

LATILUB 75/4-20T

Self-lubricating product based on Polybutylene Terephthalate (PBT). PTFE.

Versions of product mentioned herein are suitable for potable water transportation. Nevertheless, manufactured parts have to be verified according to the specific directives.

The products mentioned herein are not suitable for applications in the pharmaceutical, medical or dental sector.

PHYSICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Density	ISO 1183	1.42 g/cm ³
Linear shrinkage at moulding		
Longitudinal (2.0mm/60MPa)	ISO 294-4	2.20 ÷ 2.40 %
Transversal (2.0mm/60MPa)	ISO 294-4	2.20 ÷ 2.40 %
Dimensional stability	---	76
Moisture absorption		
saturation, in air	ISO 62-4	0.22 %

MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
CHARPY impact strength		
Unnotched, at 23°C	ISO 179-1eU	50.0 kJ/m ²
Notched, at 23°C	ISO 179-1eA	3.8 kJ/m ²

MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Tensile elongation		
At yield (5 mm/min), 23°C	ISO 527	4.0 %
At yield (5 mm/min), 60°C	ISO 527	4.0 %
At yield (5 mm/min), 90°C	ISO 527	4.0 %
At yield (5 mm/min), 120°C	ISO 527	4.5 %
At yield (5 mm/min), 150°C	ISO 527	6.0 %
At break (5 mm/min), 23°C	ISO 527	40.0 %
At break (5 mm/min), 60°C	ISO 527	40.0 %
At break (5 mm/min), 90°C	ISO 527	>50 %
At break (5 mm/min), 120°C	ISO 527	>50 %
At break (5 mm/min), 150°C	ISO 527	>50 %
Tensile strength		
At yield (5 mm/min), 23°C	ISO 527	20 MPa
At yield (5 mm/min), 60°C	ISO 527	20 MPa
At yield (5 mm/min), 90°C	ISO 527	15 MPa
At yield (5 mm/min), 120°C	ISO 527	10 MPa
At yield (5 mm/min), 150°C	ISO 527	9 MPa
At break (5 mm/min), 23°C	ISO 527	25 MPa
At break (5 mm/min), 60°C	ISO 527	25 MPa
At break (5 mm/min), 90°C	ISO 527	NB MPa
At break (5 mm/min), 120°C	ISO 527	NB MPa
At break (5 mm/min), 150°C	ISO 527	NB MPa

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MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Elastic modulus		
Tensile (1 mm/min), 23°C	ISO 527	2300 MPa
Tensile (1 mm/min), 60°C	ISO 527	1700 MPa
Tensile (1 mm/min), 90°C	ISO 527	700 MPa
Tensile (1 mm/min), 120°C	ISO 527	400 MPa
Tensile (1 mm/min), 150°C	ISO 527	200 MPa
THERMAL PROPERTIES		
Coefficient of linear thermal expansion (CLTE)		
30°C to 100°C (longitudinal)	ISO 11359	120 × 10 ⁻⁶ K ⁻¹
30°C to 100°C (transversal)	ISO 11359	120 × 10 ⁻⁶ K ⁻¹
VICAT - Softening point		
50 N (heating rate 120°C/h)	ISO 306	175 °C
HDT - Heat Deflection Temperature		
0.45 MPa	ISO 75	170 °C
1.81 MPa	ISO 75	55 °C
FLAMMABILITY		
Flammability rating		
3 mm thickness	UL 94	HB
1.5 mm thickness	UL 94	HB
0.75 mm thickness	UL 94	HB
ELECTRICAL PROPERTIES		
Electrical resistivity		
surface, dry	ASTM D 257 / ASTM D4496	1E12 ohm
Dielectric strength (short period)		
2 mm thickness, 23°C, dry	ASTM D 149	19 kV/mm
TRIBOLOGICAL PROPERTIES		
Wear Factor		
	LATI (ISO 7148-2)	90 10 ⁻⁸ (mm ³ /N m)
Friction Coefficient		
static	LATI (ISO 7148-2)	0.17
dynamic	LATI (ISO 7148-2)	0.21

STORAGE

Best storage conditions of sealed, undamaged packages are warm environmental temperature in dry storage facilities able to protect from weather and accidental damage.

HANDLING AND SAFETY

Detailed information about a safe treatment of the material are indicated in the "Material Safety Data Sheet" (MSDS) furnished with the first material supply. The MSDS may be also sent again in case of loss.

PREDRYING CONDITIONS (Hot-air dryer)

Predrying needed. Predrying conditions are: at least 2 hours at $90 \div 120^{\circ}\text{C}$. Increase time in case of wet material. Maximum suggested moisture content: 0.05%. Use of desiccant dryers or vacuum ovens allows a reduction in drying time.

BARREL TEMPERATURE PROFILE

Suggested barrel temperature profile (zone 1 - zone 2 - zone 3 - nozzle): 235-240-245-240°C.

RESIDENCE TIME

Maximum allowable residence time: 5 ÷ 7 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 2 ÷ 6

MELT TEMPERATURE

Suggested range of melt temperature: $230 \div 240^{\circ}\text{C}$. On small machines, running short cycles, it is possible to use higher melt temperatures to improve plastification, fluidity and surface appearance, paying attention to any indication of material degradation.

MOULD TEMPERATURE

Suggested range of mould temperature: $50 \div 70^{\circ}\text{C}$. This can be significantly different from the tool settings, due to the cooling system efficiency and the accuracy of the temperature control on the tool. If moulding temperature is lower than suggested, part annealing may be necessary.

INJECTION SPEED

Advisable injection speed: medium. Best results are achieved by using an injection profile.

TANGENTIAL SCREW VELOCITY (V)

Maximum suggested tangential velocity (V): $0.2 \div 0.3 \text{ m/s}$. The maximum rotational speed (in rpm) may be calculated by means of the following equation: $\text{rpm} = V/d * 19100$, where d is the screw diameter (mm).

INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: $70 \div 90 \text{ MPa}$. Please, check on manual of injection moulding machine the ratio between specific pressure (at nozzle) and hydraulic pressure (of oil).

PACKING PRESSURE

Typical suggested packing pressure (at nozzle): $50 \div 75\%$ of injection pressure.

CUSHION

Minimum suggested cushion: $3 \div 6 \text{ mm}$.

BACK PRESSURE

Suggested backpressure: $3 \div 10 \text{ bar}$ (hydraulic pressure).

REGRIND USAGE

Maximum suggested regrind percentage: 15%. In-loop regrind is suggested. Regrind must be dried.

HOT RUNNER MOULDS

Hot runner moulds can be used when a very tight temperature control is assured.

VALVE GATES / SMALL GATES

Valve gates or small injection gates can be used.

EQUIPMENT WEAR AND CORROSION

Usually, critical processing conditions (high injection rate, high back pressure and high screw rotating speed, etc.) and/or disadvantageous geometric conditions (low wall thickness, low diameters, sharp fillet radius, etc.) generate wear on equipment. Wear increases in case of filled materials (particularly fibres filled ones). Appropriate surface treatments of equipment are suggested in these cases, as well as a proper venting to avoid material overheating. It is advisable to use a corrosion-resistant steel to make the mould.

Check the proper "Moulding guide" for further details.

APPROVALS

Please, check our site or contact LATI for details.

CONTACTS

LATI Industria Termoplastici S.p.A.