Technical Information

PLEXIGLAS®

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

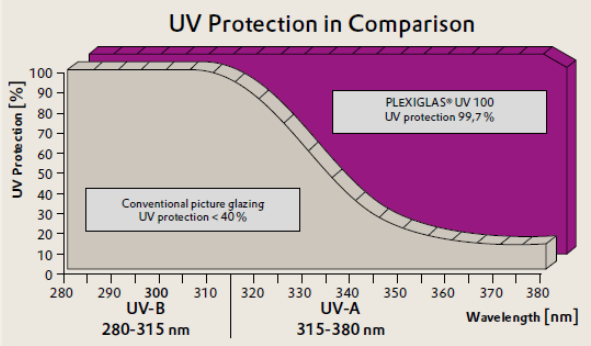
Applications

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 thermical Properties					
Density	ISO 1183	g / cm³	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 / m²	15	15	10
Coefficient of linear thermal expansion (0 bis 50 °C)	DIN 53752	1 / K mm/m°C	$7 \cdot 10^{-5}$ 0.07	$7 \cdot 10^{-5}$ 0.07	$7 \cdot 10^{-5}$ 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 · m²)	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	$5 \cdot 10^{13}$	$5 \cdot 10^{13}$	$5 \cdot 10^{13}$
Maximum charge	-	V / cm	5,000-10,000	5,000-10,000	5,000-10,000
Combustion behavior					
Building material class (according to Baustoffklasse DIN 4102)	DIN 4102	-	B2, normally flammable	B2, normally flammable	B2, normally flammable
Combustion behavior	DIN EN 13501	-	Class E	Class E	Class E
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

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