

PLEXIGLAS® UV 100, – UV 100 AR, – UV 100 MR

Product Description

Product and Benefits

PLEXIGLAS® UV 100 is an extremely weather-resistant and highly transparent extruded sheet material made from acrylic (polymethyl methacrylate, PMMA).

Product grades:

- PLEXIGLAS® UV 100 0A570,
- PLEXIGLAS® UV 100 0A570 AR (anti-glare),
- PLEXIGLAS® UV 100 0B050 MR2 (mar-resistant).

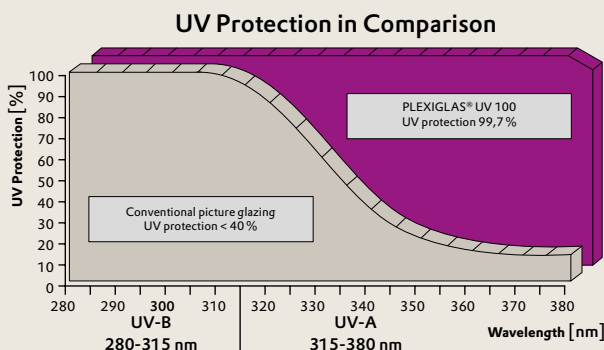
All PLEXIGLAS® UV 100 products have the following properties:

- Maximum UV protection,
- Complete transparency and true color rendition,
- Low weight,
- Increased break resistance.

UV Protection

Aggressive UV radiation (from sunlight or halogen light) is the main cause of color fading or aging and embrittlement of all kinds of materials. PLEXIGLAS® UV 100 offers UV protection of at least 99.7% (at a sheet thickness of 3 mm). PLEXIGLAS® UV 100 therefore offers major benefits for glazing UV-sensitive artworks and objets d'art as compared with conventional picture glazing (UV protection < 40%).

The graph below illustrates the almost complete UV protection offered by PLEXIGLAS® UV 100 as against conventional picture glazing (float glass) in the UV-A and UV-B range (280 - 380 nm).



Transparency and True Color Rendition

PLEXIGLAS® UV 100 provides maximum light transmission in the visible wavelength of 380-780 nm.

The light transmission of PLEXIGLAS® UV 100 is 92%. Moreover, it has no inherent color (such as a greenish, yellowish or greyish tinge), unlike other glazing products. That ensures absolutely true color rendition of the art objects behind the glazing.

Low Weight

PLEXIGLAS® UV 100 is a lightweight, high-performance plastic. At the same thickness, it weighs only half as much as conventional picture glass.

Increased Break Resistance

PLEXIGLAS® UV 100 can be considered as safety glass. Its break resistance is up to eleven times higher than that of conventional picture glass. That prevents artworks from being damaged by broken glass.

Special Surface Properties According to Grade

Anti-glare surface

PLEXIGLAS® UV 100 AR has a slightly matted anti-glare surface on one side, which diffuses reflections from windows or lamps, for example. In addition to this product variant, we also carry an acrylic with an anti-reflective coating called "PLEXIGLAS® Optical AC." The surface of PLEXIGLAS® Optical AC is absolutely smooth and reduces reflections, thanks to its premium optical anti-reflective coating, which also improves light transmission from 92% (non-coated acrylic) to over 98%.

Mar-Resistant Surface

PLEXIGLAS® UV 100 has the highest surface hardness of all transparent plastics, even without surface treatment. However, as with all plastics, incorrect cleaning (see Cleaning and Care) may produce minor scratches on its surface.

PLEXIGLAS® UV 100 MR has a coating on both sides that provides greatly enhanced abrasion resistance.

Fabrication

PLEXIGLAS® UV 100 is very easy to fabricate. Both surfaces are protected by masking film, which remains on the sheet during cutting to size, and is only removed shortly before the glazing is hung up. Sheets can be cut to size with a circular saw or jigsaw, or using a scoring knife for acrylics on material up to 3mm thickness. The material is scored along a ruler and then broken off cleanly. It is advisable to deburr the broken edges using a scraper. Cutting with CO₂ lasers generally provides good results on PLEXIGLAS® UV 100 sheets. PLEXIGLAS® UV 100 sheets with surface functionalities can only be formed or line-bent under certain conditions.

