

UV 100, UV 100 AR, UV 100 HC

Product

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

The following grades are available:

- PLEXIGLAS® UV 100
- PLEXIGLAS® UV 100 AR (Anti-Glare)
- PLEXIGLAS® UV 100 HC (Hard-Coated)

Properties

Besides the general properties of PLEXIGLAS® like

- Excellent light transmission and brilliance
- Outstanding weather resistance
- 100% recycling ability
- Easy to fabricate
- High surface hardness
- Light weight – half the weight of glass
- 11 times more break resistant than glass

PLEXIGLAS® UV 100 possesses the following properties:

- Highest UV-protection

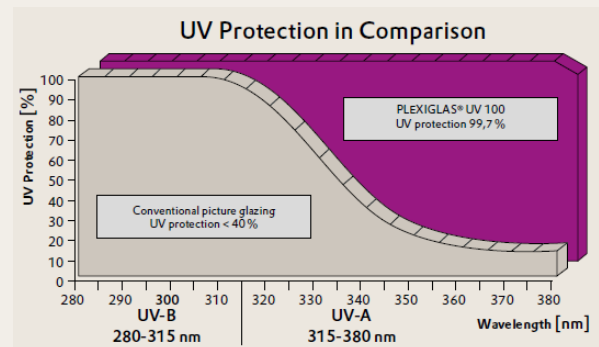
Applications

Due to these properties PLEXIGLAS® UV 100 is suitable for the following applications

- Glazing for UV-sensitive artworks and objets d'art
- Picture glazing

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).



Processing

PLEXIGLAS® UV 100 can be machined with the same parameters and equipment as standard PLEXIGLAS®. The following fabricating guidelines are available:

- Machining of PLEXIGLAS® (No. 311-1)
- Forming of PLEXIGLAS® (No. 311-2)
- Joining of PLEXIGLAS® (No. 311-3)

- Surface treatment of PLEXIGLAS® (No. 311-4)
- Fabricating tips of PLEXIGLAS® solid sheets (No. 311-5)

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.

Hard-coated surface

PLEXIGLAS® UV 100 has the highest surface hardness of all transparent plastics, even without surface treatment. However, as with all plastics, incorrect cleaning may produce minor scratches on its surface. Because of a one-side coating PLEXIGLAS® UV 100 HC offers additionally to the high UV- protection excellent resistance to abrasion and chemicals.

Product range

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, UV 100 AR and UV 100 HC is 3050 x 2050 mm in thicknesses 2 and 3 mm.

Grade UV 100 AR is available in 1.5 mm thickness as well. 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.

Technical Data

Physical Properties (clear, 3 mm thickness)	Test standard	Unit	PLEXIGLAS® UV 100	PLEXIGLAS® UV 100 AR	PLEXIGLAS® UV 100 HC
Mechanical and thermal Properties					
Density	ISO 1183	g / cm ³	1.19	1.19	1.19
Elastic modulus E _t (short-term value)	ISO 527	MPa	3300	3300	3300
Impact strength (Charpy)	ISO 179	kJ / m ²	15	15	10
Coefficient of linear thermal expansion (0 bis 50 °C)	DIN 53752	1 / K mm/m°C	7·10 ⁻⁵ 0.07	7·10 ⁻⁵ 0.07	7·10 ⁻⁵ 0.07
Abrasion resistance in the Taber Abrader test (100 U.; 5.4 N; CS-10 F)	ISO 9352	% Haze	20...30	20...30	< 3
Abrasion resistance in the falling abrasive test (3 kg, reduced luminance)	DIN 52348	Cd / (lx · m ²)	22	22	< 2.3
Optical properties					
Transmittance t _{D65} (380–780 nm)	DIN 5036	%	92	92	92
UV – transmission t _{uv}	DIN EN 410	%	0,3	0,3	0,3
Absorption in the visible range	-	%	< 0.05	< 0.05	< 0.05
Refractive index	ISO 489	-	1.491	1.491	1.491
Electrical properties					
Surface resistivity	DIN VDE 0303	Ohm	5 · 10 ¹³	5 · 10 ¹³	5 · 10 ¹³
Maximum charge	-	V / cm	5,000–10,000	5,000–10,000	5,000–10,000
Fire behavior					
Fire rating	DIN 4102	-	B2, normally flammable	B2, normally flammable	B2, normally flammable
Smoke gas volume	DIN 4102	-	Very low	Very low	Very low
Smoke gas toxicity	DIN 53436	-	Non-toxic	Non-toxic	Non-toxic
Smoke gas corrosiveness	DIN VDE 0482–267	-	Non-corrosive	Non-corrosive	Non-corrosive

® = 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.

This information and all further technical advice is based on our present knowledge and experience. However, it implies no liability or other legal responsibility on our part, including with regard to existing third party intellectual property rights, especially patent rights. In particular, no warranty, whether express or implied, or guarantee of product properties in the legal sense is intended or implied. We reserve the right to make any changes according to technological progress or further developments. The customer is not released from the obligation to conduct careful inspection and testing of incoming goods. Performance of the product described herein should be verified by testing, which should be carried out only by qualified experts in the sole responsibility of a customer. Reference to trade names used by other companies is neither a recommendation, nor does it imply that similar products could not be used.

Evonik Industries AG

Acrylic Polymers

Kirschenallee, 64293 Darmstadt, Germany

info@plexiglas.net www.plexiglas.net www.evonik.com

Ref. No. 232–15 August 2013