

## LATILUB 57D-15T G/30

Self-lubricating product based on Semi-aromatic polyamide (PPA). PTFE. Glass fibres.

The products mentioned herein are not suitable for applications in contact with foodstuffs or for potable water transportation, or for toy manufacturing.

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

PHYSICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Density</b>	ISO 1183	1.55 g/cm <sup>3</sup>
<b>Linear shrinkage at moulding</b>		
Longitudinal (2.0mm/60MPa)	ISO 294-4	0.35 ÷ 0.55 %
Transversal (2.0mm/60MPa)	ISO 294-4	0.80 ÷ 1.00 %
<b>Dimensional stability</b>	---	60
<b>Moisture absorption</b>		
saturation, in air	ISO 62-4	0.75 %
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>CHARPY impact strength</b>		
Unnotched, at 23°C	ISO 179-1eU	60.0 kJ/m <sup>2</sup>
Unnotched, at -20°C	ISO 179-1eU	50.0 kJ/m <sup>2</sup>
Notched, at 23°C	ISO 179-1eA	9.0 kJ/m <sup>2</sup>
Notched, at -20°C	ISO 179-1eA	8.0 kJ/m <sup>2</sup>
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Tensile elongation</b>		
At break (5 mm/min), 23°C	ISO 527	2.3 %
At break (5 mm/min), 60°C	ISO 527	2.6 %
At break (5 mm/min), 90°C	ISO 527	2.7 %
At break (5 mm/min), 120°C	ISO 527	3.3 %
At break (5 mm/min), 150°C	ISO 527	6.0 %
<b>Tensile strength</b>		
At break (5 mm/min), 23°C	ISO 527	190 MPa
At break (5 mm/min), 60°C	ISO 527	175 MPa
At break (5 mm/min), 90°C	ISO 527	145 MPa
At break (5 mm/min), 120°C	ISO 527	95 MPa
At break (5 mm/min), 150°C	ISO 527	55 MPa
<b>Elastic modulus</b>		
Tensile (1 mm/min), 23°C	ISO 527	10000 MPa
Tensile (1 mm/min), 60°C	ISO 527	10000 MPa
Tensile (1 mm/min), 90°C	ISO 527	10000 MPa
Tensile (1 mm/min), 120°C	ISO 527	7600 MPa
Tensile (1 mm/min), 150°C	ISO 527	3900 MPa

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THERMAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
<b>Coefficient of linear thermal expansion (CLTE)</b>		
30°C to 100°C (longitudinal)	ISO 11359	<b>30</b> × 10 <sup>-6</sup> K <sup>-1</sup>
30°C to 100°C (transversal)	ISO 11359	<b>50</b> × 10 <sup>-6</sup> K <sup>-1</sup>
<b>VICAT - Softening point</b>		
50 N (heating rate 120°C/h)	ISO 306	<b>255</b> °C
<b>HDT - Heat Deflection Temperature</b>		
0.45 MPa	ISO 75	<b>275</b> °C
1.81 MPa	ISO 75	<b>255</b> °C
<b>ELECTRICAL PROPERTIES</b>	<b>STANDARD</b>	<b>VALUE MEASURE UNITS</b>
<b>Electrical resistivity</b>		
surface, dry	ASTM D 257 / ASTM D4496	<b>1E12</b> ohm
<b>Dielectric strength (short period)</b>		
2 mm thickness, 23°C, dry	ASTM D 149	<b>23</b> kV/mm
<b>TRIBOLOGICAL PROPERTIES</b>	<b>STANDARD</b>	<b>VALUE MEASURE UNITS</b>
<b>Wear Factor</b>	LATI (ISO 7148-2)	<b>80</b> 10 <sup>-8</sup> (mm <sup>3</sup> /N m)
<b>Friction Coefficient</b>		
static	LATI (ISO 7148-2)	<b>0.28</b>
dynamic	LATI (ISO 7148-2)	<b>0.32</b>

## STORAGE

Best storage conditions of sealed, undamaged packages are warm environmental temperature in dry storage facilities able to protect from weather and accidental damage. PAY ATTENTION! Material is prone to absorb moisture.

## 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 120 ÷ 130°C. Increase time in case of wet material. Maximum suggested moisture content: 0.1%. 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): 320-330-340-345°C.

## RESIDENCE TIME

Maximum allowable residence time: 7 ÷ 8 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 2 ÷ 6

## MELT TEMPERATURE

Suggested range of melt temperature: 320 ÷ 345°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: 150 ÷ 170°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 ÷ 0.3 m/s. The maximum rotational speed (in rpm) may be calculated by means of the following equation:  $rpm = V/d * 19100$ , where d is the screw diameter (mm).

## INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: 70 ÷ 140 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): 65 ÷ 80% of injection pressure.

## CUSHION

Minimum suggested cushion: 3 ÷ 6 mm.

## BACK PRESSURE

Suggested backpressure: 3 ÷ 5 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 has to be evaluated, but usually can be used, if a tight temperature control is assured, cross-section area thicknesses are adequate and cycle time is short.

#### **VALVE GATES / SMALL GATES**

Use of valve gates or small injection gates has to be evaluated due to risk of clogging.

#### **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 wear-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.**