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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	ISO 16396-PA612,,M1G1NR,S10-020		
Ü		,,	
Rheological properties	dry/cond.		
Viscosity number	95 ^[1] /*	cm ³ /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/m²	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), normal	120/*	E-6/K	ISO 11359-1/-2

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105 105 65 65 65 65 65/* 65	°C °C °C °C °C °C °C	UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B UL 746B
dry/cond.		
V-2/* 1.5/* yes/*	class mm	IEC 60695-11-10 IEC 60695-11-10 UL 94 IEC 60695-11-10
0.85/* yes/*	mm	IEC 60695-11-10 UL 94
960/-	°C	ISO 4589-1/-2 IEC 60695-2-12 IEC 60695-2-12
960/- 960/-	°C	IEC 60695-2-12 IEC 60695-2-12
960/-	°C	IEC 60695-2-12 IEC 60695-2-12 IEC 60695-2-13
725/- 725/-	°C °C	IEC 60695-2-12 IEC 60695-2-13
725/-	°C	IEC 60695-2-13 IEC 60695-2-13 IEC 60695-2-13
700/- 700/-	°C °C	IEC 60335-1 IEC 60335-1
700/- 700/-	°C °C	IEC 60335-1 IEC 60335-1 IEC 60335-1
SE	mm/min	ISO 3795 (FMVSS 302) ISO 3795 (FMVSS 302)
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
	105 65 65 65 65 65 65/* 65 65/* 65 dry/cond. V-2/* 1.5/* yes/* V-2/* 0.85/* yes/* 27/* 960/- 960/- 960/- 960/- 960/- 725/- 725/- 725/- 725/- 725/- 725/- 725/- 700/- 700/- 5E dry/cond. 3.6/5.1 3.2/4 135/700 160/400 1E13/1E11 */1E12	105 °C 105 °C 65 °C 60 °- °C 60 °

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Comparative tracking index	600/-		IEC 60112
Electric Strength, Short Time, 2mm	21.9/21.2	kV/mm	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	yes 80		

Brying riccommended	, 00	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.15	%
Melt Temperature Optimum	260	°C
Min. melt temperature	230	°C
Max. melt temperature	290	°C
Mold Temperature Optimum	65	°C
Min. mould temperature	40	°C
Max mould temperature	95	°C

Max. mould temperature 95 °C Ejection temperature 180 °C

Extrusion

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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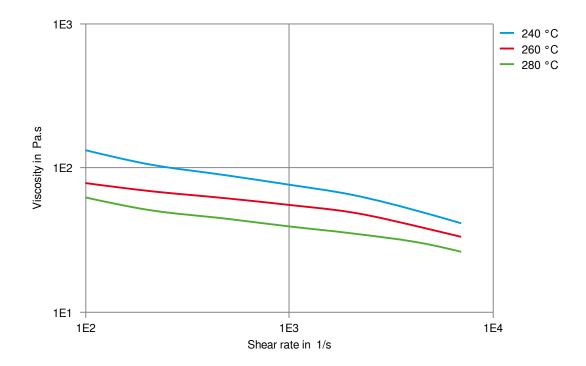
Additional information

