Product data sheet, January 2020

Makrolon® Titan

Solid polycarbonate sheet

I Line
Innovative

Your benefits:

- extreme impact strength
- C3 Classification according to DIN EN ISO 23125[1]
- thermoformable

Solid **Makrolon® Titan** sheets are clear, polished polycarbonate sheets. They offer extreme impact strength that exceeds the physical properties of other products of their class. **Makrolon®** sheets resist temperatures of -100 to +120 °C, exhibit high optical clarity and have a good fire rating.

Applications:
Typical applications for **Makrolon® Titan** sheets include machine guards.

The sheets offer protection against involuntary breakage and wilfull destruction. **Makrolon® Titan** sheets can be thermoformed, cold-curved and machined with ease.

	Test Conditions	Typical values[2]	Unit	Standard
Physical				
Density		1200	kg/m³	ISO 1183-1
Water absorption saturation	water at 23 °C	0.30	%	ISO 62
Water absorption equilibrium	23 °C, 50% relative humidity	0.12	%	ISO 62
Refractive index	Procedure A	1.587	–	ISO 489
Mechanical				
Tensile modulus	1 mm/min	2350	MPa	ISO 527-1,-2
Yield stress	50 mm/min	› 60	MPa	ISO 527-1,-2
Yield strain	50 mm/min	6	%	ISO 527-1,-2
Nominal strain at break	50 mm/min	› 50	%	ISO 527-1,-2
Flexural modulus	2 mm/min	2350	MPa	ISO 178
Flexural strength	2 mm/min	90	MPa	ISO 178
Charpy impact strength	23 °C, unnotched	non-break	kJ/m²	ISO 179-1eU
Charpy impact strength	23 °C, 3 mm, notched	80P	kJ/m²	ISO 179-1eA
Izod impact strength	23 °C, 3.2 mm, notched	90P	kJ/m²	ISO 180-A
Thermal				
Vicat softening temperature	50 N, 50°C/h	148	°C	ISO 306
Thermal conductivity	23°C	0.20	W/(m.K)	ISO 8302
Coefficient of linear thermal expansion	23 to 55°C	0.65	10^{-4}/K	ISO 11359-1, -2
Temperature of deflection under load	1.80 Mpa	128	°C	ISO 75-1, -2
Temperature of deflection under load	0.45 Mpa	140	°C	ISO 75-1, -2
Electrical				
Electrical strength	1 mm	34	kV/mm	IEC 60243-1
Volume resistivity		1E14	Ohm.m	IEC 60093
Surface resistivity		1E16	Ohm	IEC 60093
Relative permitivity	100 Hz	3.1	–	IEC 60250
Relative permitivity	1 MHz	3.0	–	IEC 60250
Dissipation factor	100 Hz	5 10^{-4}	–	IEC 60250
Dissipation factor	1 MHz	95 10^{-4}	–	IEC 60250

[1] International harmonization of DIN EN 12415
[2] These values are measured on injection molded samples, and are not intended for specification purposes

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Ideas, innovative, intelligent, interesting... Exolon Group i-line represents the next generation of quality products. This seal guarantees innovative and intelligent first-class solutions at all times for a multitude of requirements.

Light Transmission: Test Method according to DIN EN ISO 13468-2.
The stated values are typical values only.

Light transmission %	18	20
Makrolon® Titan clear 099	79	76

Available sizes: Makrolon® sheets are available in thicknesses of 18/ 20 mm and in the following sizes; other sizes and colors on request.

Colors:
Makrolon® Titan clear 099

Sizes (standard):
3,050 x 2,050 mm

Permanent Service Temperature: The permanent service temperature without load is approx. 120 °C.

Fire Rating (*):

Country	Standard	Rating	Thickness	Color
Germany	DIN 4102	B2	18 – 20 mm	clear 099

(*) Fire certificates could be limited in time and scope, always check if the mentioned certificate is valid for the purchased Polycarbonate sheet type at the date of delivery. Polycarbonate sheets may change their fire behavior due to ageing and weathering. The indicated fire rating was tested on new / unweathered Product in accordance with the indicated fire classification standards.

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