Properties (The table summarizes the major physical properties typical values at 23°C/50% RH.)

Mechanical and Thermal Properties	PLEXIGLAS® UV 100	PLEXIGLAS® UV 100 AR	PLEXIGLAS® UV 100 MR	Unit	Test Standard
Density	1,19	1,19	1,19	g/cm ³	ISO 1183
Impact strength (Charpy)	15	15	12	kJ/m ²	ISO 179/1fu
Elastic modulus (short-term value)	3.300	3.300	3.300	MPa	ISO 527-2/1B/1
Coefficient of linear thermal expansion (0 bis 50 °C)	7 · 10 ⁻⁵ (0,07)	7 · 10 ⁻⁵ (0,07)	7 · 10 ⁻⁵ (0,07)	1/K (mm/m °C)	DIN 53752-A
Abrasion resistance in the Taber Abrader test (100 U.; 5.4 N; CS-10 F)	20...30	20...30	1,8	% Haze	ISO 9352
Abrasion resistance in the falling abrasive test (3 kg, reduced luminance)	22	22	3,6	cd/(lx · m ²)	DIN 52348
Optical Properties					
Transmittance t _{des} (380–780 nm)	92	92	92	%	DIN 5036, Part 3
UV-transmission t _{uv}	0,3	0,3	0	%	DIN EN 410
Absorption in the visible range	< 0,05	< 0,05	< 0,05	%	–
Refractive index	1,491	1,491	1,491		ISO 489
Electrical Properties					
Surface resistivity	5 · 10 ¹³	5 · 10 ¹³	5 · 10 ¹³	Ohm	DIN VDE 0303, Part 3
Maximum charge	5.000–10.000	5.000–10.000	5.000–10.000	V/cm	
Fire Behavior					
Smoke gas volume	very low	very low	very low	–	DIN 4102
Smoke gas toxicity	non-toxic	non-toxic	non-toxic	–	DIN 53436
Smoke gas corrosiveness	non-corrosive	non-corrosive	non-corrosive	–	DIN VDE 0482-267
Fire rating	B2, normally flammable	B2, normally flammable	B2, normally flammable	–	DIN 4102

Cleaning and Care

PLEXIGLAS® UV 100 is easy to clean. Dusty surfaces can be cleaned with warm water, non-abrasive household dishwashing liquid and a soft cloth or sponge. The „Anti-Statistische Kunststoff-Reiniger + Pfleger (AKU)“ from Burnus, Darmstadt, is highly suitable for cleaning PLEXIGLAS® UV 100. Slightly moistened special microfiber cloths also offer a good cleaning effect. Avoid rubbing the sheet dry at all cost. PLEXIGLAS® UV 100 MR with its mar-resistant surface makes cleaning much easier.

Physical Forms

The sheets in the PLEXIGLAS® UV 100 range are supplied with a PE surface masking film on both sides. The standard size in grades UV 100 and UV 100 AR is 3050 x 2050 mm in thicknesses 2 and 3 mm. Grade UV 100 MR is available in standard size 2440 x 1220 mm and in 3 mm thickness. We will be pleased to inform you about other sizes (e.g. greater lengths), sizes of cut-to-size sections, thicknesses and further terms on request.

* = registered trademark PLEXIGLAS is a registered trademark of Evonik Röhm GmbH, Darmstadt, Germany.

Certified to DIN EN ISO 9001 (Quality) and DIN EN ISO 14001 (Environment)

Evonik Industries is a worldwide manufacturer of PMMA products sold under the PLEXIGLAS® trademark on the European, Asian, African and Australian continents and under the ACRYLITE® trademark in the Americas.

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