Delivering innovative products and services to coatings formulators worldwide
Arkema’s product portfolio for coatings applications includes:

- Waterborne, solventborne and powder coating resins from Arkema’s Coating Resins activity.
- Specialty additives for coatings and adhesives from Arkema’s Coating Resins activity.
- Rheology additives for waterborne coatings, adhesives and sealants from Coatex.
- High added value photocure resins for coatings, graphic arts, electronics, construction, automotive and other specialty applications from Sartomer.
- Extreme weatherability for water, solvent or powder coatings based on Kynar® polyvinylidene fluoride resins.
- High performance surface modification additives, including Orgasol® and Rilsan® fine powders.
- Amines for solvent-based and water-based paints.
- DMSO polar aprotic solvent for special formulations and oxygenated solvents.
- Nanostructured materials.
- Specialty surfactants and polyols, functional fillers diatomite and perlite, and molecular sieves from Ceca.
- Acrylic monomers.
- Methane sulfonic acid (MSA) esterification catalyst.

Arkema has a comprehensive and unique portfolio of coatings materials and technologies for architectural and industrial coatings; building and decorative paints; transportation, marine and maintenance coatings; traffic paints; adhesives and sealants; electronics; inks and graphic arts; textiles, non-wovens and leather.

Arkema is one of the leading suppliers of raw materials for coatings.

Our objective is simple – help all of our coatings customers grow by meeting their needs, on every continent, for:

- **Enhanced performance** through innovative product technology that includes waterborne, solventborne, photocure, high solids, and powder coating resins; additives and rheology modifiers; acrylic monomers; and a wide range of specialty materials.
- **Enhanced value** by offering choices that help you find the best balance of performance and cost.
- **Enhanced sustainability** by providing products and technology that help you meet specific environmental regulations as well as your own sustainability goals.

Arkema’s technology and product range covers 99% of the coatings market.

- Conventional solventbornes (resins and additives)
- Waterborne emulsions for architectural (resins and additives)
- Waterborne industrial (resins and additives)
- High solids
- Powder (resins and additives)
- Radiation curables (2 %) and other

Global coatings market ~$95bn by technology

Source “Paint & coating industry overview” – 2012 by Chemical Economics Handbook – SRI Consulting
Access to a large portfolio of technologies for major coatings applications

**Decorative Paints**
- **Solventborne resins:**
  - Synolac®
  - Gelkyd®
  - Super Gelkyd®
  - Unithane®
  - Siliporite®
- **Rheological and texturing additives:**
  - Crayvallac®
  - Orgasol®
  - Alpamine®
  - Rilsan® Fine Powders
- **Oxygenated solvents and plasticizers:**
  - Hexasol®
  - Methyl isobutylketone
  - Ensoline®
- **Waterborne resins:**
  - ENCOR®
  - SNAP®
  - Synaqua®
  - Kynar Aquatec®
- **Opacifiers:**
  - Celocor®

**Metal Coatings**
- **Solventborne resins:**
  - Crayamid®
  - Kynar 500® FSF®
  - Synolac®
  - Synocryl®
  - Synocure®
  - Rilsan® Fine Powders
- **Waterborne resins:**
  - Synaqua®
  - ENCOR®
  - SECHA®
  - Kynar Aquatec®
- **Powder resins:**
  - Rilsan® Fine Powders
  - Reafree®
- **Photocure resins:**
  - Sartomer®
  - Sarbio®
  - Sarbox®
- **Vegetable oil based monomers, additives and plasticizers:**
  - Oleris®
- **Functional fillers:**
  - Clarcel®
  - Randafill®
- **Reactive diluents:**
  - Sartomer®
  - M Cure®
  - Sarbio®

