

PLEXIGLAS® Solar

0Z023

Product

PLEXIGLAS® Solar 0Z023 is an extruded acrylic sheet material (polymethyl methacrylate, PMMA) that is highly weather-resistant and transparent.

Properties

Besides the general properties of PLEXIGLAS® Solar like

- high mechanical strength, surface hardness and scratch resistance
- ease of processing
- good thermoformability
- high heat deflection temperature
- greater impact strength than glass combined with much lighter weight

PLEXIGLAS® Solar possesses the following properties:

- UV transmission is specially adjusted to photovoltaics applications (PV, CPV),
- providing better energy conversion efficiency and module efficiency, and
- longer service life of photo cells, lenses and covers

Applications

Due to these properties PLEXIGLAS® Optical hard coated is suitable for the following applications

- Use in environment with high solar exposure
- Hot embossing of radial and linear Fresnel lenses for CPV/CSP applications

Processing

PLEXIGLAS® Solar can be machined with the same parameters and equipment as standard PLEXIGLAS®.

The following fabricating guidelines are available:

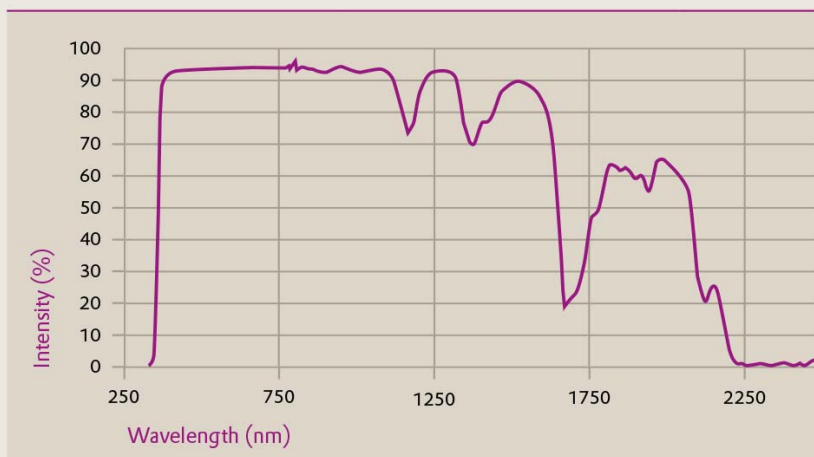
- Machining of PLEXIGLAS® (No. 311-1)
- Forming of PLEXIGLAS® (No. 311-2)
- Joining of PLEXIGLAS® (No. 311-3)
- Surface treatment of PLEXIGLAS® (No. 311-4)
- Fabricating tips of PLEXIGLAS® solid sheets (No. 311-5)

Product range

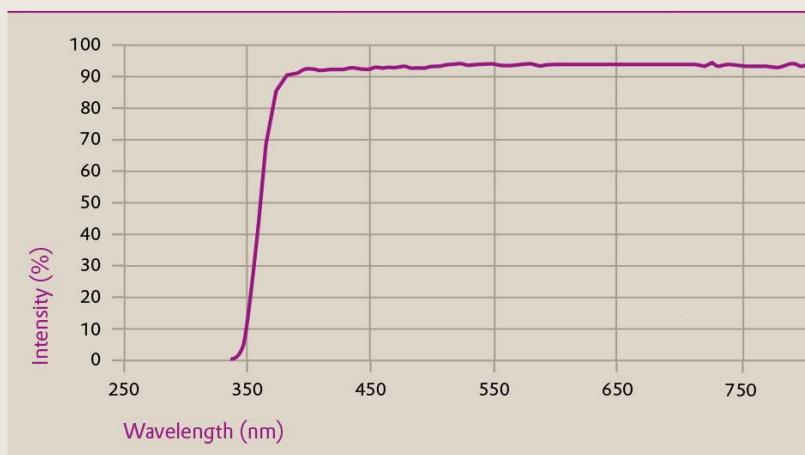
PLEXIGLAS® Solar sheets are supplied with PE masking film on both sides. The standard size for grade 0Z023 is 3,050 x 2,050 mm in thicknesses 3 and 4 mm.

We would be pleased to inform you on request about other sizes (e.g., greater lengths), cut-to-size sections, thicknesses, terms and conditions.

Transmission in the UV, VIS and IR range, PLEXIGLAS® Solar 0Z023, sheet thickness 3 mm



Transmission in the UV and VIS range, PLEXIGLAS® Solar 0Z023, sheet thickness 3mm



Technical Data

Typical values (23 °C/50 % r. F.) (3 mm thickness)	PLEXIGLAS® Solar 0Z023	Parameter	Unit	Test Method
Mechanical Properties				
Tensile modulus	3300	1 mm/min	MPa	ISO 527
Stress @ break	77	5 mm/min	MPa	ISO 527
Strain @ break	5,5	5 mm/min	%	ISO 527
Charpy impact strenght	20	23 °C	KJ/m ²	ISO 179/1eU
Ball indentation hardness	183		MPa	ISO 2039-1

Thermal Properties				
Vicat softening temperature	108	B / 50	°C	ISO 306
Temp. of deflection under load	103	0,45 MPa	°C	ISO 75
Temp. of deflection under load	98	1,8 MPa	°C	ISO 75
Coeff. of linear therm. expansion	8	0–50 °C	E–5 / °K	ISO 11359
Building material class (according to Baustoffklasse DIN 4102)	B2			DIN 4102
Combustion behavior	Class 3			DIN EN 13501
Flammability UL 94	HB	1,6 mm	Class	IEC 707
Optical Properties				
Luminous transmittance	92	D65	%	ISO 13468-2
Haze	<0,5			ASTM D1003
Refractive index	1,49			ISO 489
Other Properties				
Density	1,19		g/cm ³	ISO 1183
Behavior towards water				
Water absorption (24 hrs, 23 °C) from dry state; specimen 60 x 60 x 2 mm ³	38			ISO 62, method 1
Max. weight gain during immersion	2,1			ISO 62, method 1
Permeationskoeffizient für				
			g cm	
			cm ² h Pa	
Water vapour	2,3 · 10 ⁻¹⁰			-
N ₂	4,5 · 10 ⁻¹⁵			-
O ₂	2,0 · 10 ⁻¹⁴			-
CO ₂	1,1 · 10 ⁻¹³			-
Air	8,3 · 10 ⁻¹⁵			-

For further typical data please see the Technical Information of PLEXIGLAS® GS/XT (211–1).

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