



Product data sheet, February 2008

Bayloy® 50

Copolyester sheet

**Benefits:**

- excellent thermoforming properties
- predrying not necessary
- good impact strength
- food compatible

Bayloy® 50 is an opaque coloured sheet made of thermo-plastic polyester. It has been specifically developed for thermoforming applications. Due to its properties, the material is suitable for a large range of industrial applications, both interior and exterior. **Bayloy® 50** can be rapidly thermoformed at low energy consumption, short production cycles, extreme degrees of stretching and accurate mold surface reproduction, without predrying. **Bayloy® 50** is available in several colours and with several textures.

Applications:

Bayloy® 50 is particularly suited for vacuum formed parts in a broad range of applications, such as:

- material handling (pallets, trays, containers ...)
- machine housings and shields
- food handling and storage

	Test Conditions	Typical Values	Unit	Test Method
PHYSICAL				
Density		1.27	g/cm ³	ISO 1183-1
Moisture absorption	saturated at 23°C/50% RF	0.2	%	ISO 62-4
	saturated in water of 23°C	0.6	%	ISO 62-1
MECHANICAL				
Tensile stress	at yield	> 45	MPa	ISO 527-2/1B/50
Elongation	at yield	4	%	ISO 527-2/1B/50
Tensile strength		> 45	MPa	ISO 527-2/1B/50
Elongation	at break	> 35	%	ISO 527-2/1B/50
Elastic modulus		2,020	MPa	ISO 527-2/1B/1
Limiting flexural stress		approx. 80	MPa	ISO 178
Impact strength	Charpy, unnotched	no break	kJ/m ²	ISO 179/1fU
	Charpy, notched	approx. 7	kJ/m ²	ISO 179/1 eA
	Izod, notched	approx. 6	kJ/m ²	ISO 180/1A
THERMAL				
Vicat softening temperature	Method B50	80	°C	ISO 306
Thermal conductivity		0.2	W/m °C	DIN 52612
Coeff. of linear thermal expansion		0.05	mm/m °C	DIN 53752-A
Heat deflection temperature under load	Method A: 1.81 MPa	63	°C	ISO 75-2
	Method B: 0.45 MPa	70	°C	ISO 75-2
ELECTRICAL				
Dielectric strength		20	kV/mm	IEC 60243-1
Volume resistivity		> 10 ¹⁵	Ohm·cm	IEC 60093
Surface resistivity		> 10 ¹⁶	Ohm	IEC 60093
Dielectric constant	at 10 ³ Hz	2.6		IEC 60250
	at 10 ⁶ Hz	2.4		IEC 60250
Dissipation factor	at 10 ³ Hz	0.005		IEC 60250
	at 10 ⁶ Hz	0.02		IEC 60250

The mechanical properties were measured on sheets of 4 mm 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® 50 is available with 3 different surface finishings and in following sizes:

	surfacing finishing	extrusion width	thickness
Bayloy 50	glossy/glossy	1,250, 2,050 mm	1 – 12 mm
Bayloy 50 NR	non reflective/glossy	1,250 mm	1,5 – 3 mm
Bayloy 50 C	patterned/glossy	1,250 mm	2 – 6 mm

All grades can be produced with UV protection for outside use

Permanent service temperature:

Max. service temperature in air: 65 °C

Min. service temperature: -40 °C

Standard colours:

light grey 704

dark grey 705

Other colours on request.

Fire Rating (*):

Country	Standard	Rating	thickness	Colour
Europe	EN13501-1	B-S1, d0	2 – 4 mm	grey 704
Europe	EN13501-1	B-S2, d0	2 – 6 mm	all colours

Glow wire flammability test (*):

	Test method	1 mm	3 mm
GWFI (flammability index)	IEC 60695-2-12	850 °C	850 °C
GWIT (ignition temperature)	IEC 60695-2-13	875 °C	725 °C

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

Machining

Due to its excellent properties **Bayloy® 50** 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

Owing to their excellent flow and mold surface reproduction, **Bayloy® 50** sheets can be thermoformed at low temperatures without predrying. Due to its low specific heat capacity, **Bayloy® 50** requires little energy for thermoforming. Predrying is not required. **Bayloy® 50** sheet can be vacuum formed at the temperatures of 130 – 165°C. Use temperature controlled aluminium or steel moulds for excellent formings. Small series or prototypes can be formed on moulds without temperature control. A good release of the moulding can be obtained by providing a draft angle of 4 to 6°.

Assembling

Parts made of **Bayloy® 50** can be assembled with other plastics, metals and other materials by means of glueing, welding and several mechanical fastening techniques.

Painting and printing

Bayloy® 50 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® 50** sheets, paints must be suitable for use on thermoplastic polyester. Suitable products are available from several manufactures of inks and paints, whose instructions must be carefully followed.

Chemical resistance

Bayloy® 50 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® 50** sheets have good resistance against most detergent based household cleaners.

Bayer Sheet Europe GmbH
 Otto-Hesse-Straße 19/T9, 64293 Darmstadt, Germany
 Tel. +49 6151 13 03-0
 Fax +49 6151 13 03-500
 www.bayersheeteurope.com
 sales@bayersheeteurope.com

A  Bayer MaterialScience Company

 **bayloy®**