**Wood and Plastic Coatings**
- **Solventborne resins:**
  - Synolac®
  - Synocure®
- **Surface modifiers:**
  - Orgasol®
  - Rilsan® Fine Powders
- **Photocure resins:**
  - Sartomer®
  - Sarbio®
  - Sarbox®
- **Waterborne resins:**
  - ENCOR®
  - Kynar Aquatec®
- **Oxygenated solvents:**
  - Diacetone alcohol

**Inks**
- **Solventborne resins:**
  - Synolac®
  - Synocure®
- **Waterborne resins:**
  - ENCOR®
- **Surface modifiers:**
  - Orgasol®
  - Crayvallac®
- **Photocure resins:**
  - Sartomer®
  - Sarbio®
  - Sarbox®
- **Vegetable oil based monomers, additives and plasticizers:**
  - Oleris®

**Electronics**
- **Photocure resins:**
  - Sartomer®
  - Sarbio®
  - Sarbox®

**Building blocks:**
- Dianol®
- Adiansol®
- Ensoline®
- Inipol®
- Noramium®

**Catalyst:**
- Methane sulfonic acid (MSA)

**Dispersing agents:**
- Coadis®
Arkema’s Coating Resins activity is a leading supplier of waterborne, solventborne and powder resins along with additives and opacifiers for architectural coatings, industrial finishes, construction products, traffic paints, sealants, adhesives, inks, non-wovens, floor care and graphic arts products.

Arkema’s Coating Resins activity offers you access to a truly comprehensive range of coating resins options, plus innovation, sustainable technologies and local service and support wherever you operate around the world. In short, we deliver more ways to meet your expectations for performance, value, answers and options.

- Comprehensive resources for architectural and industrial coatings, including powder coatings; traffic paints; transportation, marine and maintenance coatings; pressure sensitive adhesives; building and construction products, as well as inks and graphic arts; coatings for textiles, nonwoven and leather.
- More product chemistry options, including a wide range of waterborne emulsions, opacifiers, waterborne and solventborne alkyds, powder coatings, polyester resins and additives for solventborne systems.
- More global resources, including product and service support for your business in Europe, North America, Asia, South America, Middle East and Africa.
- More answers from a coordinated technical and sales support network with sales offices, R&D and application development laboratories around the world.

### Worldwide presence
- 20 production facilities in the Americas (USA, Brazil), Europe (France, Italy, Spain, The Netherlands, Germany) and Asia Pacific (China, India, Malaysia)
- 3 coatings R&D centers and 7 technical laboratories in Europe, Americas and Asia

### Brand names
- ENCOR® - Neocar® SNAP®
- EnVia® - Synaqua® Celocor®
- Reafree® - Crayamid® Gelkyd®
- Super Gelkyd® - Synocryl®
- Synocure® - Synolac® Unithane®
- Chempol® - Crayvallac® - SECHA®

### Acrylic monomers
A global market leader

Arkema is a leading producer of acrylic monomers, marketed under the Norsocryl® brand, and offers glacial acrylic acid, methyl acrylate, ethyl acrylate, n-butyl acrylate and 2-ethyl hexyl acrylate to enhance polymer performance.

Thanks to their unique properties, acrylic monomers improve everyday life by making products last longer, creating more value for the paints and coatings industry, and providing a cleaner environment.
A subsidiary of Arkema, Coatex is a global designer and producer of rheology additives for aqueous formulations and water-based processes.

Entirely dedicated to rheology additives for waterborne systems, Coatex has developed solutions for countless applications: minerals processing, paper and board coating, paints and coatings formulations or construction and applications for industrial specialties.

The evolution towards safe and eco-friendly formulations avoids the use of VOC* or APEO** components, and consequently, limits some properties such as storage stability or aspect.

Coatex has designed waterborne additives that allow the fine-tuning of rheology and therefore to recover or exceed the paint performances across the entire value chain from production to film properties through storage or application while constantly reducing emissions and costs.

This focus makes Coatex solutions unique and its portfolio one of the broadest of the market, within each of the key rheology modifiers technologies, waterborne thickeners and dispersing agents.

