

## PLEXIGLAS® Solar 0Z023

### Product Description

#### Product Profile

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

#### Special 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

#### Other Typical Properties

- 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

#### Applications

- Covers for build-in photovoltaics
- Hot embossing of radial and linear Fresnel lenses for CPV/CSP applications

#### Physical Form

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.

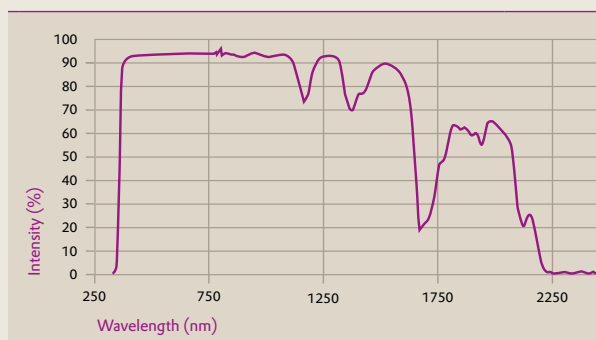
We would be pleased to inform you on request about other sizes (e.g., greater lengths), cut-to-size sections, thicknesses, terms and conditions.

#### Note

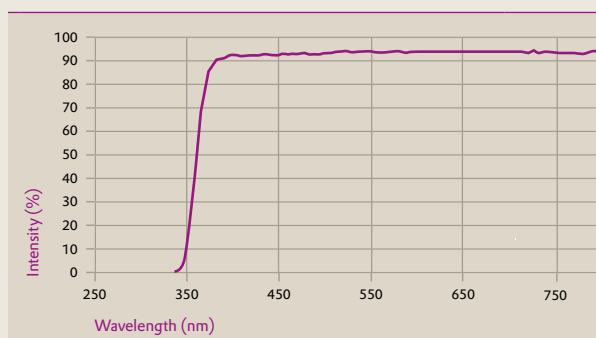
Guidelines for Workshop Practice are available for working with PLEXIGLAS® in the following area:

- Machining PLEXIGLAS, Ref-No. 311-1
- Forming PLEXIGLAS®, Ref-No. 311-2
- Joining PLEXIGLAS®, Ref-No. 311-3
- Surface Treatment of PLEXIGLAS®, Ref-No. 311-4
- Fabricating Tips for PLEXIGLAS® Solid Sheets, Ref-No. 311-5

#### 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



## Properties

Mechanical Properties	Parameter	Unit	Standard	PLEXIGLAS® Solar 0Z023
Tensile modulus	1 mm/min	MPa	ISO 527	3300
Stress @ break	5 mm/min	MPa	ISO 527	77
Strain @ break	5 mm/min	%	ISO 527	5.5
Charpy impact strenght	23 °C	KJ/m <sup>2</sup>	ISO 179/1eU	20
Ball indentation hardness		MPa	ISO 2039-1	183
<b>Thermal Properties</b>				
Vicat softening temperature	B / 50	°C	ISO 306	108
Temp. of deflection under load	0.45 MPa	°C	ISO 75	103
Temp. of deflection under load	1.8 MPa	°C	ISO 75	98
Coeff. of linear therm. expansion	0–50 °C	E–5 / °K	ISO 11359	8
Fire rating			DIN 4102	B2
Flammability UL 94	1.6 mm	Class	IEC 707	HB
<b>Optical Properties</b>				
	d=3 mm			
Luminous transmittance	D65	%	ISO 13468-2	92
Haze			ASTM D1003	< 0.5
Refractive index			ISO 489	1.49
<b>Other Properties</b>				
Density		g/cm <sup>3</sup>	ISO 1183	1.19
<b>Behavior towards water</b>				
Water absorption (24 hrs, 23 °C) from dry state; specimen 60 x 60 x 2 mm <sup>3</sup>		mg	ISO 62, Method 1	38
Max. weight gain during immersion		%	ISO 62, Method 1	2.1
<b>Permeability to</b>				
		$\frac{\text{g cm}}{\text{cm}^2 \text{ h Pa}}$		
water vapour			–	$2.3 \cdot 10^{-10}$
N <sub>2</sub>			–	$4.5 \cdot 10^{-15}$
O <sub>2</sub>			–	$2.0 \cdot 10^{-14}$
CO <sub>2</sub>			–	$1.1 \cdot 10^{-13}$
air			–	$8.3 \cdot 10^{-15}$

All listed technical data are typical values intended for your guidance.  
They are give without obligation and do not constitute a materials specification.

\* = 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, also 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.

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