

DuPont™ Zytel® 77G33L BK031

NYLON RESIN

Product Information

DuPont™ 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® 77G33L BK031 is a 33% glass fiber reinforced, black polyamide 612 resin for injection molding.

General information	Value	Unit	Test Standard
Resin Identification	PA612-GF33	-	ISO 1043
Part Marking Code	PA612-GF33	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Viscosity number	83 ⁽¹⁾ / *	cm ³ /g	ISO 307, 1157, 1628
Molding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	0.9 / -	%	ISO 294-4, 2577
Mold Shrinkage, Flow, 3.2mm (0.125in)	0.2 / *	%	-
Mold Shrinkage, Transverse, 3.2mm (0.125in)	1 / *	%	-
1: sulphuric acid 96%			
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	9500 / 7900	MPa	ISO 527-1/-2
Stress at break	170 / 140	MPa	ISO 527-1/-2
Strain at break	3 / 3.2	%	ISO 527-1/-2
Charpy notched impact strength			ISO 179/1eA
73 °F	13 / -	kJ/m ²	
-40 °F	12 / -	kJ/m ²	
Izod notched impact strength			ISO 180/1A
73 °F	13 / -	kJ/m ²	
-40 °F	11 / -	kJ/m ²	
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18 °F/min	218 / *	°C	ISO 11357-1/-3
Glass transition temperature, 18 °F/min	65 / 55	°C	ISO 11357-1/-2
Temp. of deflection under load, 260 psi	200 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion			ISO 11359-1/-2
normal	110 / *	E-6/K	
Normal, -40-23 °C	83 / *	E-6/K	
Normal, 55-160 °C	160 / *	E-6/K	
Parallel, -40-23 °C	26 / *	E-6/K	
Parallel, 55-160 °C	14 / *	E-6/K	
RTI, electrical			UL 746B
30mil	105 / *	°C	
60mil	120 / *	°C	
120mil	120	°C	
RTI, strength			UL 746B
60mil	120 / *	°C	
120mil	120	°C	
Flammability	dry / cond	Unit	Test Standard
Burning Behav. at 60mil 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	0.71 / *	mm	IEC 60695-11-10
UL recognition	yes / *	-	UL 94

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

North America

Asia Pacific

Europe/Middle East/Africa

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Glow Wire Flammability Index				IEC 60695-2-12
30mil	675 / -	°C		
60mil	675 / -	°C		
120mil	700 / -	°C		
Glow Wire Ignition Temperature				IEC 60695-2-13
30mil	700 / -	°C		
60mil	700 / -	°C		
120mil	725 / -	°C		
FMVSS Class	B	-		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	23	mm/min		ISO 3795 (FMVSS 302)
Electrical properties	dry / cond	Unit		Test Standard
Comparative tracking index	600 / -	-		IEC 60112
Other properties	dry / cond	Unit		Test Standard
Humidity absorption, 80mil	0.7 / *	%		Sim. to ISO 62
Density	1320 / -	kg/m ³		ISO 1183
VDA Properties	dry / cond	Unit		Test Standard
Fogging, G-value (condensate)	0.1 / *	mg		ISO 6452
Injection	dry / cond	Unit		Test Standard
Drying Recommended	yes	-		-
Drying Temperature	≥80	°C		-
Drying Time, Dehumidified Dryer	2 - 4	h		-
Processing Moisture Content	≤0.2	%		-
Melt Temperature Optimum	290	°C		-
Min. melt temperature	280	°C		-
Max. melt temperature	300	°C		-
Max. screw tangential speed	0.2 / *	m/s		-
Mold Temperature Optimum	100	°C		-
Min. mold temperature	70	°C		-
Max. mold temperature	120	°C		-
Hold pressure range	50 - 100	MPa		-
Hold pressure time	3	s/mm		-
Ejection temperature	210	°C		-

Characteristics

Processing	• Injection Molding		
Regional Availability	• North America	• Asia Pacific	• Near East/Africa
	• Europe	• South and Central America	• Global

