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Zytel® 151L NC010

LONG CHAIN POLYAMIDE RESIN

Zytel® LCPA long chain polyamide resins provide an innovative and growing portfolio of flexible polymers with excellent thermal, chemical, and hydrolysis resistance. The diverse selection of Zytel® LCPA grades is targeted for a range of performance characteristics, balancing temperature resistance, flexibility and low permeation.

Zytel® 151L NC010 is a lubricated polyamide 612 resin.

Product information			
Resin Identification	PA612	ISO 1043	
Part Marking Code	>PA612<		ISO 11469
ISO designation		12,,M1G1NR,S10-020	
•			
Rheological properties	dry/cond.		
Viscosity number	95 ^[1] /*	cm³/g	ISO 307, 1628
Moulding shrinkage, parallel	1.3/-	%	ISO 294-4, 2577
Moulding shrinkage, normal	1.4/-	%	ISO 294-4, 2577
Mold Shrinkage, Flow, 3.2mm (0.125in)	1.1/*	%	
Mold Shrinkage, Transverse, 3.2mm (0.125in)	1.1/*	%	
[1]: sulphuric acid 96%			
Typical mechanical properties	dry/cond.		
Tensile modulus	2400/1700	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	62/54	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.5/18	%	ISO 527-1/-2
Nominal strain at break	17/>50	%	ISO 527-1/-2
Flexural modulus	2100/1440	MPa	ISO 178
Charpy impact strength, 23°C	N/N	kJ/m²	ISO 179/1eU
Charpy impact strength, -30 °C	N/40	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, 23°C	3.5/4	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	3.5/3	kJ/m²	ISO 179/1eA
Izod notched impact strength, 23°C	4/4.5	kJ/m²	ISO 180/1A
Izod notched impact strength, -30 °C	4.5/3.0	kJ/m²	ISO 180/1A
Hardness, Rockwell, R-scale	114/-		ISO 2039-2
Poisson's ratio	0.38/0.42		
Thermal properties	dry/cond.		
Melting temperature, 10°C/min	218/*	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	65/50	°C	ISO 11357-1/-3
Temperature of deflection under load, 1.8 MPa	62/*	°C	ISO 75-1/-2
Temperature of deflection under load, 0.45 MPa	135/*	°C	ISO 75-1/-2
Vicat softening temperature, 50°C/h 50N	181/*	°C	ISO 306
Coeff. of linear therm. expansion, parallel, -40-23°C	90/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion	110/*	E-6/K	ISO 11359-1/-2
(CLTE), parallel			
Coeff. of linear therm. expansion, parallel, 55-160°C	160/*	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	90/*	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE),	120/*	E-6/K	ISO 11359-1/-2
normal			

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Coeff. of linear therm. expansion, normal, 55-160°C Thermal conductivity of melt Specific heat capacity of melt RTI, electrical, 0.75mm RTI, electrical, 1.5mm RTI, electrical, 3.0mm RTI, impact, 0.75mm RTI, impact, 1.5mm RTI, impact, 1.5mm RTI, impact, 3.0mm RTI, strength, 0.75mm RTI, strength, 1.5mm RTI, strength, 3.0mm RTI, strength, 3.0mm	180/* 0.18 2750 105 105 105 65 65 65 65 65 65/* 65	E-6/K W/(m K) J/(kg K) °C °C °C °C °C °C °C	ISO 11359-1/-2 ISO 22007-2 ISO 22007-4 UL 746B
Flammability	dry/cond.		
Burning Behav. at 1.5mm nom. thickn. Thickness tested UL recognition Burning Behav. at thickness h Thickness tested UL recognition Oxygen index Glow Wire Flammability Index, 0.4mm Glow Wire Flammability Index, 0.75mm Glow Wire Flammability Index, 1.0mm Glow Wire Flammability Index, 1.5mm Glow Wire Flammability Index, 2.0mm Glow Wire Flammability Index, 3.0mm Glow Wire Flammability Index, 3.0mm Glow Wire Ignition Temperature, 0.75mm Glow Wire Ignition Temperature, 1.0mm Glow Wire Ignition Temperature, 1.5mm Glow Wire Ignition Temperature, 2.0mm Glow Wire Ignition Temperature, 2.0mm Glow Wire Ignition Temperature, 3.0mm	V-2/* 1.5/* yes/* V-2/* 0.85/* yes/* 27/* 960/- 960/- 960/- 960/- 960/- 725/- 725/- 725/- 725/- 725/-	class mm class mm % °C	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10 IEC 60695-11-10 UL 94 ISO 4589-1/-2 IEC 60695-2-12 IEC 60695-2-13
Glow Wire Temperature, No Flame, 0.75mm Glow Wire Temperature, No Flame, 1mm Glow Wire Temperature, No Flame, 1.5mm Glow Wire Temperature, No Flame, 2mm Glow Wire Temperature, No Flame, 3mm FMVSS Class Burning rate, Thickness 1 mm	700/- 700/- 700/- 700/- 700/- SE	°C °C °C °C °C	IEC 60335-1 IEC 60335-1 IEC 60335-1 IEC 60335-1 IEC 60335-1 IEC 60335-1 ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
Electrical properties Relative permittivity, 100Hz Relative permittivity, 1MHz Dissipation factor, 100Hz Dissipation factor, 1MHz Volume resistivity Surface resistivity Electric strength	dry/cond. 3.6/5.1 3.2/4 135/700 160/400 1E13/1E11 */1E12 30/30	E-4 E-4 Ohm.m Ohm kV/mm	IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-2-1 IEC 62631-3-1 IEC 62631-3-2 IEC 60243-1

