

# PLEXIGLAS® Optical Clear 0Z003

## Product Description



### Product Properties

PLEXIGLAS® Optical 0Z003 is a thin (0.5–1.5 mm) extruded sheet material that was designed for applications with very high demands in terms of optical and surface quality. PLEXIGLAS® Optical therefore shows no light absorption or clouding and has an extremely smooth surface. Since it incorporates polymer chains of higher molecular weight, its resistance to chemical influences and scratching is better than that of standard materials, and it also offers greater resistance to high and low temperatures and greater impact strength.

### Applications

That makes PLEXIGLAS® Optical 0Z003 particularly suitable for high-quality applications in the fields of consumer electronics, automotive technology and medical devices. PLEXIGLAS® Optical 0Z003 is a very popular material for display screens of all types and sizes. Other frequent fields of application are light guides and high-quality cover strips that are transparent, printed or vaporized.

The excellent, inclusion-free appearance of PLEXIGLAS® Optical 0Z003 and its extremely smooth surfaces also make it an outstanding substrate for all kinds of coating. Since the material is virtually free from visible inclusions and defects, this guarantees high material yield. This plays an important role because the downstream coating and fabrication steps are often more costly than the purchase price of the material.

### Machining and Fabrication

Routing or laser cutting provide excellent cut edges. If circular saws are used, it is advisable to use special saw blades to avoid crazing. For material thicknesses of less than 1 mm, we recommend circular saw blade XW Z120 HW from Guhdo. If you require further guidelines on workshop practice, we will be pleased to send you special information or invite you for training at our premises.

All conventional printing and coating processes can be used to very good effect on PLEXIGLAS® Optical 0Z003 since its surfaces are very smooth, clean and free from residues, thanks to the use of special masking film.

PLEXIGLAS® Optical 0Z003 is especially suitable for high-quality coatings, e.g. with scratch-resistant lacquers and anti-reflective coatings. In addition, PLEXIGLAS® Optical 0Z003 can be easily bonded using the acrylic-based adhesives specially optimized for this purpose by Evonik Industries. The entire surface can be bonded with low thickness tolerances, without inclusions or bubble formation.

### Physical Form/Packaging

Sheets are supplied in standard size 1,850 mm x 1,250 mm. Thicknesses 0.8 mm, 1.0 mm and 1.2 mm are available from stock. On request or order, all thicknesses from 0.5 to 1.5 mm can be produced. One pallet contains 200 full-sized sheets.

On request, we can also cut the material to size or laser-cut it, and supply it in the form of finished display cover screens. Please contact the responsible product management department to handle individual projects.

### Standard sizes

Thickness (mm)	Length (mm)	Width (mm)
0.8 / 1.0 / 1.2	1850	1250

## Typical Property Values of PLEXIGLAS® Optical 0Z003

Properties	PLEXIGLAS® Optical Clear 0Z003	Unit	Test Method
<b>Mechanical Properties</b>			
Tensile modulus	3300	MPa	ISO 527
Tensile strength	78	MPa	ISO 527
Nominal strain at break	6.5	%	ISO 527
Pencil hardness	3H	–	ASTM D3363
Charpy impact strength	20	kJ/m <sup>2</sup>	ISO 179
<b>Thermal Properties</b>			
Vicat softening temperature	3300	MPa	ISO 527
Thermal coefficient of expansion (0 to 50 °C)	78	MPa	ISO 527
Specific heat	6.5	%	ISO 527
<b>Weatherability</b>			
Xenotest 1200/5000 h	no change	–	–
<b>Optical Properties</b>			
Transmission	≥ 92	%	DIN 5036
Yellowness index	< 1	–	ASTM D1925
Haze	≤ 0.5	%	ASTM 1003
Refractive index	1.49	–	ISO 489
<b>Electrical Properties</b>			
Volume resistivity	> 10 <sup>15</sup>	Ohm • cm	IEC 250
Surface resistivity	5 • 10 <sup>15</sup>	Ohm	IEC 250
Relative permittivity		–	
50 Hz	0.06	–	IEC 250
0,1 MHz	0.03	–	
<b>Other Properties</b>			
Density	1.19	g/cm <sup>3</sup>	ISO 1183

\* = 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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