LATI® HIGH PERFORMANCE THERMOPLASTICS

LATAMID 6 BH

Polyamide 6 (PA6).
High fluidity. Heat stabilised. Very high fluidity.

PHYSICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Density	ISO 1183	1.13	g/cm³
Linear shrinkage at moulding			
Longitudinal (2.0mm/60MPa)	ISO 294-4	1.05 ÷ 1.35	%
Transversal (2.0mm/60MPa)	ISO 294-4	1.15 ÷ 1.40	%
Dimensional stability	---	84	
Moisture absorption (in air)			
after 24hrs	ISO 62-4	0.37	%

MECHANICAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
CHARPY impact strength			
Unnotched, at +23°C	ISO 179-1eU	NB	
Unnotched, at -20°C	ISO 179-1eU	NB	
Notched, at +23°C	ISO 179-1eA	6.0	kJ/m²
Notched, at -20°C	ISO 179-1eA	5.0	kJ/m²
Tensile elongation			
At yield (5 mm/min), 23°C	ISO 527 (1)	3.5	%
At yield (5 mm/min), 60°C	ISO 527 (1)	-	
At yield (5 mm/min), 90°C	ISO 527 (1)	-	
At yield (5 mm/min), 120°C	ISO 527 (1)	-	
At yield (5 mm/min), 150°C	ISO 527 (1)	-	
At break (5 mm/min), 23°C	ISO 527 (1)	30.0	%
At break (5 mm/min), 60°C	ISO 527 (1)	>100.0	
At break (5 mm/min), 90°C	ISO 527 (1)	>100.0	
At break (5 mm/min), 120°C	ISO 527 (1)	>100.0	
At break (5 mm/min), 150°C	ISO 527 (1)	>100.0	
Tensile strength			
At yield (5 mm/min), 23°C	ISO 527 (1)	85	MPa
At yield (5 mm/min), 60°C	ISO 527 (1)	-	
At yield (5 mm/min), 90°C	ISO 527 (1)	-	
At yield (5 mm/min), 120°C	ISO 527 (1)	-	
At yield (5 mm/min), 150°C	ISO 527 (1)	-	
At break (5 mm/min), 23°C	ISO 527 (1)	85	MPa
At break (5 mm/min), 60°C	ISO 527 (1)	NB	
At break (5 mm/min), 90°C	ISO 527 (1)	NB	
At break (5 mm/min), 120°C	ISO 527 (1)	NB	
At break (5 mm/min), 150°C	ISO 527 (1)	NB	
Elastic modulus			
Tensile (speed 1 mm/min), at 23°C	ISO 527 (1)	2800	MPa
Tensile (speed 1 mm/min), at 60°C	ISO 527 (1)	550	MPa
Tensile (speed 1 mm/min), at 90°C	ISO 527 (1)	350	MPa
Tensile (speed 1 mm/min), at 120°C	ISO 527 (1)	315	MPa
Tensile (speed 1 mm/min), at 150°C	ISO 527 (1)	300	MPa

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THERMAL PROPERTIES	STANDARD	VALUE	MEASURE UNITS
Coefficient of linear thermal expansion (CLTE)			
+30°C to +100°C (longitudinal)	ISO 11359-2	80	µm/(m·°C)
VICAT - Softening point			
49 N (heating rate 50°C/h)	ISO 306	200	°C
HDT - Heat Deflection Temperature			
0.45 MN/m²	ISO 75	140	°C
1.81 MN/m²	ISO 75	55	°C
C.U.T. - Continuous Use Temperature			
Long period (20,000h)	---	85	°C

FLAMMABILITY	STANDARD	VALUE	MEASURE UNITS
Oxygen Index	ASTM D 2863	23	%
Flammability rating			
3.00 mm thickness	UL 94	V-2	
1.50 mm thickness	UL 94	V-2	
0.75 mm thickness	UL 94	V-2	

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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 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 — At least 3 hours at 90 ÷ 100°C

These are the suggested conditions to reduce the moisture content to adequate levels. Temperature and drying time can be reduced by using vacuum ovens. Particularly wet material may need a longer drying time.

ACTUAL MELT TEMPERATURE — 230 ÷ 250°C

The injection moulding machine settings needed to obtain the suggested melt temperature will depend greatly on shot size and machine capacity, as well as other moulding 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.

MOULD TEMPERATURE — 70 ÷ 90°C

The mould 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 moulding 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. According to UL guideline, up to 25% of regrind is permitted, without affecting the ratings of the yellow card. However, LATI suggests that no more of 15% of regrind is used.

HOT RUNNER MOULDS

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.

EQUIPMENT WEAR

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 fibre filled ones). Appropriate equipment surface treatments are suggested in these cases, as well as a proper venting to avoid material overheating.

APPROVALS

USA (UL): Product versions approved according UL recommendations are available.
Please, check our site or contact LATI for details.

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.