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Comparative tracking index Electric Strength, Short Time, 2mm	600/- 21.9/21.2	kV/mm	IEC 60112 IEC 60243-1
Physical/Other properties	dry/cond.		
Humidity absorption, 2mm Water absorption, 2mm Water absorption, Immersion 24h Density Density of melt	1.3/* 3/* 0.4/* 1060/- 900	% % % kg/m³ kg/m³	Sim. to ISO 62 Sim. to ISO 62 Sim. to ISO 62 ISO 1183
Film Properties	dry/cond.		
Strain at yield, parallel	4.5/*	%	ISO 527-3
VDA Properties			
Emission of organic compounds Odour		μgC/g class	VDA 277 VDA 270
Injection			
Drying Recommended Drying Temperature Drying Time, Dehumidified Dryer	yes 80 2 - 4	°C h	
Processing Moisture Content Melt Temperature Optimum	≤0.15 260	°C	
Min. melt temperature Max. melt temperature	230 290	-	

65 °C

40 °C 95 °C

180 °C

Extrusion

Mold Temperature Optimum

Min. mould temperature

Max. mould temperature

Ejection temperature

Drying Temperature	75 - 80	°C
Drying Time, Dehumidified Dryer	3 - 4	h
Processing Moisture Content	≤0.06	%
Melt Temperature Optimum	240	°C
Melt Temperature Range	235 - 250	°C

Characteristics

Processing Injection Moulding, Other Extrusion

Delivery form Pellets

Additives Release agent

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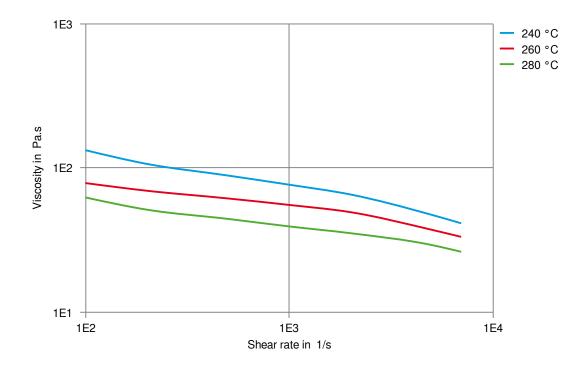
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Additional information

Other extrusion

Melt Viscosity @235°C, 1000s-1 = 70 Pa.s

Viscosity-shear rate



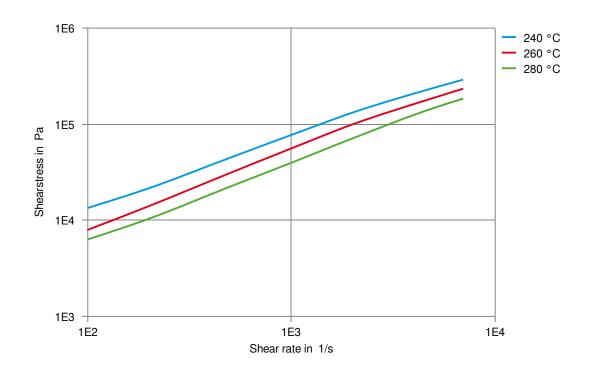
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Shearstress-shear rate



