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Zytel® 158L 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® 158L NC010 is an intermediate viscosity, lubricated polyamide 612 resin that is suitable for molding and extrusion applications.

Product information

Resin Identification	PA612	ISO 1043
Part Marking Code	>PA612<	ISO 11469
ISO designation	ISO 16396-PA612,,M1G1NR,S12-020	

Rheological properties

	dry/cond.		
Viscosity number	120 / *	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 / *	%	

Typical mechanical properties

	dry/cond.		
Tensile modulus	2400 / 1500	MPa	ISO 527-1/-2
Tensile stress at yield, 50mm/min	62 / 52	MPa	ISO 527-1/-2
Tensile strain at yield, 50mm/min	4.5 / 19	%	ISO 527-1/-2
Nominal strain at break	35 / >50	%	ISO 527-1/-2
Flexural modulus	2050 / 1450	MPa	ISO 178
Charpy impact strength, 23°C	N / N	kJ/m^2	ISO 179/1eU
Charpy impact strength, -30°C	N / -	kJ/m^2	ISO 179/1eU
Charpy notched impact strength, 23°C	4 / 6	kJ/m^2	ISO 179/1eA
Charpy notched impact strength, -30°C	5 / 4	kJ/m^2	ISO 179/1eA
Izod notched impact strength, 23°C	4 / 6	kJ/m^2	ISO 180/1A
Izod notched impact strength, -30°C	5.0 / 4.0	kJ/m^2	ISO 180/1A
Poisson's ratio	0.38 / 0.43		

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	218 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	60 / 45	°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
Coeff. of linear therm. expansion, parallel, -40-23°C	90 / *	E-6/K	ISO 11359-1/-2
Coefficient of linear thermal expansion (CLTE), parallel	120 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	170 / *	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
Coeff. of linear therm. expansion, normal, 55-160°C	180 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.19	W/(m K)	ISO 22007-2

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Zytel® 158L NC010

LONG CHAIN POLYAMIDE RESIN

Specific heat capacity of melt	2800	J/(kg K)	ISO 22007-4
RTI, electrical, 0.75mm	105	°C	UL 746B
RTI, electrical, 1.5mm	105	°C	UL 746B
RTI, electrical, 3.0mm	105	°C	UL 746B
RTI, impact, 0.75mm	65	°C	UL 746B
RTI, impact, 1.5mm	65	°C	UL 746B
RTI, impact, 3.0mm	65	°C	UL 746B
RTI, strength, 0.75mm	65	°C	UL 746B
RTI, strength, 1.5mm	65 / *	°C	UL 746B
RTI, strength, 3.0mm	65	°C	UL 746B

Flammability

	dry/cond.		
Burning Behav. at 1.5mm nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	1.5 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.86 / *	mm	IEC 60695-11-10
UL recognition	yes / *		UL 94
Oxygen index	25 / *	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Relative permittivity, 100Hz	3.6 / -		IEC 62631-2-1
Relative permittivity, 1MHz	3.2 / -		IEC 62631-2-1
Dissipation factor, 100Hz	140 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	160 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / 1E13	Ohm.m	IEC 62631-3-1
Surface resistivity	* / >1E15	Ohm	IEC 62631-3-2
Electric strength	36 / 36	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112
Comparative tracking index, 23 °C	0 / -	PLC	UL 746A

Physical/Other properties

	dry/cond.		
Humidity absorption, 2mm	1.3 / *	%	Sim. to ISO 62
Water absorption, 2mm	3 / *	%	Sim. to ISO 62
Density	1060 / -	kg/m³	ISO 1183
Density of melt	900	kg/m³	

Injection

Drying Recommended	yes	
Drying Temperature	80	°C
Drying Time, Dehumidified Dryer	2 - 4	h
Processing Moisture Content	≤0.15	%
Melt Temperature Optimum	250	°C
Min. melt temperature	230	°C
Max. melt temperature	290	°C
Mold Temperature Optimum	70	°C

Zytel® 158L NC010

LONG CHAIN POLYAMIDE RESIN

Min. mould temperature	50	°C
Max. mould temperature	90	°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, Film Extrusion, Extrusion, Sheet Extrusion, Other Extrusion, Coatable, Casting
Delivery form	Pellets
Additives	Release agent

