

Product Information

March 2003

Terlux[®] 2802 TR (MABS)

Product description

Standard-injection moulding grade for transparent parts.

Physical form and storage

Terlux uncoloured and transparent 77742 is supplied as lenticular pellets. The bulk density is from about 0.55-0.65 g/cm³.

Standard pack: 25 kg PE sack, palletized and film-secured. Subject to agreement, other means of packing are possible, e.g. 1000 kg bulk containers (octagonal IBCs, or intermediate bulk containers, made from corrugated board with sack insert) or shipping by road tanker can be arranged. Terlux pellets can be stored for prolonged periods in dry areas subject to normal temperature control without any changes in mechanical properties. However, with sensitive colors storage over some years can cause some color change. In poor storage conditions, Terlux absorbs moisture, which can be removed again by drying. Packs stored in cold areas should be brought to ambient temperature before opening to prevent condensation on the pellets.

Product safety

Given appropriate processing of the products and suitable ventilation measures in production areas, no adverse effects on the health of process operator have been found. Workplace limits for styrene, methyl methacrylate, methyl acrylate, acrylonitrile and 1,3-butadiene, as given in the national listings applicable, must be adhered to.

The values currently applicable in Germany under TRGS 900 (issue of September, 1999) for maximum workplace concentrations are as follows. Styrene: 20 ml/m³ = 85 mg/m³; methyl methacrylate: 50 ml/m³ = 210 mg/m³; methyl acrylate: 5 ml/m³ = 18 mg/m³; acrylonitrile: 3 ml/m³ = 7 mg/m³; 1,3-butadiene: 5 ml/m³ = 11 mg/m³. Appendix I of Directive 67/548/EEG (issue of 1999) classifies acrylonitrile and 1,3-butadiene in carcinogenic category II (substances which should be regarded as carcinogenic in humans).

Experience has shown that during appropriate processing of Terlux with suitable ventilation the values obtained are well below the limits mentioned above. TRGS 402 (Germany) can be used for determining and assessing the concentrations of hazardous substances in the air within working areas.

Inhalation of gaseous degradation products, such as those which may arise on severe overheating of the material or during pumped evacuation, must be avoided. Further information can be found in our Terlux safety data sheets. These can be requested from the Styrenics Infopoint by phoning

Note

The information submitted in this publication is based on our current knowledge and experience. In view of the many factors that may affect processing and application, these data do not relieve processors of the responsibility of carrying out their own tests and experiments; neither do they imply any legally binding assurance of certain properties or of suitability for a specific purpose. It is the responsibility of those to whom we supply our products to ensure that any proprietary rights and existing laws and legislation are observed. In order to check the availability of products please contact us or our sales agency.



Typical values at 23°C for uncoloured products	Test method	Unit	Specimens [mm]	Values
Properties				
Abbreviated term	ISO 1043	-	-	MABS
Density	ISO 1183	g/cm ³	-	1.08
Water absorption, equilibrium in water at 23°C	ISO 62	%	60 · 60 · 1	0.70
Moisture absorption, equilibrium 23 °C/50% r.h.	ISO 62	%	60 · 60 · 1	0.35
Refractive index	ISO 489	-	d=1	1.540
Processing				
Melt volume rate MVR 200/21.6 / 220/10	ISO 1133	cm ³ /10 min	moulding comp.	4.0 / 2.0
Melt temperature range, Injection moulding	-	°C	-	230 - 260
Mould temperature	-	°C	-	50 - 80
Moulding shrinkage, free, longitudinal / transverse ¹³⁾	-	%	110 · 110 · 2	0.40 - 0.70 /
Flammability				
UL94 rating at 1.6 mm thickness	UL 94	class	127 · 127 · d	94HB
Automotive materials (thickness d ≥ 1mm)	FMSVSS 302	-	355 · 100 · 1	+
Mechanical properties				
Tensile modulus	ISO 527-2	MPa	ISO 3167	2000
Yield stress (v = 50 mm/min)	ISO 527-2	MPa	ISO 3167	48
Yield strain / Nominal strain at break (v = 50 mm/min)	ISO 527-2	%	ISO 3167	4.0 /
Charpy unnotched impact strength +23°C	ISO 179/1eU	kJ/m ²	80 · 10 · 4	120
Charpy unnotched impact strength - 30°C	ISO 179/1eU	kJ/m ²	80 · 10 · 4	80
Charpy notched impact strength +23°C	ISO 179/1eA	kJ/m ²	80 · 10 · 4	5.0
Charpy notch impact strength - 30°C	ISO 179/1eA	kJ/m ²	80 · 10 · 4	2.0
Izod notched impact strength, method A ⁶⁾ + 23°C	ASTM D 256	J/m	63.5 · 12.7 · 3.2	100
Ball indentation hardness H 358/30	ISO 2039-1	MPa	190*	70
Thermal properties				
Deflection temperature 1.8 MPa (HDT A) / 0.45 MPa (HDT B)	ISO 75-2	°C	110 · 10 · 4	90 / 94
Vicat softening temperature VST/A/50 / VST/B/50	ISO 306	°C	≥10 · ≥10 · 4	105 / 91
Max. service temperature (short cycle operation) ¹¹⁾	-	°C	mouldings	75
Thermal coefficient of linear expansion, longitudinal (23-80)°C	DIN 53 752	10 ⁻⁴ /K	≥10 · ≥10 · 4	0.8 - 1.1
Thermal conductivity	DIN 52 612	W(m · K)	260 · 260 · 10	0.17
Electrical properties				
Dielectric constant at 100 Hz / 1 MHz	IEC 60250	-	80 · 80 · 1	2.9 / 2.8
Dissipation factor at 100 Hz / 1 MHz	IEC 60250	10 ⁻⁴	80 · 80 · 1	160 / 140
Volume resistivity	IEC 60093	Ω · m	80 · 80 · 1	10 ¹³
Surface resistivity	IEC 60093	Ω	80 · 80 · 1	10 ¹⁵
Dielectric strength K20/K20	IEC 60243-1	kV/mm	d=1	34

Footnotes:

6) Conversion factor: from ISO 180 to ASTM D 256 1 kJ/m² = 10 J/m.

11) Empirical values determined on articles repeatedly subjected to the temperature concerned for several hours at a time over a period of several years.

The proviso is that the articles were properly designed and processed according to our recommendations.

13) Shrinkage depends on the wall thickness and design of the moulding, the gating, and the processing conditions.