

LARPEEK 50

Polyetheretherketone (PEEK).

Unfilled. Very good chemical resistance. Very good thermal properties. Low smoke density and low toxicity index.

PHYSICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Density	ISO 1183	1.30 g/cm ³
Linear shrinkage at moulding		
Longitudinal (0.078in/8,700psi)	ISO 294-4	0.009 ÷ 0.013 in/in
Transversal (0.078in/8,700psi)	ISO 294-4	0.009 ÷ 0.013 in/in
Dimensional stability	---	83
Moisture absorption (in air)		
after 24hrs	ISO 62-4	0.08 %
MECHANICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
CHARPY impact strength		
Unnotched, at +73°F	ISO 179-1eU	NB
Notched, at +73°F	ISO 179-1eA	3.74 ft.lb/in ²
Tensile elongation		
At yield (0.196 in/min), 73°F	ISO 527 (1)	5.0 %
At yield (0.196 in/min), 140°F	ISO 527 (1)	5.0 %
At yield (0.196 in/min), 195°F	ISO 527 (1)	5.0 %
At yield (0.196 in/min), 250°F	ISO 527 (1)	6.0 %
At yield (0.196 in/min), 300°F	ISO 527 (1)	8.0 %
At break (0.196 in/min), 73°F	ISO 527 (1)	30.0 %
At break (0.196 in/min), 140°F	ISO 527 (1)	30.0 %
At break (0.196 in/min), 195°F	ISO 527 (1)	30.0 %
At break (0.196 in/min), 250°F	ISO 527 (1)	35.0 %
At break (0.196 in/min), 300°F	ISO 527 (1)	45.0 %
Tensile strength		
At yield (0.196 in/min), 73°F	ISO 527 (1)	13800 psi
At yield (0.196 in/min), 140°F	ISO 527 (1)	11600 psi
At yield (0.196 in/min), 195°F	ISO 527 (1)	8700 psi
At yield (0.196 in/min), 250°F	ISO 527 (1)	7200 psi
At yield (0.196 in/min), 300°F	ISO 527 (1)	4400 psi
At break (0.196 in/min), 73°F	ISO 527 (1)	12300 psi
At break (0.196 in/min), 140°F	ISO 527 (1)	10900 psi
At break (0.196 in/min), 195°F	ISO 527 (1)	8700 psi
At break (0.196 in/min), 250°F	ISO 527 (1)	7200 psi
At break (0.196 in/min), 300°F	ISO 527 (1)	4400 psi
Elastic modulus		
Tensile (speed 0.04 in/min), at 73°F	ISO 527 (1)	510 kpsi
Tensile (speed 0.04 in/min), at 140°F	ISO 527 (1)	510 kpsi
Tensile (speed 0.04 in/min), at 195°F	ISO 527 (1)	500 kpsi
Tensile (speed 0.04 in/min), at 250°F	ISO 527 (1)	490 kpsi
Tensile (speed 0.04 in/min), at 300°F	ISO 527 (1)	440 kpsi

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THERMAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Coefficient of linear thermal expansion (CLTE)		
+86°C to +212°F (longitudinal)	ISO 11359-2	31 µin/(in·°F)
VICAT - Softening point		
11 lb (heating rate 122°F/h)	ISO 306	>572 °F
HDT - Heat Deflection Temperature		
66 psi	ISO 75	374 °F
264 psi	ISO 75	311 °F
C.U.T. - Continuous Use Temperature		
Long period (20,000h)	ASTM E1641/E1877	392 °F
FLAMMABILITY	STANDARD	VALUE MEASURE UNITS
Oxygen Index	ASTM D 2863	35 %
Flammability rating		
0.118 in thickness	UL 94	V-0
0.059 in thickness	UL 94	V-0
0.029 in thickness	UL 94	V-1
GWFI - Glow Wire Flammability Index		
	IEC 60695-2-12	960°C/2mm
GWIT - Glow Wire Ignition Test		
	IEC 60695-2-13	875°C/1mm
ELECTRICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Electrical resistivity		
Surface	ASTM D 257	1E12 ohm
TRIBOLOGICAL PROPERTIES	STANDARD	VALUE MEASURE UNITS
Wear Factor	ASTM D 3702	15 10 ⁻⁷ mm ³ /(Nm)
Friction Coefficient		
static	ASTM D 1894	0.32
dynamic	ASTM D 1894	0.26

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MATERIAL - STORAGE

Sealed, undamaged packages has to be kept in dry storage facilities, providing they are also able to protect them from weather and accidental damages.

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

At least 3 hours at $248 \div 302^{\circ}\text{F}$

These are the suggested conditions to reduce the moisture content to adequate levels. Temperature and drying time can be reduced by using vacuum ovens

ACTUAL MELT TEMPERATURE

$680 \div 734^{\circ}\text{F}$

The injection molding machine settings needed to obtain the suggested melt temperature will depend greatly on shot size and machine capacity, as well as other molding parameters such as: injection speed, screw RPM, back pressure, etc. 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

$338 \div 392^{\circ}\text{F}$

The mold temperature suggested above is the actual tool steel temperature. 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.

INJECTION SPEED

Medium to high

The advisable injection speed greatly depends on cavity geometry and injection molding machine size. The use of high injection speed can improve the surface appearance, but it can also cause outgassing and burn marks due to overheating through shear stress.

REGRIND USAGE

The use of regrind is possible, but should be assessed on the basis of the project, moulding parameters, and type of grinding used. The effect of using regrind on material properties must be evaluated by the customer on its specific project and process. High percentages of regrind may cause a reduction in viscosity, reducing mechanical properties, first resilience.

HOT RUNNER MOLDS

Hot runner moulds may be used when a very tight temperature control is assured.

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TO AVOID

In order to prevent any material degradation, over-dimensioned machines should be avoided.

NOTES

Versions of product mentioned herein are suitable for applications in contact with foodstuff or for potable water transportation, or for toy manufacturing. However, 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.

CONTACTS

LATI Industria Termoplastici S.p.A.