Other extrusion

Melt Viscosity

@235 °C, 1000s-1 = 70 Pa.s

Viscosity-shear rate

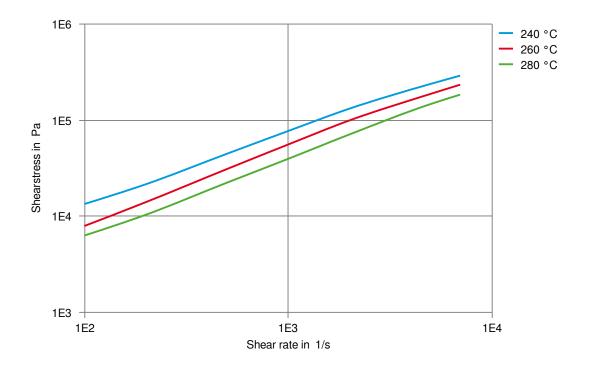


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Shearstress-shear rate

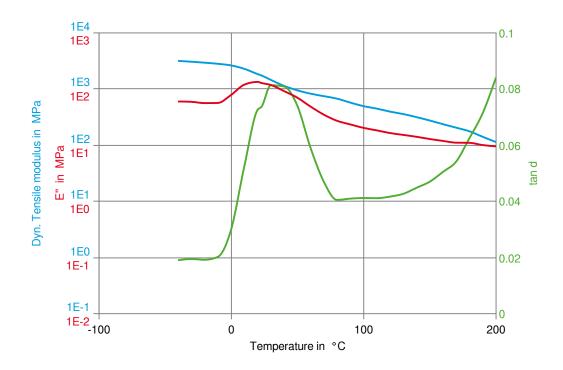


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Dynamic Tensile modulus-temperature (dry)

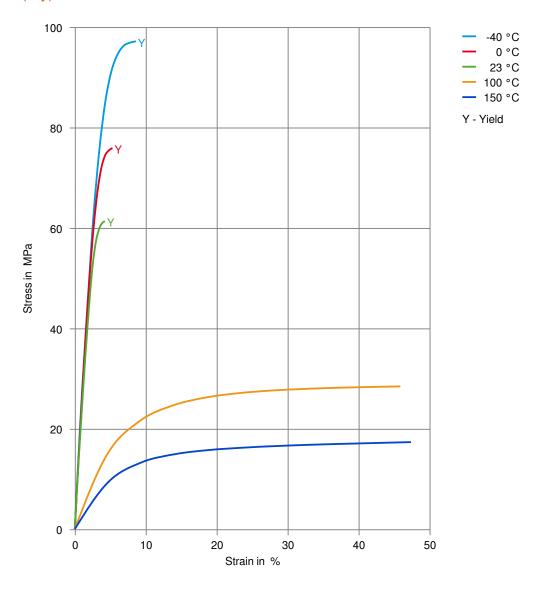


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Stress-strain (dry)

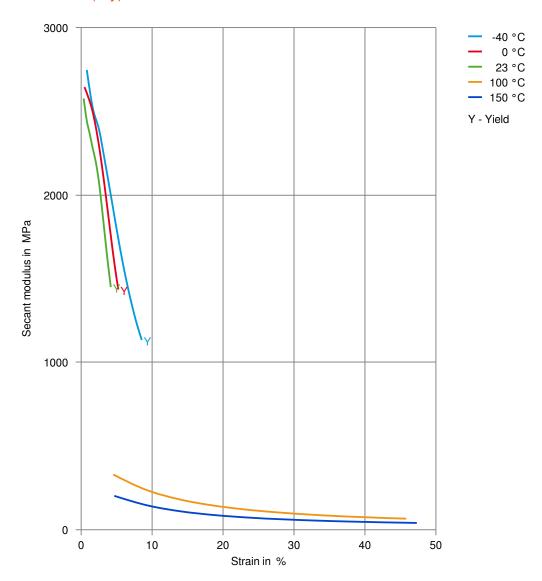


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Secant modulus-strain (dry)

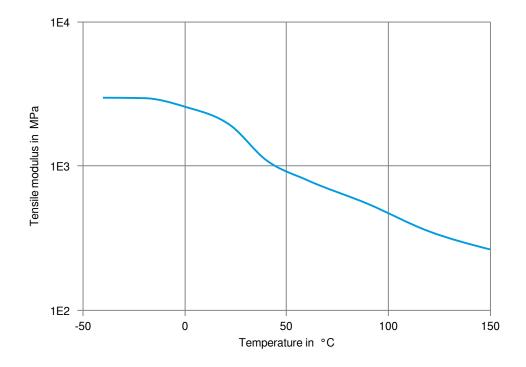


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Tensile modulus-temperature (cond.)



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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).

★ 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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