

**Arkema at Pollutec:
Innovation as a source of solutions
to the challenges of sustainable development**

***December 2 to 5, 2008, Lyon Eurexpo
Hall 8 - Lane BS - Stand 104***

Arkema places innovation at the heart of its growth strategy by giving priority to ground-breaking R&D projects to develop new generation processes and products that are fully in line with sustainable development.

These projects are being showcased on the Arkema stand at Pollutec, with materials derived from renewable raw materials of vegetable origin, like Pebax Rnew[®], solutions for saving energy and developing new energies, in particular photovoltaics, and supramolecular chemistry that is opening up the way to new materials with outstanding properties, allowing for example the concept of self-repairing rubber.

Arkema is additionally presenting its products and applications in the field of bio-sourced additives for road bitumen, water treatment and disinfection.

The Arkema stand is also employing the most innovative communication techniques by using tools to control images by movement, in particular a sensory wall.

Every solution and product on show has its own dedicated 'high point event' during the four days of the show, with the participation of Arkema's R&D and marketing teams.

A global chemical company and France's leading chemicals producer, Arkema consists of three strategically related businesses: Vinyl Products, Industrial Chemicals, and Performance Products. Arkema reports sales of 5.7 billion euros. Arkema has 15,200 employees in over 40 countries and six research centers located in France, the United States and Japan. With internationally recognized brands, Arkema holds leadership positions in its principal markets.

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Innovative materials to meet the energy challenges of the 21st century:

Photovoltaic energy

Arkema's R&D teams work at optimizing the performance of its polymers dedicated to the photovoltaics sector, in cooperation with the sector's manufacturers. The aim of this work in particular is to extend the lifetime and enhance the yield of solar panels, specially by protecting the electrical circuits and the silicon, the solar panels' active material.

Arkema's solutions include:

- Evatane[®] ethylene vinyl acetate copolymers which ensure both the adhesion of the various layers making up the cell, and the protection of the silicon and the electrical circuits.
- Kynar[®] polyvinylidene fluoride used to manufacture the film acting as the panels' backsheet. It ensures superior long life and yield in the photovoltaic cells.

High Point Event: Tuesday December 2 at 14.00h

Materials derived from renewable raw materials

Arkema intends to gradually increase the share of raw materials of renewable origin and progressively substitute them to raw materials of fossil origin.

Arkema's solutions: materials classified under the label 'Arkema Renewables' whose production uses between 20 and 100 % of vegetable raw materials. In addition to the world-renowned Rilsan[®], Pebax[®] Rnew is the first thermoplastic elastomer with outstanding properties directly derived from castor oil chemistry. It is used in many industrial sectors, e.g. electronic equipment, medical equipment, and sports equipment such as the Scarpa and Mizuno brands.

High Point Event: Wednesday December 3 at 10.30h

Supramolecular chemistry

The concept of supramolecular chemistry is based on the principle of reversible chemical bonds. It has led to the development of a type of rubber that can self-heal, an ultra-tough bitumen that is laid at 140 °C instead of 180 °C, easy-to-mold plastics with superior mechanical strength and chemical stability, and hotmelt glues of vegetable origin. This highly promising chemistry offers a major progress potential in many everyday applications. As an industrial partner in this field of research, Arkema is the first chemicals producer to offer solutions developed from this innovative concept.

High Point Event: Wednesday December 3 at 15.00h

New nanostructured materials

With its Graphistrength[®] carbon nanotubes and Nanostrength[®] range of block copolymers, Arkema is one of the main leaders in nanostructured materials.

These nanostructured materials have applications in a large number of markets: cutting-edge materials for the aeronautics sector, sports equipment, car manufacture, electrical and electronic components, tire manufacture, industrial rubber, and thermoplastics. They are also called upon to play a significant role in the field of energy with the development of more efficient energy storage systems like supercapacitors, fuel cells, and lithium-ion batteries.

High Point Event: Thursday December 4 at 10.30h

Other Arkema products on show:

Performance products from CECA, an Arkema subsidiary

As an adsorbents, chemical intermediates and additives specialist, CECA brings solutions in the fields of water, earth and air.

Cecasorb[®] and Acticarbon[®] are ranges of eco-responsible activated carbon used in the treatment of drinking water, for example by the distribution network of the City of Venice.

