LATI® HIGH PERFORMANCE THERMOPLASTICS

LAPEX R

Polyphenylene Sulphone (PPSU).
Unfilled. Low smoke density and low toxicity index. Very high dimensional stability.

PHYSICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Density	ISO 1183	1.30	g/cm³
Linear shrinkage at moulding			
Longitudinal (0.078in/8,700psi)	ISO 294-4	0.008 ÷ 0.009	in/in
Transversal (0.078in/8,700psi)	ISO 294-4	0.008 ÷ 0.009	in/in
Dimensional stability	---	80	
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	28.04	ft.lb/in²
Tensile elongation			
At yield (0.196 in/min), 73°F	ISO 527 (1)	5.3	%
At yield (0.196 in/min), 140°F	ISO 527 (1)	4.6	%
At yield (0.196 in/min), 195°F	ISO 527 (1)	3.8	%
At yield (0.196 in/min), 250°F	ISO 527 (1)	3.3	%
At yield (0.196 in/min), 300°F	ISO 527 (1)	2.8	%
At break (0.196 in/min), 73°F	ISO 527 (1)	>100.0	
At break (0.196 in/min), 140°F	ISO 527 (1)	>100.0	
At break (0.196 in/min), 195°F	ISO 527 (1)	>100.0	
At break (0.196 in/min), 250°F	ISO 527 (1)	>100.0	
At break (0.196 in/min), 300°F	ISO 527 (1)	>100.0	
Tensile strength			
At yield (0.196 in/min), 73°F	ISO 527 (1)	11600	psi
At yield (0.196 in/min), 140°F	ISO 527 (1)	10200	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)	5800	psi
At break (0.196 in/min), 73°F	ISO 527 (1)	NB	
At break (0.196 in/min), 140°F	ISO 527 (1)	NB	
At break (0.196 in/min), 195°F	ISO 527 (1)	NB	
At break (0.196 in/min), 250°F	ISO 527 (1)	NB	
At break (0.196 in/min), 300°F	ISO 527 (1)	NB	
Elastic modulus			
Tensile (speed 0.04 in/min), at 73°F	ISO 527 (1)	380	kpsi
Tensile (speed 0.04 in/min), at 140°F	ISO 527 (1)	320	kpsi
Tensile (speed 0.04 in/min), at 195°F	ISO 527 (1)	290	kpsi
Tensile (speed 0.04 in/min), at 250°F	ISO 527 (1)	260	kpsi
Tensile (speed 0.04 in/min), at 300°F	ISO 527 (1)	230	kpsi

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THERMAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Coefficient of linear thermal expansion (CLTE)			
-22°F to +86°C (longitudinal)	ISO 11359-2	32	µin/(in·°F)
-22°F to +86°C (transversal)	ISO 11359-2	36	µin/(in·°F)
+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	419	°F
HDT - Heat Deflection Temperature			
66 psi	ISO 75	419	°F
264 psi	ISO 75	401	°F
C.U.T. - Continuous Use Temperature			
Long period (20,000h)	ASTM E1641/E1877	374	°F

FLAMMABILITY	STANDARD	VALUE	MEASURE UNITS
Oxygen Index	ASTM D 2863	37	%
Flammability rating			
0.118 in thickness	UL 94	V-0	
0.059 in thickness	UL 94	V-0	

ELECTRICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Electrical resistivity			
Surface	ASTM D 257	1E12	ohm

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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 284 ÷ 356°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 — 644 ÷ 716°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 — 284 ÷ 356°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 — 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. Versions of product mentioned herein may support applications in the pharmaceutical, medical or dental sector. However, manufactured parts have to be verified according to the specific directives.

APPROVALS

USA (NSF51): Product versions approved according NSF51 recommendations are available.

CONTACTS

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