Thanks to in-house technologies and sustainability driven R&D efforts, Coatex additives meet the most stringent environmental regulations, VOC free, APEO free, heavy metal free.

In addition to its R&D center in Europe, Coatex has technical centers providing formulation support to customers in Europe, Asia, North America and Latin America.

Numerous projects are conducted jointly by Coatex teams in synergy within Arkema, this cross-technology expertise allows us to quickly develop innovative and adaptive solutions.

*Volatile Organic Compounds
**Alkyl phenol ethoxylate

Coatex
Rheology additives for waterborne paints.
Add drops of vitamins to your paints and coatings!

Worldwide presence

- 6 production facilities in France, The Netherlands, USA, Brazil, China and Korea
- 1 R&D center in France
- Application laboratories and technical service centers in Europe, USA, Brazil and China

Brand names

- Bumper Technology™, Coadis™, Ecodis™
- Coapur™, Rheotech™, Thixol™, Viscoatex™

* Volatile Organic Compounds
** Alkyl phenol ethoxylate
Sartomer photocure resins
Premier provider of high performance acrylates, methacrylates and unique specialty chemicals

Worldwide presence
- 4 production facilities in France, USA and China
- 4 R&D and technical centers in Europe, USA and Asia

Brand names
Sartomer®, Sarbio® - Sare®, M Cure® - Sarbox®

Sartomer’s products are widely used in UV, EB, peroxide and amine cure technologies to enhance the performance of many applications:
- Specialty coatings (plastics, metals, wood and foils)
- Package coatings (food, health and beauty items)
- Electronics (optically clear adhesives, flat screen topcoats, insulation)
- Printing inks (inkjet, flexo, litho and screen inks)
- Adhesives and sealants
- Flooring and waterproofing systems
- Construction chemicals

Sartomer products can also be copolymerized (through different polymerization techniques, including solution, emulsion, suspension) to bring unrivaled properties to specialty polymers.

As part of Arkema, Sartomer offers customers global access to technology, manufacturing and service. This means more and better solutions, unfailing supply and consistently high performing products, and services that keep our customers at the leading edge of competitiveness.

Sartomer products are marketed to formulators and chemical producers through a direct sales force and distributors. We promise to be there for our customers, wherever they are located.

Ceca
Specialty surfactants and polyols, functional diatomite and perlite fillers, and desiccant molecular sieves to improve the quality and durability of coatings and waterborne paints

Worldwide presence
- 8 production facilities in France, Belgium, Italy, UK, Switzerland and Poland
- 3 R&D centers in France

Brand names
Surfalone® - Ensoline® - Inipol®
Noramium® - Adiansol® - Dianol®
Clarcel® - Randafil™ - Siliporite®

A world player in specialty chemicals.

Ceca, a subsidiary of Arkema group, produces specialty surfactants and polyols based on alkoxylates and fatty amines. Specialty polyether polyols Adiansol® and Dianol® are used as intermediates for the manufacturing of resins such as epoxies, polyurethane and polyester. They impart flexibility, chemical resistance, and heat stability to the resins.

Specialty surfactants Ensoline® and Surfalone® are used as wetting, dispersing, coalescing and plasticizing agents in waterborne coating formulations.

Flux-calcined diatomite Clarcel® and perlite Randafil™ are processed minerals used in decorative, industrial or traffic paints and in industrial wood coatings. They impart roughness to the film to provide flatness and improved intercoat adhesion.

Due to their hard mineral structure, Clarcel® and Randafil™ confer scrub resistance, and their low density increases performance while reducing the cost of the formulations.

The porosity of diatomite helps control vapour permeability, reduces blistering and peeling, and acts as a TiO2 extender. In addition to their matting effect, these chemically inert minerals extend the life of outdoor paint.

