LATI® HIGH PERFORMANCE THERMOPLASTICS

LATAN 9

Product made of Polyoximethylene (POM). Unfilled. Medium viscosity. Very good tribological properties. PFAS-free product.

Versions of product mentioned herein are suitable for applications in contact with foodstuffs or for toy manufacturing. 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	**1.41**	g/cm³
Linear shrinkage at moulding			
Longitudinal (0.078in/8,700psi)	ISO 294-4	**2.00 ÷ 2.30**	%
Transversal (0.078in/8,700psi)	ISO 294-4	**2.05 ÷ 2.25**	%
Dimensional stability	---	**70**	
Moisture absorption			
saturation, in air	ISO 62-4	**0.22**	%
Melt Flow Index (MFI) - 375°F/4.76lbs	ASTM D 1238	**8.00**	g/10'
MECHANICAL PROPERTIES	**STANDARD**	**VALUE**	**MEASURE UNITS**
CHARPY impact strength			
Unnotched, at 23°F	ISO 179-1eU	**NB**	ft.lb/in²
Unnotched, at -20°F	ISO 179-1eU	**NB**	ft.lb/in²
Notched, at +23°F	ISO 179-1eA	**3.5**	ft.lb/in²
Notched, at +-20°F	ISO 179-1eA	**2.3**	ft.lb/in²
MECHANICAL PROPERTIES	**STANDARD**	**VALUE**	**MEASURE UNITS**
Tensile elongation			
At yield (0.196 in/min), 23°F	ISO 527	**>10**	%
At yield (0.196 in/min), 60°F	ISO 527	**>10**	%
At yield (0.196 in/min), 90°F	ISO 527	**>10**	%
At break (0.196 in/min), 23°F	ISO 527	**50.0**	%
At break (0.196 in/min), 60°F	ISO 527	**>50**	%
At break (0.196 in/min), 90°F	ISO 527	**>50**	%
Tensile strength			
At yield (0.196 in/min), 23°F	ISO 527	**9000**	psi
At yield (0.196 in/min), 60°F	ISO 527	**6750**	psi
At yield (0.196 in/min), 90°F	ISO 527	**4350**	psi
At break (0.196 in/min), 23°F	ISO 527	**9000**	psi
At break (0.196 in/min), 60°F	ISO 527	**NB**	psi
At break (0.196 in/min), 90°F	ISO 527	**NB**	psi
Elastic modulus			
Tensile (0.04 in/min), 23°F	ISO 527	**375**	kpsi
Tensile (0.04 in/min), 60°F	ISO 527	**210**	kpsi
Tensile (0.04 in/min), 90°F	ISO 527	**131**	kpsi

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THERMAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Coefficient of linear thermal expansion (CLTE)			
30°F to 100°F (longitudinal)	ISO 11359	**180**	$\times 10^{-6}$ K^{-1}
30°F to 100°F (transversal)	ISO 11359	**185**	$\times 10^{-6}$ K^{-1}
VICAT - Softening point			
11 lb (heating rate 250°F/h)	ISO 306	**302**	°F
HDT - Heat Deflection Temperature			
66 psi	ISO 75	**302**	°F
264 psi	ISO 75	**212**	°F
Thermal conductivity			
in plane	ASTM E 1461-92	**1.7**	W/(m·K)
through plane	ASTM E 1461-92	**1.7**	W/(m·K)
FLAMMABILITY	**STANDARD**	**VALUE**	**MEASURE UNITS**
Flammability rating			
0.125 in. thickness	UL 94	**HB**	
0.060 in. thickness	UL 94	**HB**	
ELECTRICAL PROPERTIES	**STANDARD**	**VALUE**	**MEASURE UNITS**
CTI - Comparative Tracking Index			
solution A (without surfactant)	IEC 60112	**600**	V
Electrical resistivity			
surface, dry	ASTM D 257 / D 4496	**1E12**	ohm
Dielectric strength (short period)			
0.078 in. thickness, 73°F, dry	ASTM D 149	**406**	kV/mm

LATAN 9 - Molding parameters

STORAGE

Best storage conditions of sealed, undamaged packages are cool environmental temperature and 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 175 ÷ 250°F. Increase time in case of damp material. Maximum suggested moisture content: 0.2%. Use of desiccant dryers or vacuum ovens allows a reduction in drying time. Vacuum ovens, desiccant dryers or forced ventilation ovens are suggested. Wet material appears darker.

BARREL TEMPERATURE PROFILE

Suggested barrel temperature profile (zone 1 - zone 2 - zone 3 - nozzle): 345-365-390-400°F.

RESIDENCE TIME

Maximum allowable residence time: 12 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 2 ÷ 4

MELT TEMPERATURE

Suggested range of melt temperature: 375 ÷ 410°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. PAY ATTENTION! Do not exceed the suggested maximum temperature.

MOLD TEMPERATURE

Suggested range of mold temperature: 175 ÷ 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. High mould temperature is suggested. Low mold temperature is suggested.

INJECTION SPEED

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

TANGENTIAL SCREW VELOCITY (V)

Maximum suggested tangential velocity (V): 0.35 ÷ 1.00 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: 60 ÷ 100 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): 90 ÷ 110% of injection pressure.

CUSHION

Minimum suggested cushion: 0.10 ÷ 0.25 in.

BACK PRESSURE

Suggested backpressure: 35 ÷ 220 psi (hydraulic pressure).

REGRIND USAGE

Maximum suggested regrind percentage: 15%. In-loop regrind is suggested. Regrind must be dried. Unless otherwise specified in yellow card, UL guidelines allow up to 25% regrind to be used without affecting the rating. Otherwise, it is recommended that Customer downloads the yellow card and attaches it to this documentation. In any case, LATI advises not to use more than 15%.

VALVE GATES / SMALL GATES

Use of valve gates or small injection gates is not recommended due to risk of thermal degradation.

MATERIAL HANDLING

Pneumatic conveyor systems should be avoided to prevent the separation of the steel bundles from the base resin. Avoid use of pneumatic conveyor systems or forced air dryers to prevent separation between resin and additives.

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. Steel types containing a high chrome percentage (Cr > 13%) or a specific surface treatment (e.g. Chrome or Nickel electroplating) are suggested. It is advisable to use a corrosion-resistant steel to make the mold.

APPROVALS

Please, check our site or contact LATI for details.

CONTACTS

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