LARPEEK 10 G/30

Compound based on Polyetheretherketone (PEEK). Glass fibres. Intrinsically flame retardant. Very good chemical resistance. Very good thermal properties. Low smoke density and low toxicity index. 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.

Material properties are obtained by tests based on same standards used for injection moulded samples.

PHYSICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Density	ISO 1183	**1.51**	g/cm³
Linear shrinkage at moulding			
Longitudinal (2.0mm/60MPa)	ISO 294-4	**0.40 ÷ 0.60**	%
Transversal (2.0mm/60MPa)	ISO 294-4	**0.80 ÷ 1.20**	%
Dimensional stability	---	**55**	
Moisture absorption			
equilibrium, in air	ISO 62-4	**0.07**	%
MECHANICAL PROPERTIES	**STANDARD**	**VALUE**	**MEASURE UNITS**
CHARPY impact strength			
Unnotched, at 23°C	ISO 179-1eU	**60.0**	kJ/m²
Notched, at 23°C	ISO 179-1eA	**8.0**	kJ/m²
MECHANICAL PROPERTIES	**STANDARD**	**VALUE**	**MEASURE UNITS**
Tensile elongation			
At break (5 mm/min), 23°C	ISO 527	**2.4**	%
At break (5 mm/min), 60°C	ISO 527	**2.3**	%
At break (5 mm/min), 90°C	ISO 527	**2.2**	%
At break (5 mm/min), 120°C	ISO 527	**1.7**	%
At break (5 mm/min), 150°C	ISO 527	**1.6**	%
Tensile strength			
At break (5 mm/min), 23°C	ISO 527	**180**	MPa
At break (5 mm/min), 60°C	ISO 527	**160**	MPa
At break (5 mm/min), 90°C	ISO 527	**150**	MPa
At break (5 mm/min), 120°C	ISO 527	**140**	MPa
At break (5 mm/min), 150°C	ISO 527	**105**	MPa
Elastic modulus			
Tensile (1 mm/min), 23°C	ISO 527	**10500**	MPa
Tensile (1 mm/min), 60°C	ISO 527	**10300**	MPa
Tensile (1 mm/min), 90°C	ISO 527	**10000**	MPa
Tensile (1 mm/min), 120°C	ISO 527	**9500**	MPa
Tensile (1 mm/min), 150°C	ISO 527	**7500**	MPa

LARPEEK 10 G/30

THERMAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Coefficient of linear thermal expansion (CLTE)			
30°C to 100°C (longitudinal)	ISO 11359	**20**	$\times 10^{-6}$ K^{-1}
30°C to 100°C (transversal)	ISO 11359	**35**	$\times 10^{-6}$ K^{-1}
VICAT - Softening point			
50 N (heating rate 120°C/h)	ISO 306	**335**	°C
HDT - Heat Deflection Temperature			
0.45 MPa	ISO 75	**335**	°C
1.81 MPa	ISO 75	**325**	°C
Thermal conductivity			
in plane	ASTM E 1461-92	**0.4**	W/(m·K)
through plane	ASTM E 1461-92	**0.3**	W/(m·K)
FLAMMABILITY	**STANDARD**	**VALUE**	**MEASURE UNITS**
Oxygen Index	ASTM D 2863	**36**	%
Flammability rating			
3 mm thickness	UL 94	**V-0**	
1.5 mm thickness	UL 94	**V-0**	
GWFI - Glow Wire Flammability Index			
2 mm thickness	IEC 60695-2-12	**960**	°C
GWIT - Glow Wire Ignition Test			
2 mm thickness	IEC 60695-2-13	**825**	°C
ELECTRICAL PROPERTIES	**STANDARD**	**VALUE**	**MEASURE UNITS**
CTI - Comparative Tracking Index			
solution A (without surfactant)	IEC 60112	**175**	V
Electrical resistivity			
surface, dry	IEC 62631	**1E12**	ohm
Dielectric strength (short period)			
2 mm thickness, 23°C, dry	ASTM D 149	**25**	kV/mm

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 150 ÷ 160°C. Increase time in case of wet 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): 360-365-380-390°C.

RESIDENCE TIME

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

MELT TEMPERATURE

Suggested range of melt temperature: 370 ÷ 400°C. 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.

MOULD TEMPERATURE

Suggested range of mould temperature: 160 ÷ 210°C. 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 moulding 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): 0.1 ÷ 0.15 m/s. The maximum rotational speed (in rpm) may be calculated by means of the following equation: rpm = V/d*19100, where d is the screw diameter (mm).

INJECTION PRESSURE

Maximum advisable injection pressure at nozzle: 60 ÷ 150 MPa. Please, check on manual of injection moulding 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: 3 ÷ 5 mm.

BACK PRESSURE

Suggested backpressure: 20 ÷ 80 bar (hydraulic pressure).

REGRIND USAGE

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

HOT RUNNER MOULDS

Hot runner moulds 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 fibres 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 mould.

Check the proper "Moulding guide" for further details.

APPROVALS

Please, check our site or contact LATI for details.

CONTACTS

LATI Industria Termoplastici S.p.A.
Via F. Baracca, 7 - I - 21040 VEDANO OLONA (VA)
Tel. +39-0332-409111 - Fax +39-0332-409260
email: techserv@it.lati.com
http://www.lati.com
http://lambda.lati.it

Values shown are based on testing of specimens obtained through a manufacturing process, conditioned according to the standard and represent data that fall within the standard range of properties for non-coloured material, if not otherwise specified. As they may be subject to variations, these values do not represent a sufficient basis for any part design and are not intended for use in establishing values for specification purposes. Properties of manufactured parts can be influenced by a wide range of factors including, but not limited to, colorants, part design, processing equipment, processing conditions, post-treatment conditions, environmental conditions and usage of regrind during the transformation process. If data are explicitly indicated as provisional, range of properties has to be considered wider. This information and technical assistance are provided as a convenience for informational purposes only and are subject to change without notice. The customer shall always ensure that the latest release of technical information is at his own disposal. Lati S.p.A. extends no warranties or guarantee, including a warranty of merchantability of whatever use is made of the product, and make no representations as to the accuracy, suitability, reliability, completeness and sufficiency of the information provided, and assume no responsibility regarding the consequences of its use or for any printing errors. It is the customer's responsibility to inspect and test our products in order to determine to his own satisfaction whether they are suitable for his intended uses and applications or used in conjunction with third-party materials. This application-specific analysis shall at least include preliminary testing to determine the suitability for the customer's particular purpose from a technical as well as health, safety, and environmental standpoint. Such testing has not necessarily been done by us as the manner in which the customer uses and the purpose to which utilises our products are beyond our control. Lati S.p.A. does not accept and hereby disclaims liability for any damages whatsoever in connection with the use of or reliance on this information. No one is authorised to make any warranties, issue any immunities or assume any liabilities on behalf of Lati S.p.A. except in a writing signed by a specifically authorised Lati S.p.A. executive. Unless otherwise agreed in writing, the exclusive remedy for all claims is replacement of the product or refund of the purchase price at Lati's option, and in no event shall Lati S.p.A. be liable for special, consequential, incidental, punitive or exemplary damages. No information herein can be considered as a suggestion to use any product in conflict with intellectual property rights. Lati S.p.A. disclaims any liability that may be claimed for infringement or alleged infringement of patents. Unless specifically stated in writing, the products mentioned herein are not suitable for applications in the pharmaceutical, medical or dental sector, and toys manufacturing, in contact with foodstuff or for potable water transportation. For any other issues Lati S.p.A. Conditions of Sales apply.

Copyright © LATI S.p.A. 2021