The leading producer of road bitumen additives, CECA has developed Cecabase[®] RT, an additive which considerably lowers the manufacturing and application temperature of road asphalt mixes and thereby drastically reduces polluting emissions.

High Point Events: Tuesday December 2 at 10.15h and Friday December 5 at 14.30h

Extra-pure bleach: for water treatment and hospital disinfection

High Point Event: Tuesday December 2 at 16.45h

Kynar[®] ADX: for high performance coatings for pipes and the manufacture of filtration membranes in the water industry

High Point Event: Thursday December 4 at 14.15h

Scaleva[®]: an environmentally sounder new generation cleaning solution for the agrofood industry

High Point Event: Thursday December 4 at 16.45h

PVC Lacovyl[®] and C-PVC Lucalor[®] and Thermogoal[®]: pipes and fittings for hot and cold water distribution networks

High Point Event: Friday December 5 at 10.30h

Arkema Renewables : a label for Arkema's products made from renewable raw materials

Capitalizing on its long-standing expertise in the manufacture of Rilsan[®] 11 high performance biopolymer derived from vegetable castor oil, Arkema aims to develop and valorize its products made from renewable raw materials by launching today the **Arkema Renewables** label.

This label will apply to products involving at least 20 % carbon of renewable origin, to emphasize and enhance Arkema's sustainable development approach which favors the use of renewable raw materials in the manufacture of its products.



Two new Arkema products from renewable raw materials are being launched at the Kunststoffe 2007 tradeshow:

- **Pebax[®] Rnew**: the first range of thermoplastic elastomers produced from renewable raw materials, directly inspired by the chemistry of polyamide 11, a castor oil derivative. Pebax[®] Rnew offers the same outstanding properties as Pebax[®], and fits perfectly into the eco-design concept.
- **Platamid[®] Rnew**: derived from 100% renewable raw materials, a new concept for thermoplastic hotmelt adhesives which, over the past 40 years, have brought efficient solutions to the most demanding bonding challenges.



A global chemical company and France's leading chemicals producer, Arkema consists of three strategically related businesses: Vinyl Products, Industrial Chemicals, and Performance Products. Arkema reports sales of 5.7 billion euros. Arkema has 15,200 employees in over 40 countries and six research centers located in France, the United States and Japan. With internationally recognized brands, Arkema holds leadership positions in its principal markets.

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Arkema receives Pierre Potier 2008 Prize for its Pebax[®] Rnew, a high performance polymer derived from renewable resources

The Pierre Potier Prize, created in 2006 on the initiative of the French Ministry of the Economy, Finance and Industry, rewards every year chemical manufacturers who engage in innovation at the service of sustainable development. Arkema this year has been awarded the top prize for Pebax[®] Rnew, the first thermoplastic high performance elastomer with a renewable carbon content of up to 95%.

With its long-standing experience spanning some sixty years, Arkema today is the world leader in castor oil chemistry from which Rilsan[®] 11 is obtained, the only high performance polyamide entirely derived from a renewable raw material.

The Pebax[®] Rnew range of thermoplastic elastomers rewarded by the Pierre Potier 2008 Prize is directly derived from this chemistry, which is characterized by smaller fossil energy needs and fewer CO₂¹ emissions. Accordingly, Pebax[®] Rnew naturally fits in with the eco-design approach adopted by a large number of industrial sectors, e.g. electronics, medical, sports and automotive, for their high added value products.



¹ Compared to traditional Pebax[®], Pebax[®] Rnew helps reduce the amount of fossil energy required by 29% and emissions of CO₂ equivalent by 25 to 32%.

Pebax® Rnew: outstanding properties

Pebax® Rnew features in particular far superior mechanical properties than competitive materials, as well as excellent resistance to thermal ageing and ultra-violet rays. Pebax® Rnew also stands out by a remarkable dynamic behavior whereby it dissipates less energy than other materials of a similar hardness, a characteristic which is reflected in excellent resistance to flexural and tensile stress. Pebax® Rnew therefore affords an unrivalled compromise between rigidity and cold mechanical strength.

Countless applications for Pebax® Rnew

Pebax® Rnew has countless applications in many industrial sectors. It is present, for example, in car interiors, in particular in airbag components. It can be sterilized, and so is used in the manufacture of medical equipment, in particular dressings and catheters. Electronic equipment manufacturers capitalize on its outstanding properties for the manufacture of mobile phones and laptop computers. Leading sports brands use Pebax® Rnew for its light weight, sturdiness, and shock absorbency.