Zytel® 158L NC010

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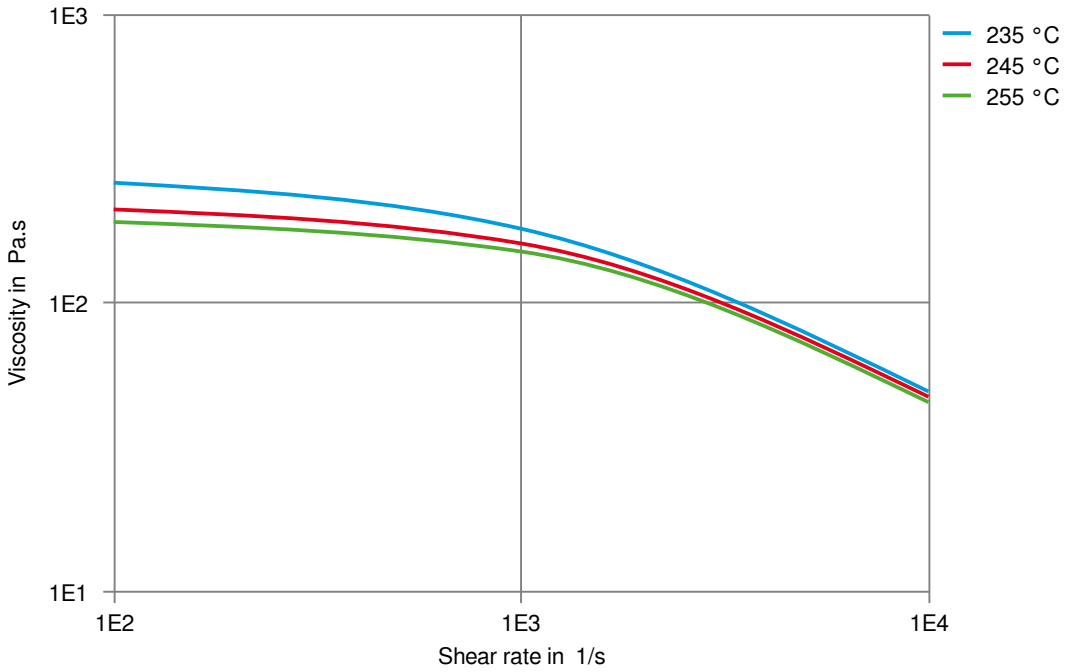
Viscosity-shear rate



Zytel® 158L NC010

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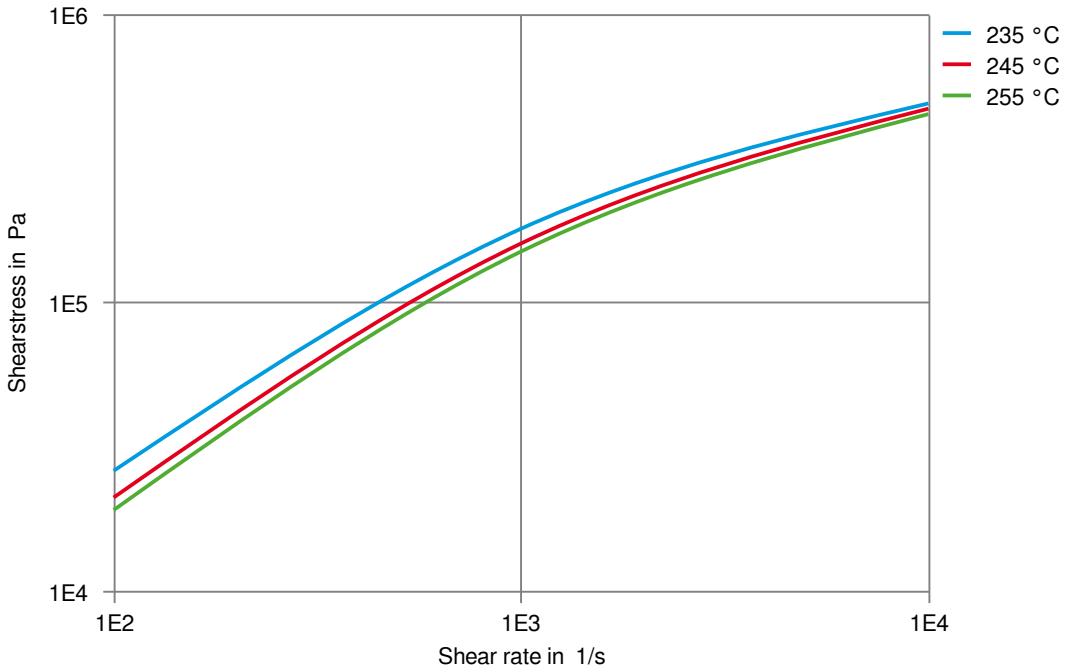
Shearstress-shear rate



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