



Product data sheet, February 2008

Bayloy® 10

Polycarbonate sheet



Benefits:

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

Bayloy® 10 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, both interior and exterior. **Bayloy® 10** 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. **Bayloy® 10** is available in several colours and with several textures.

Applications:

Bayloy® 10 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
- seats and interior parts in buses, trains and metros

	Test Conditions	Typical Values	Unit	Test Method
PHYSICAL				
Density		1.2	g/cm ³	ISO 1183
Moisture absorption	saturated at 23°C/50% RF	0.15	%	ISO 62-4
	saturated in water of 23°C	0.35	%	ISO 62-1
MECHANICAL				
Tensile stress	at yield	> 60	MPa	ISO 527-2/1B/50
Elongation	at yield	6	%	ISO 527-2/1B/50
Tensile strength		> 60	MPa	ISO 527-2/1B/50
Elongation	at break	> 70	%	ISO 527-2/1B/50
Elastic modulus		2,400	MPa	ISO 527-2/1B/1
Limiting flexural stress		approx. 90	MPa	ISO 178
Impact strength	Charpy, unnotched	no break	kJ/m ²	ISO 179/1fU
	Charpy, notched	> 11	kJ/m ²	ISO 179/1 eA
	Izod, notched	approx. 10	kJ/m ²	ISO 180/1A
	Izod, notched ¹⁾	approx. 70	kJ/m ²	ISO 180/4A
THERMAL				
Vicat softening temperature	Method B50	148	°C	ISO 306
Thermal conductivity		0.2	W/m °C	DIN 52612
Coeff. of linear thermal expansion		0.065	mm/m °C	DIN 53752-A
Heat deflection temperature under load	Method A: 1.81 MPa	127	°C	ISO 75-2
	Method B: 0.45 MPa	139	°C	ISO 75-2
ELECTRICAL				
Dielectric strength		35	kV/mm	IEC 60243-1
Volume resistivity		> 10 ¹⁶	Ohm·cm	IEC 60093
Surface resistivity		> 10 ¹⁴	Ohm	IEC 60093
Dielectric constant	at 10 ¹ Hz	3.1		IEC 60250
	at 10 ⁶ Hz	3		IEC 60250
Dissipation factor	at 10 ¹ Hz	0.0005		IEC 60250
	at 10 ⁶ Hz	0.009		IEC 60250

The mechanical properties were measured on sheets of 4 mm or 3 mm¹⁾ thickness.

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

Availability:

Bayloy® 10 is available with 3 different surface finishings and in following sizes:

	surfacing finishing	extrusion width	thickness
Bayloy 10	glossy/glossy	1,250, 2,050 mm	1 12 mm
Bayloy 10 NR	non reflective/glossy	1,250, 2,050 mm	1 – 5 mm
Bayloy 10 G	patterned/glossy	1,650 mm	2 6 mm
Bayloy 10 C	patterned/glossy	1,250 mm	2 8 mm

All grades can be produced with UV protection for outside use

Food compatible grade: Bayloy 10 FG

Flame retardant grade: Bayloy 10 FR

Permanent service temperature:

Maximum service temperature in air: 120 °C

Minimum service temperature: -100 °C

Standard colours:

light grey 704

dark grey 705

Other colours on request.

Fire Rating (*):

Country	Standard	Rating	Thickness
Germany	DIN 4102	B2	0.75 – 15 mm
Germany	DIN 4102	B1 indoor	3 mm, grey

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, always check if the mentioned certificate is still valid.

Machining

Due to its excellent properties Bayloy® 10 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 Bayloy® 10 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. Bayloy® 10 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 Bayloy® 10 can be assembled with other plastics, metals and other materials by means of glueing, welding and several mechanical fastening techniques.

Painting and printing

Bayloy® 10 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 Bayloy® 10 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

Bayloy® 10 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. Bayloy® 10 sheets have good resistance against most detergent based household cleaners.