Pebax® Rnew already approved for Scarpa ski boots and Mizuno running shoes

Close cooperation between Arkema's R&D teams and those of Italian skiing equipment manufacturer Scarpa has led to the development of Scarpa's new Hurricane long-distance ski boot, now much in demand.

The properties of Pebax® Rnew benefit not just winter sports, but many other sports disciplines too. Running is a prime example, with the new Wave shoe from the Japanese brand Mizuno which will use Pebax® Rnew for the sole of its shoes.



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Altuglas International develops acrylic resins based on renewable raw materials

Altuglas® Rnew, an acrylic containing 20% renewable carbon

Altuglas International, subsidiary of the Arkema Group, is introducing Altuglas® Rnew, a new PMMA grade containing 20% of carbon that is derived directly from biomass. This product offers properties comparable to those of conventional grades produced entirely from fossil carbon. It extends the existing family of Arkema thermoplastics under the "Arkema Renewables" label, which is intended to emphasise and exploit Arkema's approach to durable development and gives priority to the use of renewable raw materials in the manufacture of its products.



Altuglas® acrylic resins, part of an eco-development initiative

In the fields of cosmetics packaging, electronic products and household appliances, the transparent and opaque PMMA sheet that Altuglas International produces can be distinguished from other plastic materials by its excellent optical and visual qualities, durability and exceptional surface hardness. These intrinsic qualities make it possible to omit the application of a protective varnish coating during manufacturing, a highly energy-consuming stage that causes pollution, in particular from volatile organic compounds (VOCs).

Altuglas International, filiale d'Arkema, commercialise 20% de la production mondiale de PMMA (polyméthacrylate de méthyle) sous forme de plaques et de résines acryliques. Dans cette activité, l'entreprise opère sur 9 sites de production dans le monde. Plexiglas® est le nom de marque sur le continent américain et Altuglas® le nom de marque dans le reste du monde.

www.altuglasint.com

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Arkema presents Rilsan® Clear G830, the first bio based transparent Polyamide

Arkema's newest high performance transparent polyamide, Rilsan® Clear G830: first bio based, fully transparent and high performance.

Rilsan® Clear G830 is using 54% of biobased raw material thus contributing to reduce CO₂ emissions. Naturally, Rilsan® Clear G830 offers the same key benefits such as freedom of design, comfort & durability as known from classical Rilsan® Clear G350.

Rilsan® Clear G830, a solution to fit perfectly into eco-design concept.

Rilsan® Clear G830 is the latest innovation in bio based high performance Polyamides by Arkema.

Rilsan® PA11, Pebax® Rnew and Platamid® Rnew have proven the ability of Arkema to propose innovative bio based solution for high demanding markets.



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Arkema presents Evatane[®] 33 - 45 PV, an HC EVA copolymer dedicated to photovoltaic applications

Arkema, the European leader in HC EVA (High Content Ethylene – Vinyl Acetate copolymers), now markets Evatane[®] 33-45PV, an HC EVA specifically developed for photovoltaic solar panels.

The direct result of Arkema's R&D innovation, this new grade is designed for the encapsulation of the materials (crystalline silicon or thin films) that make up the photovoltaic cells. Evatane[®] 33-45PV is characterized by outstanding optical performances, in particular good light transmission which makes for a superior yield from the solar panel. Thanks to its specially developed formulation, it offers excellent crosslinking ability and processability.

Deeply committed to the design of innovative materials for the development of new sources of energy, Arkema plans to launch another new Evatane[®] grade specially designed for photovoltaic applications by the end of 2008.



Evatane[®] copolymer resins are ethylene copolymers with a high vinyl acetate content (from 18 to 42 %). With properties closer to those of elastomers than polyethylene, these resins are easy to process and compatible with a large number of polymers. Evatane[®] resins are used in many industrial applications, including hotmelt adhesives, photovoltaic cells, cable sheathing, multilayer packaging film, and road bitumen.

France's leading chemicals producer and a global chemical player, Arkema consists of 3 coherent and related business segments: Vinyl Products, Industrial Chemicals, and Performance Products. Present in over 40 countries with 15,200 employees, Arkema achieves sales of 5.7 billion euros. With its 6 research centers in France, the United States and Japan, and internationally recognized brands, Arkema holds leadership positions in its principal markets.

