

# ALTUGLAS

## Innovates with a nanostructured PMMA and a biosourced PMMA to meet the challenges of sustainable development



### THE CHALLENGE

The PMMA (polymethylmethacrylate) polymer, or “acrylic glass”, boasts outstanding optical properties, superior to those of glass, much sought after in many applications: rear light clusters for cars, illuminated signage, flat screens for TVs, modern furnishing, etc. Altuglas International, an Arkema subsidiary, is a world leader in the PMMA market, and invests heavily to provide solutions to two key challenges of sustainable development: reduction in the weight of vehicles and growing scarcity of petroleum-based raw materials.

### THE ALTUGLAS® SOLUTIONS

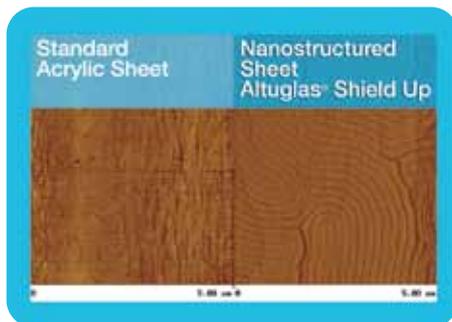
#### Altuglas® ShieldUp, a nanostructured acrylic sheet for lightweight and tough glazing

In 2011, Arkema launched Altuglas® ShieldUp, a revolutionary product consisting of an acrylic sheet that is nanostructured, i.e. “meshed” on the scale of a billionth of a metre, in order to maximise its properties.

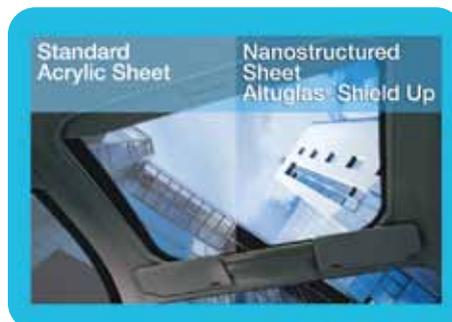
### POINTERS

- The automotive sector, **2nd** Altuglas Business unit **top market**.
- Reducing the weight of a vehicle by 100kg equates to cutting fuel consumption and CO<sub>2</sub> emissions respectively by **0.4 litre and around 1kg for every 100 kilometres**.
- More than a **5% annual growth** expected in biopolymers **over the next 5 years**.

Researchers successfully combined PMMA with an elastomer to produce lightweight glazing combining sturdiness and transparency, at any temperature.



50% lighter than glass, this sheet offers a solution to reduce the weight of vehicles - for panoramic roofs and side windows -, and so help reduce fuel consumption and CO<sub>2</sub> emissions. Its resistance to impact and to chemical attack (e.g. cleaning products) is superior, and, unlike glass, Altuglas® ShieldUp can be thermoformed into complex designs. Its outstanding properties are opening up new prospects in aerospace and safety glazing, over and above the automotive sector.



#### Altuglas® Rnew, the first high performance PMMA with a biosourced component: technical alloys with a lower carbon footprint

Working jointly with one of the world's leading players in biopolymers, Altuglas International has created the first PMMA resin range that includes polymers 100% produced from plant sugar.



Altuglas® Rnew sheets offer unprecedented levels of performance in terms of impact resistance and chemical stability. Moreover, Altuglas® Rnew is suitable for low temperature converting, therefore resulting in a lower carbon footprint thanks to a lower energy consumption. The opportunities opening up to these products are vast in substituting certain polymers, including polycarbonate and polyester. Durable applications are countless, in particular in everyday articles, transport, sign manufacture, and lighting.