

LARPEEK 50 K/30

Compound based on Polyetheretherketone (PEEK). Carbon fibers. 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	1.40 g/cm ³
Linear shrinkage at moulding		
Longitudinal (0.078in/8,700psi)	ISO 294-4	0.10 ÷ 0.20 %
Transversal (0.078in/8,700psi)	ISO 294-4	0.50 ÷ 0.75 %
Dimensional stability	---	50
Moisture absorption		
saturation, in air	ISO 62-4	0.07 %

MECHANICAL PROPERTIES

	STANDARD	VALUE MEASURE UNITS
CHARPY impact strength		
Unnotched, at 23°F	ISO 179-1eU	22.5 ft.lb/in ²
Notched, at +23°F	ISO 179-1eA	4.0 ft.lb/in ²

MECHANICAL PROPERTIES

	STANDARD	VALUE MEASURE UNITS
Tensile elongation		
At break (0.196 in/min), 23°F	ISO 527	1.8 %
At break (0.196 in/min), 60°F	ISO 527	1.9 %
At break (0.196 in/min), 90°F	ISO 527	2.1 %
At break (0.196 in/min), 120°F	ISO 527	2.3 %
At break (0.196 in/min), 150°F	ISO 527	2.5 %
Tensile strength		
At break (0.196 in/min), 23°F	ISO 527	33000 psi
At break (0.196 in/min), 60°F	ISO 527	32250 psi
At break (0.196 in/min), 90°F	ISO 527	30750 psi
At break (0.196 in/min), 120°F	ISO 527	29250 psi
At break (0.196 in/min), 150°F	ISO 527	26250 psi
Elastic modulus		
Tensile (0.04 in/min), 23°F	ISO 527	3300 kpsi
Tensile (0.04 in/min), 60°F	ISO 527	3000 kpsi
Tensile (0.04 in/min), 90°F	ISO 527	2850 kpsi
Tensile (0.04 in/min), 120°F	ISO 527	2700 kpsi
Tensile (0.04 in/min), 150°F	ISO 527	2250 kpsi

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THERMAL PROPERTIES

Coefficient of linear thermal expansion (CLTE)

30°F to 100°F (longitudinal)	ISO 11359	5 × 10 ⁻⁶ K ⁻¹
30°F to 100°F (transversal)	ISO 11359	25 × 10 ⁻⁶ K ⁻¹

VICAT - Softening point

11 lb (heating rate 250°F/h)	ISO 306	644 °F
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HDT - Heat Deflection Temperature

66 psi	ISO 75	644 °F
264 psi	ISO 75	626 °F

Thermal conductivity

in plane	ASTM E 1461-92	4.9 W/(m·K)
through plane	ASTM E 1461-92	2.4 W/(m·K)

FLAMMABILITY

Flammability rating

0.125 in. thickness	UL 94	V-0
0.060 in. thickness	UL 94	V-0

GWFI - Glow Wire Flammability Index

0.078 in. thickness	IEC 60695-2-12	960 °C
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GWIT - Glow Wire Ignition Test

0.078 in. thickness	IEC 60695-2-13	825 °C
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ELECTRICAL PROPERTIES

CTI - Comparative Tracking Index

solution A (without surfactant)	IEC 60112	125 V
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Electrical resistivity

surface, dry	ASTM D 257 / ASTM D4496	1E2 ohm
volume	ASTM D 257 / ASTM D4496	1E6 ohm.cm

Dielectric strength (short period)

0.078 in. thickness, 73°F, dry	ASTM D 149	76 kV/mm
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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 $300 \div 320^{\circ}\text{F}$. Increase time in case of damp 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): $680-690-715-735^{\circ}\text{F}$.

RESIDENCE TIME

Maximum allowable residence time: 15 minutes. Do not exceed this limit. Maximum number of complete shots (in the barrel) suggested: $2 \div 5$

MELT TEMPERATURE

Suggested range of melt temperature: $700 \div 750^{\circ}\text{F}$. 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: $320 \div 410^{\circ}\text{F}$. 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): $0.35 \div 0.50$ fps. The maximum rotational speed may be calculated by means of the following equation: $\text{rpm} = S/d \cdot 229$, where d is the screw diameter (in).

INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: $60 \div 150$ 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): $70 \div 100\%$ of injection pressure.

CUSHION

Minimum suggested cushion: $0.10 \div 0.20$ in.

BACK PRESSURE

Suggested backpressure: $290 \div 1160$ 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.

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. 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 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.