Desiccant molecular sieve Siliporite® powder is used as a moisture scavenger in PU-systems to avoid gassing and viscosity increases during storage due to premature reaction with water.
Arkema’s high performance and high added value Kynar® PVDF resin exhibits outstanding resistance to weathering, including proven 25-to-30 year resistance to UV, chemical attack, and pollution. Its reputation as a binder for paint is based on over 50 years of development and experience. Various grades lend themselves to dispersion, dissolution, liquid and powder coating methods.

Kynar 500® FSF® PVDF resin is the basis for a premier colorful finish on metal buildings, advocated by paint manufacturers and architects for its outstanding durability on metal finishes for all kinds of buildings.

Arkema has also developed a breakthrough technology called Kynar Aquatec®, the first aqueous PVDF/acrylic emulsion that can be applied to a broad range of substrates. This water-based technology expands the use of Kynar® PVDF coatings to factory application on non-metallic substrates such as vinyl siding, trim and decking and fiberglass pultrusions. When applied in the field to exterior walls and reflective roofs it allows for energy savings, optimized performance, and increased durability and sustainability.

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**Kynar® fluoropolymer based coatings**

An exceptional resin for a variety of coatings with outstanding durability

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**Polyamide fine powders**

A unique range of multifunctional and high performance surface modifiers

Orgasol® ultra fine powders and Rilsan® fine powders are high performance additives for coatings. The main applications include coil coatings, can coatings, industrial coatings, wood finishes and flooring, and graphic arts to which they impart abrasion resistance, scratch resistance, texture and matting effects.

Orgasol® powders provide soft feel texturing, coating flexibility, and dry lubricant effects, thanks to their unique and uniform particle size distribution and morphology. They are easy to disperse in waterbased, UV and solvent based formulations.

Rilsan® Fine Powders are derived from a 100% biosourced, renewable raw material. They exhibit full dispersibility in liquid paints and a wide diversity of particle size distribution, which provides even texturing, excellent coverage, and uniform coloring effects.

Rilsan® Fine Powders are also used as a thermoplastic powder coating in automotive, appliance, and fluid transfer markets. These coatings are a proven solution for metal protection that provides excellent chemical, corrosion, abrasion and impact resistance.
Nanostrength® nanostructured polymers made with BlocBuilder® regulators offer proven benefits for many industries and applications including thermoplastics and thermosets, adhesives, acrylic and epoxy coatings, dispersing agents and polymeric stabilizers.

The BlocBuilder® regulators platform is especially well-suited for paints, coatings, inks, adhesives, dispersants, and surface treatment applications. The controlled radical polymerization process opens new design possibilities within dispersants and polymeric surfactants. BlocBuilder® regulators can also be used to improve the film formation and block properties of paints and coatings.

Nanostrength®, a family of self-assembling acrylic block copolymers, can be used for epoxy coatings and high-end structural adhesives, imparting enhanced mechanical properties, and in hot-melt pressure-sensitive adhesives.

Oleris® sebacic acid is widely used in formulated coating resins. Oleris® dibutyl sebacate is used as a plasticizer with very good solubility in paint and inks solvents. It provides light stabilization and presents very good film forming properties. Oleris® dimethyl sebacate is used as an intermediate to produce light stabilizer additives.

In resins, amines are used as synthesis intermediates, specialty monomers, and catalysts for resins. In formulations, Alpamine® amines are used as neutralizing agents in waterborne paints or anti-skin agents in alkyd paints.

A large selection of Amines
To improve the properties of solvent-based and water-based paints
**Dimethylsulfoxide**

The safest polar aprotic solvent

Safer for humans and for the environment, the polar aprotic solvent DMSO provides good dispersion and good solubility for polymers, prepolymers, special formulations, and waterborne finishes used for surface coatings (acrylic dispersions, paints, lacquers, waterborne formulations and inks).

Arkema has developed an improved, pleasant-odor version of dimethyl sulfoxide called DMSO Evol®, designed specifically for surface coating, cleaning, stripping, and other applications where n-methyl pyrrolidone (NMP) is currently used.

