon and Strasbourg) and during the Actionaria event in Paris. In addition, Arkema offers the members of its Shareholder's Club a series of activities throughout the year to familiarize them with the chemical industry, innovation and everyday chemical applications. —●

# SHAREHOLDER RETURN

## DIVIDEND

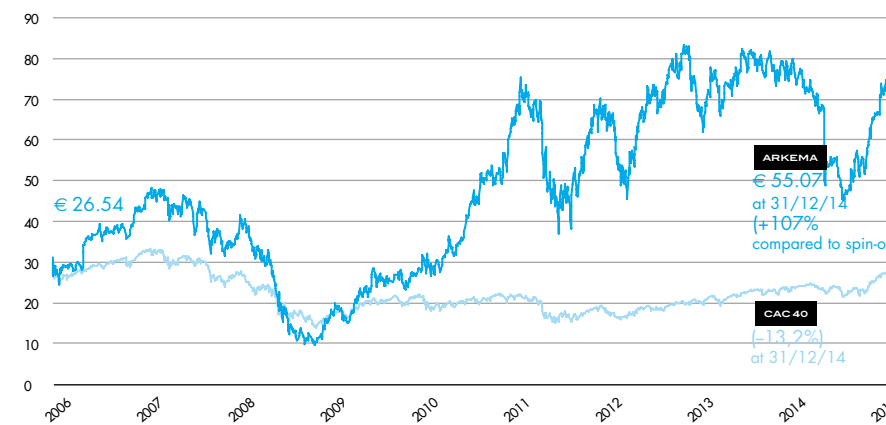
Arkema reaffirms the importance of the dividend as a key component of its shareholder return policy. As announced in September 2014 in connection with the proposed acquisition of Bostik, the Board of Directors confirmed that the dividend proposed to the annual general meeting on 2 June 2015 be maintained at €1.85 euro per share, despite significantly lower adjusted net income in 2014 and the increase in the number of shares following the share capital increase in December 2014.

In the context of a strong development of the Group with the recent finalization of three major growth projects, the Board of Directors also decided to propose this year to the shareholders the option of receiving this dividend payment either in cash or in new shares of the Company benefiting from a 10% discount. This option for the payment of dividend in shares will be re-assessed each year by the Board. —●



<sup>(1)</sup> Dividend proposed to the Annual General Meeting on 2 June 2015. Adjusted to take account of the share capital increase in December, the dividend shows an increase of 3%.

## THE ARKEMA SHARE<sup>(2)</sup>



Arkema share performance in 2014<sup>(2)</sup>

Performance since 1 January 2014 (situation as of 31 December 2014)	- 33%
Price at year-end (in euros)	55.07
Average of last 30 closing prices of the year (in euros)	53.93
Highest price of the year (in euros)	82.17
Lowest price of the year (in euros)	43.63

<sup>(2)</sup> In order to take into account the detachment of preferential subscription rights resulting from the share capital increase completed on 15 December 2014, the information prior to the quotation of the newly issued shares has been restated.

## CONTACTS

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+33 (0)1 49 00 74 63

► N° Vert 0 800 01 00 01

Toll-free number from landlines in France

## CALENDAR

**2 June 2015:**  
Annual General Meeting

**31 July 2015:**  
1<sup>st</sup> Half 2015 Results

**10 November 2015:**  
3<sup>rd</sup> Quarter 2015 Results



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The printer is certified as complying with  **IMPRIM'VERT**, the French printing industry's environmental initiative.

# WITH YOU, WE CREATE COATINGS TO COME

To help you develop new and innovative coatings or enhance the performance of your current formulations, Arkema offers versatile coating resins, additives, specialty polymers and chemicals. All backed by technical service and support wherever you operate around the world.

**Arkema, innovative chemistry for coatings.**

CREATING VALUE  
DRIVING GROWTH  
DELIVERING SUSTAINABILITY

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## External Communications Division

Arkema - a French "société anonyme", registered  
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under the number 445 074 685

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