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Supra-molecular chemistry yields new materials with outstanding properties

Broken or cracked rubber that can self-heal simply through new contact, ultra-tough bitumen laid at 140°C instead of 180°C, easily-molded plastics with superior mechanical strength and chemical stability, and hotmelt glues from vegetable origin all have one thing in common: they are based on the concept of supramolecular chemistry, a promising branch of chemistry that offers a major improvement potential for everyday applications. Arkema, a partner in this research, is one of the first manufacturers poised to offer products derived from this chemistry in the near future.

This new material is the fruit of research work conducted in the « Matière Molle et Chimie » Laboratory, a mixed research unit between CNRS and ESPCI (Ecole Supérieure de Physique et de Chimie Industrielles) run by Professor Ludwik Leibler, a former colleague of Pierre Gilles de Gennes, 1991 Physics Nobel Prize. Today, Arkema, as a key industrial partner in this research, in particular through its expertise in nanostructured materials, is entering the phase of commercial development for several materials derived from this research.

From traditional molecular chemistry to supramolecular chemistry

For over two centuries « traditional » molecular chemistry has focused on transforming matter by creating permanent bonds linking up atoms within molecules. Polymer chemistry, derived from this traditional chemistry, has developed considerably in the last century, the objective being to produce large molecular chains that combine sturdiness with light weight.

Supramolecular chemistry – a scientific field that has come to the fore in recent years in particular thanks to the Chemistry Nobel Prize presented to Jean-Marie Lehn, Donald Cram and Charles Pedersen in 1987 – consists in building complex assemblies of molecules joined by non-permanent or « reversible » bonds; these assemblies of molecules with a « reversible » structure are called « supramolecular ».

Supramolecular chemistry: from concept to everyday applications

This new approach to the chemistry of materials is opening up the way to wide-ranging innovations and developments.

Materials can indeed be developed from small molecules derived from vegetable oils, and be processed or applied at low temperature, with a behavior in the solid state that is typical of a polymer with large molecular chains, e.g. sturdiness and strength. Another typical application is the example of an existing conventional polymer which is modified by integrating these temporary bonds, and so will be able to combine excellent fluidity at processing temperature with outstanding properties in the solid state, which are identical to, if not better than, those of an existing non-modified polymer. Yet another highly promising application can already be envisaged for bitumens laid on high-traffic carriageways: these specialty bitumens are modified with polymers which make them more hard-wearing, albeit to the detriment of their viscosity; they then have to be heated at high temperature (180°C) for a long period of time for their preparation and application, which are highly energy-intensive operations. By adding to the bitumen an additive of vegetable origin derived from supramolecular chemistry, it is possible to lower to 140°C the temperature needed to heat up these bitumens prior to application while keeping their mechanical strength, and facilitate their recycling.

« This work into supramolecular chemistry shows how collaboration between fundamental research and application-oriented industrial research can lead to major innovations in the field of materials. Supramolecular chemistry is a concept now poised to become an everyday reality. Eventually, this new approach will yield significant benefits for everyday applications: one can imagine all kinds of articles that could be reused after breaking or cracking thanks to the « auto-healing » process, or polymers, or even varnish or adhesive formulations of vegetable origin which will be processed or applied at relatively low melting temperatures and will afford major energy savings » Christian Collette, Arkema R&D Vice President, states with confidence.

Arkema, an industrial partner in this research, is one of the first chemicals producers to develop products based on the supramolecular chemistry technology earmarked for industrial production.

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CECA rewarded by the International Road Federation for its CECABASE RT[®] warm mix asphalt technology

CECA, filiale du groupe Arkema vient d'être récompensé par la Fédération Internationale Routière (IRF) pour sa technologie Enrobés tièdes CECABASE RT[®]. Le prix sera remis à Washington (USA) en janvier 2009 lors d'une cérémonie.

" 12 projects from around the world are honoured in this way every year by the IRF [www.irfnews.org] for their outstanding contribution to the road industry, and we are extremely proud to be among the winners this year. With this award, it is our customers who actually reward our innovation, and this augurs well for our warm mix asphalt technology " explains Christophe Villain, CECA's Managing Director.

Also rewarded in France in 2007 with the Pierre Potier Prize for chemistry at the service of the environment, this technology has now been used in Europe since 2006. CECA can confirm that over 300,000 tonnes of warm mix asphalt incorporating CECABASE RT[®] were laid on European roads in 2007.

