

Exolon® GP B

Opaque Polycarbonate Sheet



Benefits:

- good fire behaviour
- extreme impact strength
- good thermoforming properties

Exolon® GP B is an opaque coloured, polycarbonate sheet, offering an alternative for other high-performance plastics or metals. Due to its properties, the material is suitable for a large range of industrial applications. **Exolon® GP B** combines good fire behaviour and extreme impact strength in a wide temperature range (-100°C up to +120°C). The sheets can be thermoformed and are easy to machine. **Exolon® GP B** is available in several colours and with several textures.

Applications

Exolon® GP B is particularly suited for vacuum formed parts in a broad range of applications, such as:

- material handling (pallets, trays, containers ...)
- tractor parts (roofs, bumpers, bonnets, interiors ...)
- truck parts (skirts, spoilers, interiors ...)
- machine housings and shields

	Test Conditions	Typical values ⁽¹⁾	Unit	Standard
PHYSICAL Density Water absorption saturation Water absorption equilibrium	water at 23 °C 23 °C, 50% relative humidity	1200 0.30 0.12	kg/m ³ % %	ISO 1183-1 ISO 62 ISO 62
MECHANICAL Tensile modulus Yield stress Yield strain Nominal strain at break Flexural modulus Flexural strength Charpy impact strength Charpy impact strength Izod impact strength	1 mm/min 50 mm/min 50 mm/min 50 mm/min 2 mm/min 2 mm/min 23 °C, unnotched 23 °C, 3 mm, notched 23 °C, 3.2 mm, notched	2350 > 60 6 > 50 2350 90 non-break 80P 70P	MPa MPa % % MPa MPa kJ/m ² kJ/m ² kJ/m ²	ISO 527-1,-2 ISO 527-1,-2 ISO 527-1,-2 ISO 527-1,-2 ISO 178 ISO 178 ISO 179-1eU ISO 179-1eA ISO 180-A
THERMAL Vicat softening temperature Thermal conductivity Coefficient of linear thermal expansion Temperature of deflection under load Temperature of deflection under load	50 N, 50°C/h 23°C 23 to 55°C 1.80 Mpa 0.45 Mpa	148 0.20 0.65 128 140	°C W/mK 10 ⁻⁴ /K °C °C	ISO 306 ISO 8302 ISO 11359-1, -2 ISO 75-1, -2 ISO 75-1, -2
ELECTRICAL Electrical strength Volume resistivity Surface resistivity Relative permittivity Relative permittivity Dissipation factor Dissipation factor	1 mm 100 Hz 1 MHz 100 Hz 1 MHz	34 1E14 1E16 3.1 3.0 5 10 ⁻⁴ 95 10 ⁻⁴	kV/mm Ohm.m Ohm - - - -	IEC 60243-1 IEC 60093 IEC 60093 IEC 60250 IEC 60250 IEC 60250 IEC 60250

⁽¹⁾ These values are measured on injection molded samples, and are not intended for specification purposes.

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Exolon Group S-Line, the standard product line, represents a range of certified quality products which offer the reliable solution for most applications.

Availability:

Exolon® GP B is available with 5 different surface finishings and in following sizes:

	surfacing finishing	extrusion width	thickness
Exolon® GP B	glossy/glossy	1,250, 2,050 mm	1 – 10 mm
Exolon® GP B G	patterned/glossy	1,650 mm	2 – 6 mm
Exolon® GP B C	patterned/glossy	1,250 mm	1 – 8 mm
Exolon® NR B	non reflective/ glossy	1,250/ 2,050 mm	1 – 5 mm
Exolon® UV B	glossy/ glossy,UV protected	1,250/ 2,050 mm	2 - 10 mm

Flame retardant grade: Exolon® FR B

Permanent service temperature:

Maximum service temperature in air: 120 °C

Minimum service temperature: -100 °C

Colours:

On request.

Fire Rating (*):

Country	Standard	Rating	Thickness
Europa Exolon® GP B	EN13501-1	B-s2-d0	1 - 6 mm
USA Exolon® FR B	UL 94	V0	≥ 2 mm

Glow wire flammability test (*):

	Test method	1 mm	3 mm
GWFI (flammability index)	IEC 60695-2-12	800 °C	900 °C
GWIT (ignition temperature)	IEC 60695-2-13	850 °C	875 °C

(* Fire certificates are 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.

Machining

Due to its excellent properties **Exolon® GP B** sheet is easy to machine with usual tools. Sawing, drilling, routing, shearing and punching can be applied. Always use sharp tools that are suited for machining plastics.

Thermoforming

Thorough predrying of **Exolon® GP B** sheets is essential for all thermoforming techniques in which the sheet temperature will rise above 160°C. The recommended procedure is to use an air circulating oven set at 120°C for 4 to 24 hours, depending on sheet thickness. **Exolon® GP B** sheet can be vacuum formed at temperatures of 175 - 205°C. Use temperature controlled (120°C) aluminium or steel moulds. A good release from the mould can be obtained by providing a draft angle of 4 to 6°.

Assembling

Parts made of **Exolon® GP B** can be assembled with other plastics, metals and other materials by means of glueing, welding and several mechanical fastening techniques.

Painting and printing

Exolon® GP B sheets can be painted or printed with several standard techniques. Except for cleaning, no preliminary surface treatment is necessary. To avoid influence on the impact strength of **Exolon® GP B** sheets, paints must be suitable for use on polycarbonate. Suitable products are available from several manufactures of inks and paints, whose instructions must be carefully followed.

Chemical resistance

Exolon® GP B sheets have good resistance against mineral acids up to high concentrations, many organic acids, oxidising and reducing agents, mineral and animal greases and oil, neutral and acid salt solutions, saturated aliphatic and cycloaliphatic hydrocarbons and alcohols (except methyl alcohol). They are partially soluble in aromatic hydrocarbons and soluble in many halogenated hydrocarbons (methylene chloride and ethylene di-chloride are good solvents). Strong alkaline substances such as ammonia and amines decompose it. **Exolon® GP B** sheets have good resistance against most detergent based householdcleaners.



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