

ALTUGLAS[®]
BY ARKEMA

Altuglas[®] ShieldUp



ALTUGLAS®
ACRYLIC SHEET /

THE ACRYLIC REVOLUTION

The first nanostructured sheets combining lightweight composition, strength and transparency

On a nanometric scale of the material, our researchers have managed to incorporate an elastomer which brings previously unattainable properties to acrylic glass, and all without reducing its transparency.

While maintaining the defining advantages of classic PMMA: transparency, lightweight, insensitivity to UV rays and being easy to machine, Altuglas® ShieldUp sheet enhances these with convincing features. Its resistance to impact and excellent chemical resistance open up infinite new development opportunities for this revolutionary sheet.



Altuglas® ShieldUp

A nanostructured acrylic glass sheet that's both lightweight and solid

ALTUGLAS® SHIELDUP:

THE NANOSTRUCTURED ACRYLIC SHEET /

This acrylic glass is « meshed » and structured at the scale of a billionth of a metre to maximize its properties. The result: **a lightweight sheet combining strength and transparency.**

Altuglas® ShieldUp combines two components - PMMA and an elastomer, structured at the nanoscale - which allows for complete transparency while optimising other properties such as mechanical and chemical resistance.

EXCEPTIONAL POSSIBILITIES FOR A VARIETY OF APPLICATIONS /

This combination of properties significantly broadens the number of common applications for PMMA and offers exceptional possibilities for industries such as:



SAFETY & SECURITY GLAZING

A material more resistant to perforation than standard PMMA, thus giving better performance and thickness reduction while improving protection of public places; from break-in resistant windows to bullet proof laminates.

TRANSPORT

A crystal clear material for glazing. Cars, motorbike, boats, agricultural and construction, machinery, trains and more. Compatible with main coatings in order to obtain an optimum abrasion resistance.

PHOTOVOLTAICS AND SOLAR THERMICS

The remarkable transparency, lightweight and durability can be taken advantage of in photovoltaic and solar thermal energy applications.

INDUSTRIAL APPLICATION

Requiring chemical or impact resistance; fume hoods, machine cover, gloves boxes...

An exceptional material with



ALTUGLAS® SHIELDUP: LIGHTWEIGHT GLASS-REPLACEMENT A «REVOLUTIONARY» PRODUCT /

Weighing in at 50% lighter than glass and more transparent, Altuglas® ShieldUp responds to the challenge faced by the transport industry to find lighter and stronger materials.

It is the way to reduce the weight of a vehicle and improve energy efficiency without reducing performances.

ALTUGLAS® SHIELDUP: RESISTS SHOCKS AND LIMITED BLEACHING NO MATTER WHAT THE TEMPERATURE /

Naturally resistant to UV light, PMMA is the most resistant polymer to rays and is often used outside. Additives commonly used to improve the impact resistance of acrylic sheets cause a deterioration of transparency under high temperatures.

Altuglas® ShieldUp benefits from polymerisation technology developed by Arkema's R&D department: BlocBuilder® technology. It gives us complete control over polymer architecture at the nanometric scale. The result is a sheet far more resilient to impact and which retains good transparency on a wide range of temperatures.

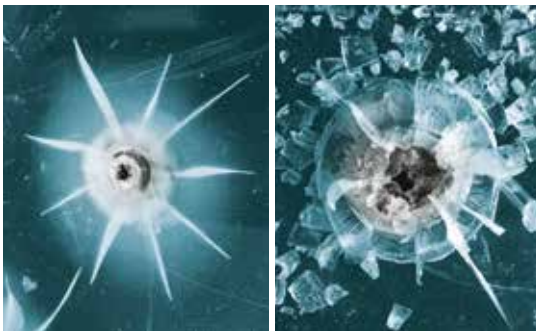
	IMPACT RESISTANCE	SENSITIVITY TO HAZE (HAZE / OPALESCENCE)*
Standard sheet	no	no
Impact modified grade sheet	yes	yes
Altuglas®ShieldUp	yes	low

*under the effect of temperature

ALTUGLAS® SHIELDUP: FACILITATES COMPLEX DESIGN SHAPES. USE YOUR IMAGINATION! /

Unlike glass, acrylic sheet is easily thermoformable and lends itself fully to the creation of complex shapes.

