

# Polycarbonate

Polycarbonate, also known as Lexan®, Makrolon® and Impax™, is a thermoplastic noted for its high strength, durability and impact resistance.

It has many similar physical characteristics to acrylic, such as clarity and weight, but is much stronger and usable across a wider temperature range. It transmits up to 90% of visible light, which makes it a popular choice as a glass substitute for machine guards, security screens, lenses and visors.

Unlike most thermoplastics, polycarbonate can be put under severe flexural stress without breaking or cracking.

Key Properties		Units	Test Method
<b>General</b>			
Density	1.17 (0.04)	g/cm <sup>3</sup> (lb/in <sup>3</sup> )	ISO 1183
Density Relative to Water (=1)	1.19	-	ISO 1183
Water absorption (24 hrs)	0.02	%	ISO 62
<b>Thermal</b>			
Continuous Service Temperature (5000 hours)	120 (248)	°C (°F)	-
Vicat Softening Temperature	140 (284)	°C (°F)	ISO 306/A
Heat Distortion Temperature (1.80 MPa)	138 (280)	°C (°F)	ASTM D648
Linear Thermal Expansion (23-100°C, average)	7.0	x10 <sup>-5</sup> / °C	ASTM D696
Melting Point	267 (513)	°C (°F)	-
Flammability Rating	V0-V2	-	UL 94
<b>Mechanical</b>			
Impact Strength, Notched Izod @ 23°C	13	ft-lbs/in <sup>2</sup>	-
Flexural Strength	90	MPa	ISO 178
Flexural Modulus	2300	MPa	ISO 178
Tensile Strength (23°C)	63	MPa	ISO 527
Elongation at Break (23°C)	90	%	ISO 527
Hardness – Rockwell & Burnell (23°C)	118	R scale	ISO 2039-2
<b>Optical</b>			
Light Transmission	88	%	ASTM D1003
Refractive Index	1.59	-	ISO 489/A

## Notes

Figures shown are for panel thickness 3mm

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*DISCLAIMER: The purpose of this data sheet is to enable a consistent comparison with other products to help users to make an informed choice. The information provided in this product data sheet is for comparison and reference purposes only and is based on generic information gathered from a number of sources. In some cases the data provided is an average value only and represents our best attempt to describe the material's properties under typical factory conditions. We make no representations or warranties as to the completeness or accuracy of any of the data contained in this data sheet and users should use them as a general decision-making guide only. Branded data sheets are available on request. The information contained in this data sheet is subject to copyright. This data sheet cannot be reproduced for commercial purposes, apart from assisting users with making a purchasing decision, without the express permission of Plastic Wholesale.*

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