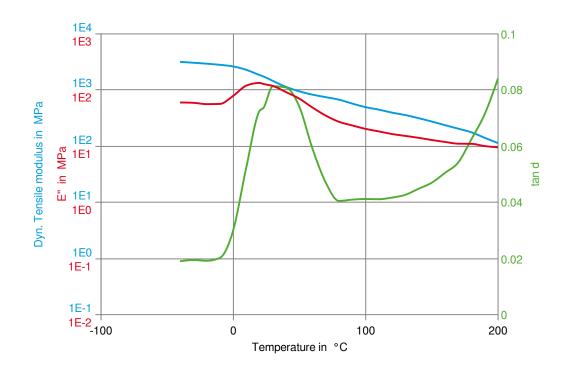
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Dynamic Tensile modulus-temperature (dry)



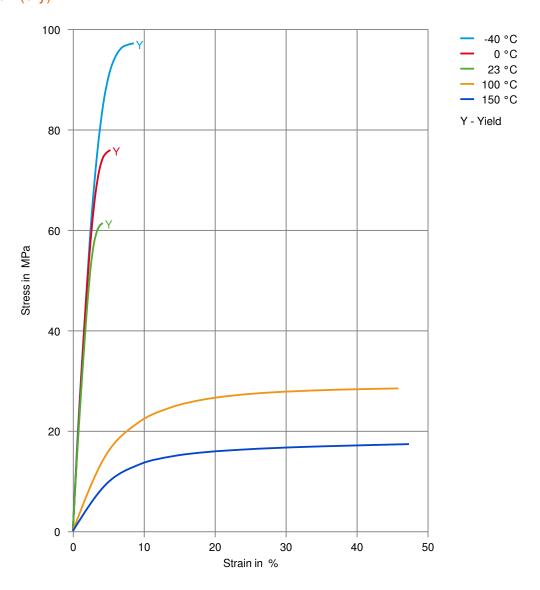
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Stress-strain (dry)



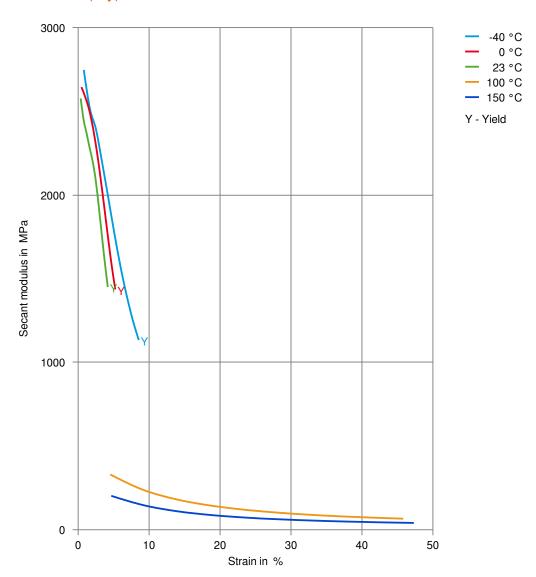
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Secant modulus-strain (dry)



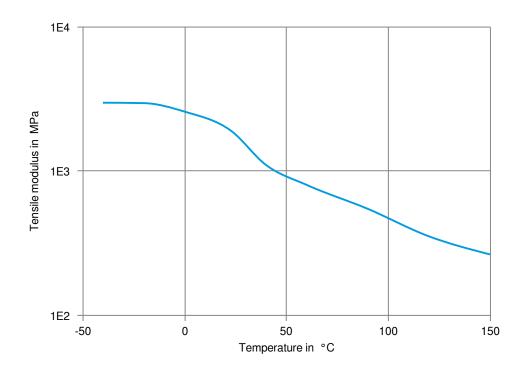
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Tensile modulus-temperature (cond.)



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Chemical Media Resistance

Other

- ✓ Water, 23°C
- X Water, 90°C

Symbols used:

✓ possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

x not recommended - see explanation

Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

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