



Product data sheet, May 2009

Bayloy® R10

Solid polycarbonate sheet



Your benefits:

- high impact strength
- applicable in a wide range of temperatures
- good fire behaviour

Bayloy® R10 are black sheets made from premium-grade recycled polycarbonate. Like conventional polycarbonate sheets, **Bayloy® R10** sheets offer high impact strength over a wide temperature range with good fire behaviour.

Applications:

Bayloy® R10 sheets are suitable for vacuum formed parts for material containers and pallets, all types of vehicle trim, industrial paneling and street furniture.

Bayloy® R10 sheets can be thermoformed and show good weather resistance.

	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		ca. 90	MPa	ISO 178
Impact strength	Charpy, unnotched	no break	kJ/m ²	ISO 179/1fU
	Charpy, notched	> 11	kJ/m ²	ISO 179/1eA
	Izod notched	ca. 10	kJ/m ²	ISO 180/1A
	Izod notched ¹⁾	ca. 70	kJ/m ²	ISO 180/4A
THERMAL				
Vicat softening temperature	Method B50	148	°C	ISO 306
Thermal conductivity		0.2	W/m K	DIN 52612
Coeff. of linear thermal expansion		0.065	mm/m K	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 ³ Hz	3.1		IEC 60250
	at 10 ⁶ Hz	3		IEC 60250
Dissipation factor	at 10 ³ 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. This data can show some variation due to the fact that recycled material is used.

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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® R10 is available in thicknesses of 2-6 mm. Sheets can be supplied with 2 smooth sides or with 1 patterned side. All grades can be produced with UV protection for outside use. Minimum order quantity is 1,000 kg.

Sizes:

On request. Available extrusion widths: 1,250 and 1,650 mm.

Permanent Service Temperature:

Maximum service temperature without load in air: 120 °C

Minimum service temperature without load: -100 °C

Fire Rating (*):

Country	Standard	Rating
Germany	DIN 4102-1	B2

Glow wire flammability test (*):

	Test method	2 mm	4 mm
GWFI (flammability index)	IEC 60695-2-12	960 °C	960 °C

(*) Fire certificates are limited in time, always check if the mentioned certificate is still valid.

Machining:

Due to its excellent properties an **Bayloy® R10** 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® R10** 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. An **Bayloy® R10** 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® R10** can be assembled with other plastics, metals and other materials by means of glueing, welding and several mechanical fastening techniques.

Painting and printing:

Bayloy® R10 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® R10** 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® R10 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® R10** sheets have good resistance against most detergent based household cleaners.

Bayer Sheet Europe also produces multiwall sheets in polycarbonate (Makrolon® multi UV), and solid sheets in polycarbonate (Makrolon® GP) and in polyester (Vivak® and Axpet®). For more information, take a look at www.bayersheeteurope.com.

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