LATI® HIGH PERFORMANCE THERMOPLASTICS

LARTON GCE/650

Compound based on Polyphenylene Sulphide (PPS). Glass fibers / Mineral filler. Intrinsically flame retardant. PFAS-free product.

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	**1.99**	g/cm³
Linear shrinkage at moulding			
Longitudinal (0.078in/8,700psi)	ISO 294-4	**0.20 ÷ 0.35**	%
Transversal (0.078in/8,700psi)	ISO 294-4	**0.50 ÷ 0.85**	%
Dimensional stability	---	**70**	
Moisture absorption			
saturation, in air	ISO 62-4	**0.01**	%

MECHANICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
CHARPY impact strength			
Unnotched, at 23°F	ISO 179-1eU	**11.5**	ft.lb/in²
Notched, at +23°F	ISO 179-1eA	**3.5**	ft.lb/in²

MECHANICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Tensile elongation			
At break (0.196 in/min), 23°F	ISO 527	**1.0**	%
At break (0.196 in/min), 60°F	ISO 527	**1.0**	%
At break (0.196 in/min), 90°F	ISO 527	**1.1**	%
At break (0.196 in/min), 120°F	ISO 527	**2.4**	%
At break (0.196 in/min), 150°F	ISO 527	**3.0**	%
Tensile strength			
At break (0.196 in/min), 23°F	ISO 527	**21750**	psi
At break (0.196 in/min), 60°F	ISO 527	**18750**	psi
At break (0.196 in/min), 90°F	ISO 527	**18000**	psi
At break (0.196 in/min), 120°F	ISO 527	**12750**	psi
At break (0.196 in/min), 150°F	ISO 527	**9750**	psi
Elastic modulus			
Tensile (0.04 in/min), 23°F	ISO 527	**3000**	kpsi
Tensile (0.04 in/min), 60°F	ISO 527	**2850**	kpsi
Tensile (0.04 in/min), 90°F	ISO 527	**2700**	kpsi
Tensile (0.04 in/min), 120°F	ISO 527	**1950**	kpsi
Tensile (0.04 in/min), 150°F	ISO 527	**1305**	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	**15**	$\times 10^{-6}$ K^{-1}
30°F to 100°F (transversal)	ISO 11359	**30**	$\times 10^{-6}$ K^{-1}
VICAT - Softening point			
11 lb (heating rate 250°F/h)	ISO 306	**509**	°F
HDT - Heat Deflection Temperature			
66 psi	ISO 75	**536**	°F
264 psi	ISO 75	**527**	°F
Thermal conductivity			
in plane	ASTM E 1461-92	**3.5**	W/(m·K)
through plane	ASTM E 1461-92	**2.1**	W/(m·K)

FLAMMABILITY	STANDARD	VALUE	MEASURE UNITS
Oxygen Index	ASTM D 2863	**40**	%
Flammability rating			
0.125 in. thickness	UL 94	**V-0**	
0.060 in. thickness	UL 94	**V-0**	
0.030 in. thickness	UL 94	**V-0**	
GWFI - Glow Wire Flammability Index			
0.078 in. thickness	IEC 60695-2-12	**960**	°C
0.040 in. thickness	IEC 60695-2-12	**960**	°C
GWIT - Glow Wire Ignition Test			
0.078 in. thickness	IEC 60695-2-13	**775**	°C
0.040 in. thickness	IEC 60695-2-13	**775**	°C

ELECTRICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
CTI - Comparative Tracking Index			
solution A (without surfactant)	IEC 60112	**175**	V
Electrical resistivity			
surface, dry	ASTM D 257 / ASTM D4496	**1E12**	ohm
Dielectric strength (short period)			
0.078 in. thickness, 73°F, dry	ASTM D 149	**483**	kV/mm

LARTON GCE/650 - 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 2 hours at 250 ÷ 300°F. Increase time in case of damp 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): 570-590-610-625°F.

RESIDENCE TIME

Maximum allowable residence time: 30 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: 4 ÷ 8

MELT TEMPERATURE

Suggested range of melt temperature: 555 ÷ 625°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: 275 ÷ 300°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): 0.35 ÷ 0.65 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: 50 ÷ 130 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): 70 ÷ 100% of injection pressure.

CUSHION

Minimum suggested cushion: 0.10 ÷ 0.25 in.

BACK PRESSURE

Suggested backpressure: 45 ÷ 100 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 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 is not recommended 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 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 high wear-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.