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LATI® HIGH PERFORMANCE THERMOPLASTICS

# LATILUB 87/28-17ST K/15

Self-lubricating product based on Polycarbonate (PC). Silicone / PTFE. Carbon fibers.

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 |
|---|---|---|---|
| **Density** | ISO 1183 | **1.33** | g/cm³ |
| **Linear shrinkage at moulding** | | | |
| Longitudinal (0.078in/8,700psi) | ISO 294-4 | **0.15 ÷ 0.30** | % |
| Transversal (0.078in/8,700psi) | ISO 294-4 | **0.40 ÷ 0.60** | % |
| **Dimensional stability** | --- | **48** | |
| **Moisture absorption** | | | |
| saturation, in air | ISO 62-4 | **0.10** | % |

| MECHANICAL PROPERTIES | STANDARD | VALUE | MEASURE UNITS |
|---|---|---|---|
| **CHARPY impact strength** | | | |
| Unnotched, at 23°F | ISO 179-1eU | **14.0** | ft.lb/in² |
| Notched, at +23°F | ISO 179-1eA | **4.0** | ft.lb/in² |

| MECHANICAL PROPERTIES | STANDARD | VALUE | MEASURE UNITS |
|---|---|---|---|
| **Tensile elongation** | | | |
| At break (0.196 in/min), 23°F | ISO 527 | **2.0** | % |
| **Tensile strength** | | | |
| At break (0.196 in/min), 23°F | ISO 527 | **17250** | psi |
| **Elastic modulus** | | | |
| Tensile (0.04 in/min), 23°F | ISO 527 | **1455** | kpsi |

| THERMAL PROPERTIES | STANDARD | VALUE | MEASURE UNITS |
|---|---|---|---|
| **Coefficient of linear thermal expansion (CLTE)** | | | |
| 30°F to 100°F (longitudinal) | ISO 11359 | **20** | $\times 10^{-6}$ K$^{-1}$ |
| 30°F to 100°F (transversal) | ISO 11359 | **55** | $\times 10^{-6}$ K$^{-1}$ |
| **VICAT - Softening point** | | | |
| 11 lb (heating rate 250°F/h) | ISO 306 | **302** | °F |
| **HDT - Heat Deflection Temperature** | | | |
| 66 psi | ISO 75 | **284** | °F |
| 264 psi | ISO 75 | **275** | °F |

| ELECTRICAL PROPERTIES | STANDARD | VALUE | MEASURE UNITS |
|---|---|---|---|
| **Electrical resistivity** | | | |
| surface, dry | ASTM D 257 / ASTM D4496 | **2E2** | ohm |
| **volume** | ASTM D 257 / ASTM D4496 | **4E2** | ohm.cm |

| TRIBOLOGICAL PROPERTIES | STANDARD | VALUE | MEASURE UNITS |
|---|---|---|---|
| **Wear Factor** | LATI (ISO 7148-2) | **300** | $10^{-8}$(mm$^3$/N m) |
| **Friction Coefficient** | | | |
| static | LATI (ISO 7148-2) | **0.28** | |
| dynamic | LATI (ISO 7148-2) | **0.32** | |

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# LATILUB 87/28-17ST K/15 - Molding parameters

## 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 3 hours at 230 ÷ 250°F. Increase time in case of damp material. Maximum suggested moisture content: 0.03%. 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): 490-545-565-545°F.

## RESIDENCE TIME

Maximum allowable residence time: 4 ÷ 8 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 1 ÷ 4

## MELT TEMPERATURE

Suggested range of melt temperature: 555 ÷ 570°F. 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.

## MOLD TEMPERATURE

Suggested range of mold temperature: 210 ÷ 250°F. 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 molding temperature is lower than suggested, part annealing may be necessary.

## INJECTION SPEED

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

## TANGENTIAL SCREW VELOCITY (V)

Maximum suggested tangential velocity (V): 0.15 ÷ 0.35 fps. The maximum rotational speed may be calculated by means of the following equation: rpm = S/d*229, where d is the screw diameter (in).

## INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: 70 ÷ 140 MPa. Please, check on manual of injection molding machine the ratio between specific pressure (at nozzle) and hydraulic pressure (of oil).

## PACKING PRESSURE

Typical suggested packing pressure (at nozzle): 50 ÷ 70% of injection pressure.

## CUSHION

Minimum suggested cushion: 0.10 ÷ 0.25 in.

## BACK PRESSURE

Suggested backpressure: 70 ÷ 220 psi (hydraulic pressure).

## REGRIND USAGE

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

## HOT RUNNER MOLDS

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

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## 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 fibers 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- and corrosion-resistant steel to make the mold.

**Check the proper "Molding guide" for further details.**

## APPROVALS

**Please, check our site or contact LATI for details.**

## CONTACTS

**LATI Industria Termoplastici S.p.A.**