The result of the CRRA (Centre de Recherche Rhône Alpes - ARKEMA) bitumen laboratory's research, this range of additives is simply blended into the bitumen (3 kg per tonne) to:

- Lower the production temperature of the asphalt blend by around 50°C with no modification to the process,
- Lay the asphalt mix in situ and compact it at below 100°C, with improved working conditions for site operators,
- Reduce CO₂, CO and NO_x emissions by some 35% compared to conventional technology,
- Reduce by 90% the dust generated during the production of the bitumen mix compared to conventional technology,
- Increase productivity in the mixing plant by 10 to 20%,
- Multiply by 4 the operating radius from the mixing plant.

" This is a straightforward technology which requires no additional capital investment, and so is available to everyone. For our customers the cost is neutral thanks to savings in energy. Additionally, this technology has proven its robustness with every type of asphalt mix. The success of CECABASE RT[®] has been achieved through our teams' in-depth knowledge of our customers' activities " confirms Guillaume Legouis, CECA Bitumen Additives Manager.

Find out more about CECABASE RT® warm asphalt mix additives:

The development programme for warm mix asphalt additives was initiated at Arkema's CRRA (*Centre de Recherche Rhône-Alpes*) Research Centre in 2003. CECA has been marketing the fruit of this research since 2006 in the form of the CECABASE RT® product range. The CRRA team headed by Gilles Barreto and Juan Gonzalez has developed a surfactant additive for CECA based on at least 50% renewable raw materials which, blended with the bitumen, helps lower by some 50°C the application temperature of the road surfacing material without impairing its performance. Compared with the traditional road surfacing process, the use of this additive cuts down energy consumption by 20 to 50% depending on the process, while also generating considerably less dust

Find out more about CECA bitumen additives:

Renowned for its technical support and expertise in road construction technologies, CECA, Europe's leader in this field, offers a comprehensive range of additives produced at its Feuchy plant. Adhesion agents, emulsifiers and process additives constitute and protect over the long term the bond between bitumen and aggregate in every circumstances, in cold or hot processes, and in construction or maintenance.

Find out more about CECA (www.cecachemicals.com):

CECA, a subsidiary of the ARKEMA Group, is a world player in Specialty Chemicals. CECA constantly strives to improve its customers' performance by creating and developing adsorbents, chemical intermediates, and additives. CECA operates an extensive network of industrial facilities in Europe, together with two research centres (GRL and CRRA) dedicated to Customer innovation.



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Drinking water: the CECA regeneration chosen by the City of Milan

CECA, a subsidiary of the ARKEMA Group, has been awarded a 4.5 million euro three-year contract from the City of Milan - Italy- for its eco-responsible activated carbon regeneration solution. The high quality water of the Milan Aqueduct (Metropolitana Milanese) treated with the activated carbon regenerated by CECA will every day supply the 1.3 million people living in and around Milan until 2011.

" Regeneration ": an ecological solution sought after by the City of Milan.

In line with its sustainable development policy, the City of Milan has opted for the activated carbon regeneration process in order to minimise the impact on the environment. No need to take the end-of-life product to landfill; the spent activated carbon will be shipped via a shuttle system to CECA's Legnago site in Italy, the largest in Southern Europe, to be reactivated and then reshipped to the 20 Metropolitana Milanese sites.

Find more about CECA : www.cecachemicals.com

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Arkema presents the latest generation of its Graphistrength® masterbatches

Arkema, un des leaders mondiaux des nanotubes de carbone multi-parois, présente la dernière génération de sa gamme de mélanges maîtres thermoplastiques Graphistrength®.

Optimized processability in a wide range of matrices

These new masterbatches feature in particular superior processability at lower temperature as well as a highly safe application. They can be diluted easily to produce compounds with remarkable electrostatic dissipation (ESD) properties. These compounds can be processed either by extrusion or by injection.

Graphistrength® masterbatches are available in several matrices: PC, PA6, PA6.6, PA11 and PA12. Arkema's R&D is currently working on completing this range of matrices without delay by including other thermoplastics.

