

Colombes, September 1st 2010

**Arkema awarded Pierre Potier prize for *Kynar Aquatec*[®],
a solvent-free paint resin for more energy-efficient air-conditioning**

Launched in 2005 by *Union des Industries Chimiques* (UIC – French Chemical Industries Association) and *Fédération Française des sciences pour la Chimie* (FFC – French Federation for Chemical Sciences) under the aegis of the French Ministry for Industry, the Pierre Potier prize rewards companies that bring out innovations in the field of sustainable development. This year, Arkema has won top prize with *Kynar Aquatec*[®], a PVDF (polyvinylidene fluoride) resin available for the first time as an aqueous formulation for the manufacture of roofs that reflect sunlight, therefore help reduce air-conditioning costs and achieve major energy savings.

For over 45 years Arkema has developed under the brand name *Kynar*[®] a high-end PVDF grade for external coatings used in tall buildings and industrial structures, renowned for its remarkable resistance to UVs (lasting more than 25 years) and grime (cleaning naturally through rain water), as well as its reflective properties. However, these coatings are designed for metal components, requiring off-site pre-lacquering by stoving. The new *Kynar Aquatec*[®] resin for aqueous formulations offers the benefit of « air drying », hence it can be applied on any type of building with traditional painting tools. Roofs and sidings protected with these reflective coatings therefore help reduce the need for air-conditioning.

A solvent-free PVDF / acrylic formulation

The objective of the research teams was to develop a technology to apply PVDF-based coatings by spraying directly onto existing buildings. The *Kynar Aquatec*[®] innovation consists in developing a PVDF latex paint as an aqueous emulsion, capable of forming a film at ambient temperature through a new process combining PVDF polymerization and acrylic polymerization. This innovation features the ease of application of a solvent-free aqueous paint, combined with the outstanding durability and reflectivity of *Kynar*[®] PVDF coatings. Being able to apply a PVDF paint like a traditional acrylic paint (i.e. without any heat treatment) therefore helps extend the use of the *Kynar*[®] coating to the construction or renovation of all types of buildings, whatever the shape and nature of roof and siding: metal, cement, asphalt sheeting or even wood.

Reflective roofs for sustainable and less energy-intensive air-conditioning

In high sunlight regions, the absorption of the sun's rays by buildings is a major element of their thermal balance. Using a white paint containing *Kynar Aquatec*[®] helps reflect sunlight, and avoids

excessive energy consumption from artificial air-conditioning. Hence, the overall energy cost of a building with a roof coated with *Kynar Aquatec*® can be reduced by almost 15%¹.

Outstanding durability makes it a unique product on the market

Painting roofs in white is a common practice to counter the absorption of sunlight. However, traditional paints rarely last beyond 5 years: they lose their « reflectivity » as grime and microfungi set in. From an ecological balance viewpoint, periodically replacing a damaged roof coating cancels out the benefits of reflectivity. To date, *Kynar Aquatec*® is the only maintenance-free coating that retains a virtually intact white finish for over 20 years.

Paint for passive air-conditioning with a promising future

The importance of passive air-conditioning using « reflective roofs » was first appreciated in the United States in the last ten years. Europe is now taking steps to close the gap. In 2009 the European Commission set up the « Cool Roofs Council » which, following the example of the United States, is pursuing a policy to promote the development of « cool roofs ». The use of paint containing *Kynar Aquatec*® is therefore expected to grow in Europe over the next few years.



***Stegeman Coliseum University (Georgia – USA)
Dome-shaped cement roof coated with Kynar® Aquatec***

A global chemical company, Arkema consists of three businesses: Vinyl Products, Industrial Chemicals, and Performance Products. Arkema reported sales of 4.4 billion euros in 2009. Arkema has 13,800 employees in over 40 countries and seven 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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¹ Thanks to its reflectivity, *Kynar Aquatec*® helps save 20 to 25 kWh/m²/year on the energy required for air-conditioning. As a comparison, the energy consumption of a building is of the order of 150 kWh/m²/year.