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**Oxygenated solvents**

For paint formulations

Oxygenated solvents are used in formulations and for resins in architectural paints, wood coating and coil coating. They can also be used in the synthesis of pigment dyes and resins.

Hexasol® is used in waterbased paints to improve key properties such as extending film formation or reducing film forming temperatures.

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**Methane sulfonic acid**

The right catalyst for the purest esters

Arkema’s methane sulfonic acid (MSA) is a strong acid, extensively used for the preparation of esters. MSA improves kinetics and reaction yields and can be used up to 200°C. It gives esters with less color versus inorganic or long chain organic acids. In addition, the esters made from MSA have lower odor. MSA is non oxidizing agent and can be easily recycled. MSA effluents can also be sent to waste water treatment stations as this product is readily biodegradable.

Arkema has developed a new MSA grade, MSA Low Corrosion (LC). This new MSA LC grade eliminates corrosion of standard stainless steel materials. MSA LC is the best alternative to PTSA and sulfuric acid.
To deliver a solution globally from local production sites around the world

Europe

- **Headquarters**
  - Arkema - Colombes, France
  - Coatex - Genay, France
  - Sartomer - Colombes, France
  - Ceca - La Garenne Colombes, France

- **Technical and R&D centers**
  - Boretto, Italy - Coating Resins
  - Carling, France - Acrylic monomers
  - Genay, France - Coatex
  - Lacq, GRL, France - Nanostrength® - BlocBuilder® - Ceca - MSA
  - Parentis, France - Ceca
  - Pierre-Bénite, CRRRA, France - Kynar® - Ceca
  - Serquigny, Cerdato, France - Kynar® - Rilsan® - Orgasol® - Oleris®
  - Sant Celoni, Spain - Coating Resins
  - Verneuil, France - Coating Resins - Sartomer

- **Production facilities**
  - Antwerp, Belgium - Ceca
  - Boretto, Italy - Coating Resins
  - Brummen, The Netherlands - Coating Resins
  - Carling, France - Acrylic monomers
  - Chateauroux, France - Ceca
  - Drocourt, France - Coating Resins
  - Feuchy, France - Ceca
  - Foggia, Italy - Ceca
  - Gissy, Italy - Coating Resins
  - Genay, France - Coatex
  - Inowroclaw, Poland - Ceca
  - La Chambre, France - Amines - Oxygenated solvents
  - Lacq, France - DMSO - BlocBuilder® - MSA
  - Moerdijk, The Netherlands - Coatex
  - Moliets, Spain - Coating Resins
  - Mont, France - Orgasol® - Nanostrength®
  - Pierre-Bénite, France - Kynar®
  - Riom es Montagne, France - Ceca
  - Saint Baudile, France - Ceca
  - Sant Celoni, Spain - Coating Resins
  - Serquigny, France - Rilsan®
  - Strood, UK - Ceca
  - Villers StPaul, France - Coating Resins - Sartomer
  - Vlissingen, The Netherlands - Coating Resins
  - Zwickey, Germany - Coating Resins

Americas

- **Headquarters**
  - Arkema Coating Resins - Cary, NC
  - Arkema Inc. - King of Prussia, PA
  - Sartomer - Exton, PA

- **Technical and R&D centers**
  - Araçariguama, Brazil - Coatex - Coating Resins
  - Cary, NC - Coating Resins
  - Chester, SC - Coatex
  - Exton, PA - Sartomer
  - King of Prussia, PA
  - North Kansas City, MO - Coating Resins

- **Production facilities**
  - Alsip, IL - Coating Resins
  - Araçariguama, Brazil - Coatex - Coating Resins
  - Bayport, TX - Acrylic monomers
  - Birdsboro, PA - Orgasol® - Rilsan®
  - Calvert City, KY - Kynar®
  - Chatham, VA - Sartomer
  - Chester, SC - Coatex
  - Clear Lake, TX - Acrylic monomers
  - Grand Rapids, MI - Coating Resins
  - Mobile, AL - Coating Resins
  - North Kansas City, MO - Coating Resins
  - Saint Charles, LA - Coating Resins
  - Saukville, WI - Coating Resins
  - Torrance, CA - Coating Resins
  - West Chester, PA - Sartomer
Asia

