



PRODUCTS FOR OUR EVERYDAY NEEDS

Mostly anonymously, Arkema's products are used in countless applications in every sector of everyday life, helping to make progress accessible to the vast majority of people.



Vinyl Products

From water treatment

In the treatment of drinking water, Arkema's chlorinated products, Bactivel[®] bleach and chlorine dioxide, are used to eliminate dissolved organic matter during the initial pre-oxidation phase. Chlorine, Bactivel[®] bleach and chlorine dioxide are also used in the last disinfection stage, both as a bactericide and to protect distribution networks, and thereby preserve the quality of water until it is consumed.

And health and household hygiene...

Chlorine and its derivatives are used in the synthesis of many medicines, while Bactivel[®] bleach is still one of the best household disinfectants. Lacovyl[®] PVC is widely used in the manufacture of catheters, bags for blood products, and blister packs for pharmaceutical packaging.

To housing, leisure

PVC has countless applications in the construction industry, from Lucobay[®] window profiles to water pipes from Alphacan, an Arkema subsidiary, to electric cable sheathing to floor and wall coverings. Lacovyl[®] PVC is also heavily present in the leisure sector, e.g. in the manufacture of LPs, sports equipment and clothing, dinghies, and toys.

And the motor car

PVC is used in the automotive sector as part of an extensive range of Nakan[®], Sunprene[®] or Sunfrost[®] compounds, in particular in the passenger compartment, e.g. in dashboard skins, and in anticorrosion sealants, gaskets, and the coating of fuel lines.

Industrial Chemicals

From refrigeration to insulation,

Arkema's Forane[®] hydrofluorocarbons are the basis of refrigerant fluids used to transfer calories in cooling circuits, for refrigeration and air-conditioning. They are also used as blowing agents in the manufacture of foams for thermal or sound insulation, as well as furniture.

Paper and textiles

Coatex's water-soluble polymers are essential for paper and cardboard coating. Widely used as a bleaching agent in the manufacture of paper and textiles, hydrogen peroxide marketed under the tradenames Valsterane[®], Peroxal[®] and Albone[®] also plays a part in the treatment of drinking water. It is also found in stain-removing agents in a diluted form.

And pharmaceuticals, animal feed and oil refining...

Thiochemicals form the basis of many pharmaceuticals, including antibiotics. Methylmercaptan is a synthesis intermediate for methionine, found in poultry feed. Thiochemicals also play a role in safety as an odorizer for natural gas, butane and propane. With methyl disulfide, Arkema offers its customers the Careflex[®] service for catalyst activation in the hydrotreatment plants of oil refineries.

To inks, paints and superabsorbents,

Norsocryl[®] acrylic derivatives may be found in many applications relating to daily life. They are used in paints and varnishes, inks, textile fibers, glues and adhesives, and detergents. They are a component of AquaKeep[®] superabsorbent polymers, whose best-known application is disposable diapers.

Electronics, the motor car, decoration

With its transparency and ageing resistance, Altuglas[®] and Plexiglas[®] PMMA (polymethyl methacrylate) is used in the manufacture of countless objects, including computer flat screens, rear lights of motor vehicles, illuminated signs, interior furniture, and sanitaryware.

And the treatment of boiler water

Liozan[®] hydrazine hydrate is used extensively for the anticorrosion protection of the water circuits of industrial boilers, as well as circuits in thermal power stations and nuclear power plants. However, hydrazine derivatives have many other applications, in particular in agrochemicals and pharmaceuticals manufacture.

Performance Products

From transportation to deep offshore oil production

Coatings for mechanical parts, fuel lines and hydraulic hoses count among the applications of Rilsan[®] 11 and 12 high performance technical polymers in the transportation sector. Rilsan[®] 11 is also used in the operation of deep offshore oilfields where they ensure safety under extreme conditions, and in the manufacture of top-of-the-range sports equipment and accessories for skiing, cycling, tennis, golf and team sports.

And cosmetics, medical equipment and sports...

Castor oil derivatives, by-products of the manufacture of the monomer for Rilsan[®] 11 like glycerine, are raw materials for cosmetics, soap and perfume manufacture. Orgasol[®] ultrafine powders are found in make-up. Pebax[®] polyether block amides are used in the manufacture of bandages, surgical garments, spectacle frames, and in a large number of sports articles including shoes and boots for a variety of sports disciplines.

To construction, civil engineering

Kynar[®] PVDF (polyvinylidene fluoride) provides external protection for building structures such as the Louvre Pyramid and the Grande Arche in La Défense (both in Paris). Coatings made from polyamide powder protect water supply pipes from corrosion. Siliporite[®] molecular sieves from Ceca, an Arkema subsidiary, dehydrate the air in double-glazing units. Certincoat[®] low emissivity glass coating additives help save by almost 30% the energy consumption required in buildings for heating in winter and air-conditioning in summer.

And electrical appliances, the rubber industry, and nanomaterial applications

Rilsan[®] polyamide powder coatings allow dishwasher baskets to withstand the combined action of heat and detergent. Luperox[®] organic peroxides are essential for the crosslinking of rubber, the polymerization of plastics, and the hardening of polyester resins.

Graphistrength[®] carbon nanotubes and Nanostrength[®] block copolymers are the materials of the future for all applications requiring extreme performance, including in aeronautics, sports, and the motor car.

Arkema Renewables: an increasing number of products derived from renewable raw materials

Dwindling fossil resources

Since its very beginnings, organic chemistry has developed primarily from oil, natural gas, and coal, all of which are fossil resources that have built up over millions of years, are non-renewable, and are now being depleted.

The future of chemistry therefore rests in part on the growing use of renewable raw materials of vegetable origin.

Plant growth uses up CO₂

For their growth through photosynthesis, plants use up carbon dioxide which they draw directly from the air, and so contribute to partly offset carbon dioxide emissions responsible for the greenhouse effect.

Developing materials derived from vegetable raw materials: one of the priority areas of Arkema's R&D

Several product lines from Arkema already call upon the use of raw materials of vegetable origin.

- A group of high added value performance products directly derived from castor oil:
 - Rilsan[®] 11, a high-end polyamide for technical applications.
 - Heptanaldehyde, heptanoic acid and heptanol used in particular in perfume manufacture and in the agro-food industry.
 - Esterol, which has applications in industrial lubrication, the application of concrete, and metalwork.
- Various products from CECA, Arkema's specialty chemicals subsidiary, are also produced from renewable raw materials:
 - Surfactants from oilseed for road surfacing formulations and for drilling in the oil industry.
 - Activated carbon obtained from various ligneous sources including coconut.
- Ethanol of agricultural origin is used in the manufacture of ethyl acrylate, for paint formulation, and of ethylamine.

Technical polymers newly developed from renewable raw materials

- Pebax[®] Rnew, the first range of thermoplastic elastomers directly inspired by the chemistry of Rilsan[®] 11 polyamide, a castor oil derivative.
- Platamid[®] Rnew, produced from 100% renewable raw materials, for thermoplastic hotmelt adhesives which solve the most difficult bonding problems.

Arkema Renewables: a label dedicated to Arkema products derived from renewable raw materials

Those products of Arkema and its subsidiaries derived in full or in part from raw materials of renewable origin (over 20% carbon of non-fossil origin) now carry the **Arkema Renewables** label under their names, and can be identified by a specific logo.

The evaluation of the rate of carbon of renewable origin in the products is conducted by an independent body based on standard ASTM 6866.

These various product lines account for some 5% of Arkema's sales.



Depending on the pace of progress of existing research programs, Arkema is looking to increase to some 10% the share of its sales achieved from renewable raw materials over the medium term.