

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

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



Bayer MaterialScience

Bayer MaterialScience GmbH
Otto-Hesse-Straße 19/T9, 64293 Darmstadt, Germany
Tel. +49 6151 13 03-0
Fax +49 6151 13 03-500

www.bayersheeteurope.com

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.