Graphistrength® C M2-20 for hotmelt adhesives with ESD properties

Graphistrength® C M2-20 is a specific grade for the production of hotmelt adhesives with ESD properties. This application requires low viscosity to ensure optimum processing, as well as a low modulus to ensure adhesion. These two key characteristics are very difficult to retain if ESD properties are also required, as the conductive charges traditionally used lead to a significantly higher modulus, which severely impairs the adhesive properties.

Arkema took a fresh look at this application in order to achieve the required compromise between viscosity, adhesion and conductivity, by using small quantities of Graphistrength® multi-wall carbon nanotubes ideally dispersed in a suitable thermoplastic matrix, e.g. a copolyamide from the Platamid® family.

An original product developed by Arkema, Graphistrength® C M2-20 opens up the way to new applications.

Graphistrength® is a registered trademark belonging to Arkema.



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Arkema launches its Scaleva® website **www.scaleva.com**

A world-class chemical concern, Arkema announced the launch of Scaleva® last June, a new environmentally safe solution used in detergent formulations for hygiene and cleaning in the food industry. A new website, www.scaleva.com, has now been launched to present this Scaleva® solution, an environmentally sensitive substitute to phosphoric acid that reduces phosphorus compounds in wastewater.

With Scaleva®, an organic acid for cleaning solutions, Arkema offers an effective and innovative alternative to the phosphoric acid-based formulations used today in the food industry. The Scaleva® solution biodegrades within 28 days in water treatment plants without the formation of environmentally unsafe decomposition compounds. It allows manufacturers to reduce the phosphorus at source, thereby substantially reducing the significant direct and indirect operating costs involved in treating and eliminating phosphorus compounds in wastewater.

Through its new website www.scaleva.com, Arkema makes available part of its research findings, together with the Scaleva® technical, economic and environmental characteristics, to phosphoric acid-based cleaning product manufacturers and users.



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Arkema's Scaleva[®] solution accepted by the Canadian Food Inspection Agency (CFIA) and registered by NSF International

Arkema's Scaleva[®] solution, a new alternative to phosphoric acid in food and beverage-related and institutional cleaning formulations, has been accepted by the Canadian Food Inspection Agency (CFIA) for use in food processing facilities as a non-food chemical product. It has also been registered by NSF International¹ on the non-food compounds listings in the category "AX" (ingredient for use in cleaning products).

With its Scaleva[®] solution, worldwide chemical producer Arkema offers an effective and innovative alternative to the phosphoric acid used today in food and beverage-related and institutional cleaning formulations. Launched successfully in Europe in 2007, Scaleva[®] solution is 100 percent biodegradable according to OECD Standard 301F² and contains no phosphorus or nitrogen.

"We believe Scaleva[®] solution's approval by the CFIA and registration by NSF International will facilitate cleaning solutions suppliers' registration of their Scaleva[®] solution-containing formulated products," said Richard Lelievre, Arkema's global business manager.

Scientific studies have shown that an excess of phosphorus in waterways can cause biological imbalances as well as the eutrophication³ of rivers. Industrial cleaning solutions is a source of significant amounts of phosphorus that are released to wastewater treatment plants (WWTP). Scaleva[®] solution enables manufacturers to reduce the phosphorus at its source, thereby substantially reducing the significant direct and indirect operating costs involved in treating and eliminating phosphorus compounds in WWTPs.

In addition, Scaleva[®] solution provides efficient cleaning of molds, equipment and pipes used in the food and beverage industry (such as dairies and breweries), rapidly removing scale, such as calcium carbonate or calcium oxalate.

Scaleva[®] solution's efficiency in removing calcium salts also makes it a strong candidate for phosphoric acid replacement in institutional cleaners used in restaurants, cafeterias, hotels, hospitals, assisted living facilities, schools and retail stores.

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¹NSF International is a non-profit, non-governmental organization that provides public health and safety risk management solutions to companies, governments and consumers around the world.

²In the OECD 301F method (Manometric Respirometry Test), which lasts for 28 days, the course of the biodegradation is monitored by oxygen consumption analysis.

³Eutrophication is an evolution of aquatic ecosystems resulting from excessive amounts of chemical nutrients – typically compounds containing nitrogen or phosphorus. These nutrients stimulate uncontrolled algae growth. This enhanced plant growth, often called an algal bloom, can produce 'dead zones' in water bodies where dissolved oxygen levels are so low that most aquatic life cannot survive.

Scaleva[®] is a registered trademark belonging to Arkema.



www.scaleva.com

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