

Technical Data Sheet Polycarbonate (PC)

PC colourless

PC, polycarbonate, Makrolon®, Lexan®

Typical Properties

- Extremely high impact strength (virtually unbreakable)
- High heat deflection temperature (up to ~120 °C)
- High transparency (~89 %)
- High stiffness and dimensional stability
- Good electrical insulator
- Good thermoformability and machinability
- Flame-retardant grades (V-0) available
- Suitable for food contact

Typical Industries

- Mechanical and plant engineering (guards)
- Safety and glazing technology
- Electronics and electrical engineering
- Lighting and illumination technology
- Medical and laboratory technology
- Food industry (protective / sneeze guards)

	Test Method	Unit	Value
General Properties			
Density	DIN EN ISO 1183-1	g / cm ³	1.20
Water absorption (24 h)	DIN EN ISO 62	%	0.3
Flammability	UL 94		HB (FR grades V-2 / V-0)
Building material class	DIN 4102		B2 (flame-retardant grades: B1)
Optical Properties			
Light transmission (3 mm)	DIN 5036-3	%	~ 89
Refractive index n_D^{20}	DIN EN ISO 489		1.585
Mechanical Properties			
Yield stress (23 °C)	DIN EN ISO 527	MPa	60
Elongation at break	DIN EN ISO 527	%	>80
Tensile modulus	DIN EN ISO 527	MPa	2300
Flexural strength	DIN EN ISO 178	MPa	90
Impact strength (Charpy, unnotched)	DIN EN ISO 179	kJ / m ²	no break
Notched impact strength (Charpy)	DIN EN ISO 179	kJ / m ²	65
Ball indentation hardness	DIN EN ISO 2039-1	MPa	110

	Test Method	Unit	Value
Thermal Properties			
Glass transition temperature	ISO 11357	°C	~ 147
Vicat softening temperature	DIN EN ISO 306, Vicat B 50	°C	145
Heat deflection temperature	DIN EN ISO 75, method A, HDT	°C	130
Service temperature, long-term	Average	°C	-40 ... 120
Service temperature, short-term (max.)	Average	°C	135
Coefficient of linear thermal expansion	DIN 53752	10 ⁻⁶ / K	65
Thermal conductivity	DIN 52612-1	W / (m * K)	0.20
Electrical Properties			
Volume resistivity	DIN EN 62631-3-1	Ω * cm	>10 ¹⁵
Surface resistivity	DIN EN 62631-3-2	Ω	>10 ¹⁵
Dielectric strength	IEC 60243	kV / mm	~ 30

The values stated are typical average values for colourless polycarbonate (PC); they serve as an aid to material selection and are not a legally binding warranty of specific properties. PC is an amorphous thermoplastic and has no defined melting point. The fire behaviour and building material class are grade-dependent – in addition to standard grades (UL 94 HB), flame-retardant grades (V-2/V-0, B1) are available. PC is sensitive to many solvents, alkalis and hydrocarbons and then tends to stress cracking; natural-coloured PC has only limited weathering resistance without UV protection and may yellow outdoors. Media resistance must be verified case by case. As the properties also depend on grade, dimension and processing, the actual property values of a specific product may deviate somewhat from the data.