- Headquarters
  - Arkema Greater China - Shanghai, China
  - Arkema K.K. - Tokyo, Japan
  - Arkema - Mumbai, India - Kynar®
  - Arkema - Seoul, Korea - Kynar®
  - Arkema - Singapore - Kynar®
  - Sartomer - Hong Kong, China

- Technical and R&D centers
  - Changshu, China
  - Guangzhou, China - Sartomer - Coating Resins
  - Kyoto Technical Center, Japan
  - Navi Mumbai, India - Coating Resins
  - Pasir Gudang, Malaysia - Coating Resins
  - Yokohama, Japan - Sartomer

- Production Facilities
  - Changshu, China - Coatex - Coating Resins - Kynar®
  - Cuddalore, India - BlocBuilder®
  - Hengshui, China - Oleris®
  - Kunsan, Korea - Coatex
  - Nansha, China - Sartomer
  - Navi Mumbai, India - Coating Resins
  - Pasir Gudang, Malaysia - Coating Resins
  - Taixing*, China - Acrylic monomers

A global chemical company and France’s leading chemicals producer, Arkema is building the future of the chemical industry every day.

Deploying a responsible, innovation-based approach, we produce state-of-the-art specialty chemicals that provide customers with practical solutions to such challenges as climate change, access to drinking water, the future of energy, fossil fuel preservation and the need for lighter materials.

With operations in nearly 50 countries, about 19,000 employees, and research centers in North America, France and Asia, Arkema generates pro forma annual revenue of €7.6 billion, and holds leadership positions in all its markets with a portfolio of internationally recognized brands.
Investing globally to support our coatings customers locally

2014
- New methyl acrylate production facility in Clear Lake, Texas, USA.
- Creation of Sunke, a manufacturing joint venture between Arkema (>50 %) and Jurong Chemical, producing glacial acrylic acid and butyl acrylate in Taixing, China.

2013
- Announcement of a project to divest Arkema’s coating business in South Africa (Arkema Resins Proprietary Ltd. and Harveys Composites Proprietary Ltd.)
- Start up of the new emulsion polymers facility (60,000 metric tons) on Arkema’s Changshu platform (China).
- Inauguration of the Arkema’s first R&D center in China (Changshu) to provide the development capacities and ideal local support for the Arkema Group’s customers in China, and South East Asia.
- Expansion of Arkema’s acrylic acid production capacity expansion at in Clear Lake, Texas (USA).

2012
- New 2-ethylhexyl acrylate (2EHA) production facility in Bayport, Texas, USA.
- New emulsion production for Arkema Coating Resins in Changshu, China.
- New acrylic resin capabilities for Arkema Coating Resins in Pasir Gudang, Malaysia.
- 50% increase in polyvinylidene fluoride (PVDF) capacity at Changshu, China.
- Acquisition in Brazil, from Resicryl, of an additives and emulsions production site.
- Opening of a new technical service and development center for coatings in Guangzhou, China, and of a R&D center in Changshu, China, to provide local support in Asia for Arkema activities in coatings and other markets.
- Acquisition of Chinese companies, Hipro Polymers (specialty biosourced polyamides) and Casida (sebacic acid) to enlarge product range and better support customers locally.

2011
- Acquisition of the coating and photocure resins from Total group (portfolios of Cray Valley, Cook Composites & Polymers and Sartomer).
- New Coatex acrylic additives capacity and new Kynar® PVDF plant in Changshu, China.

2010
- Emulsion and acrylic monomer assets acquired from Dow in the US.

2007
- Coatex rheological additives acquired from Omya.