We leave room for the designer's imagination while guaranteeing exceptional properties, particularly optical.



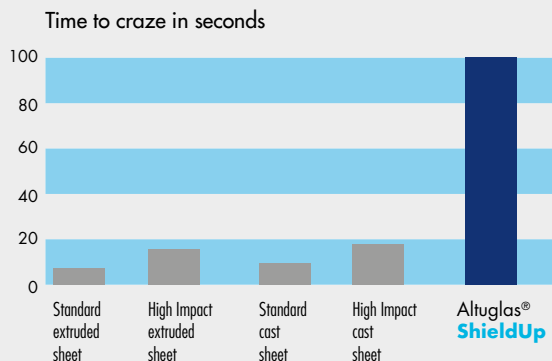
Altuglas® ShieldUp based
bullet proof glazing

Standard PMMA based
bullet proof glazing

Choose the winning combination for your needs !

h numerous strong points

STRESS CRACK RESISTANCE (EN 13359, ISOPROPANOL 25%)



ALTUGLAS® SHIELDUP: RESISTS AGGRESSIVE CHEMICALS /

The formulation of Altuglas® Shieldup acrylic sheet reinforces chemical resistance to a wide range of agents such as alcohol, acetone or other cleaning products.

ALTUGLAS® SHIELDUP: FORMATS AND THICKNESS MADE TO ORDER /

On request, the sheets will be produced transparent, either colourless or coloured: with a thickness from 3mm to 12mm, a format of 3m X 2m and in a variety of finishes (glossy, matt) depending on your needs.



FOR THE SUCCESS OF YOUR PROJECT,
*the technical teams adapt to your needs,
designing a product according to your chosen
specifications!*

Advantages of Altuglas® ShieldUp



Properties	Standard sheet	Altuglas® ShieldUp Sheet
Naturally resistant to UV rays	yes	yes
Impact resistance	no	yes
Scratch resistant	yes	yes
Polishable	yes	yes
Lightweight	yes	yes 50% lighter than glass
Thermoforming compatible	yes	yes
Transparent	yes	yes
Resistant to chemical stress	good	Excellent

"The aim of our R&D is to understand and anticipate the needs of our customers and respond with new innovative materials."

Philippe THEPOT,
General Manager EMEA



TECHNICAL SKILLS AND EXPERIENCE FOR ADVANCEMENTS IN TECHNOLOGY /

Thanks to its many years of experience, Altuglas International provides unrivalled expertise in PMMA and acrylic glass technology around the world. PMMA offers aesthetically pleasing and optical features in addition to a long service life.

Marketing and development teams join the market and technical leaders to remain on the cutting edge of the industry. The three development priorities are:

- Innovate and improve the properties of our sheet and resin.
- Focus on our customers to better understand their needs and quickly provide the right solutions.
- Get ahead in industries and markets such as lighting, automotive and transportation, building and construction, consumer goods and design.

WELCOME TO THE WORLD OF ALTUGLAS INTERNATIONAL, SUBSIDIARY OF ARKEMA GROUP

Altuglas International, a global integrated leader in PMMA is heavily involved in the technical plastic sector – from MMA monomer to PMMA acrylic glass – creating and manufacturing innovative products to suit customers' needs worldwide. Its 920 highly committed staff make their contribution daily in our three businesses (MMA, sheet and PMMA resins). Its four great brand names are references: Altuglas®, Plexiglas® (Americas), Oroglas®, Solarkote®.

www.altuglas.com

Many leading companies on the five continents rely on Altuglas International to take part in the design and plan of their achievements.

If you require further information, do get in touch with us.
Please consult the Arkema disclaimer hereafter for questions related to the terms and conditions of use of our product <http://www.arkema.com/fr/products/product-safety/disclaimer/index.html>

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