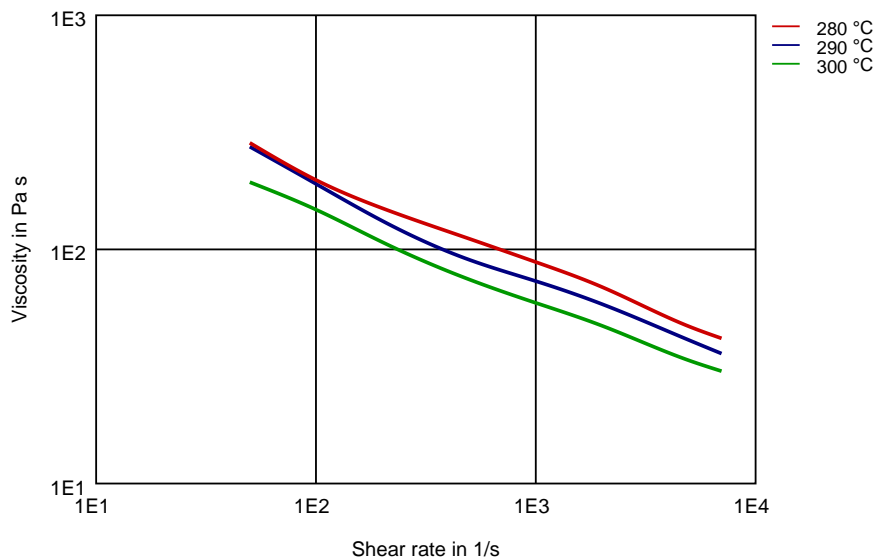


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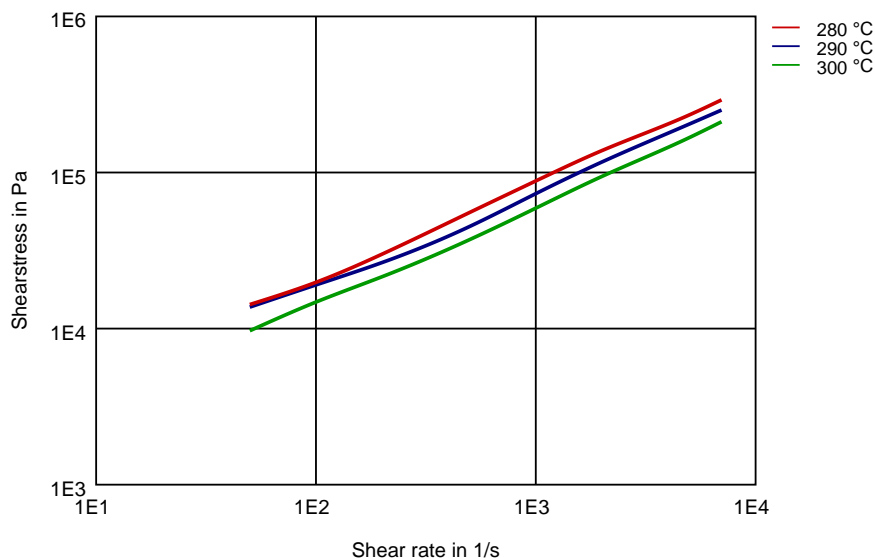
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Diagrams

Viscosity-shear rate



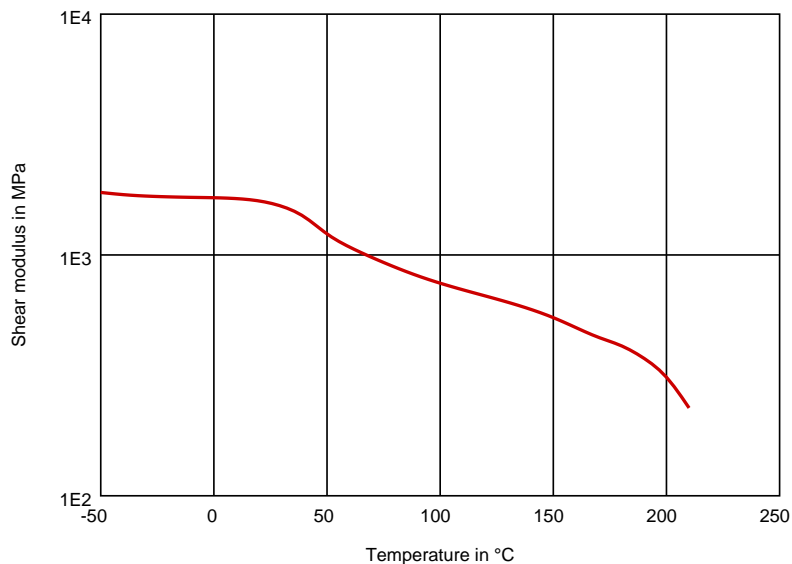
Shearstress-shear rate



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Dynamic Shear modulus-temperature (dry)



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North America

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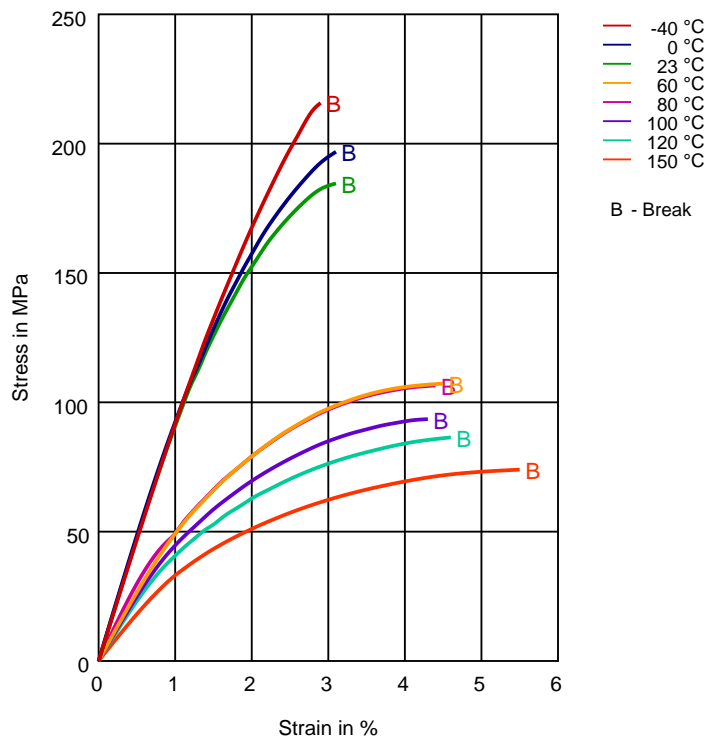
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Stress-strain (dry)



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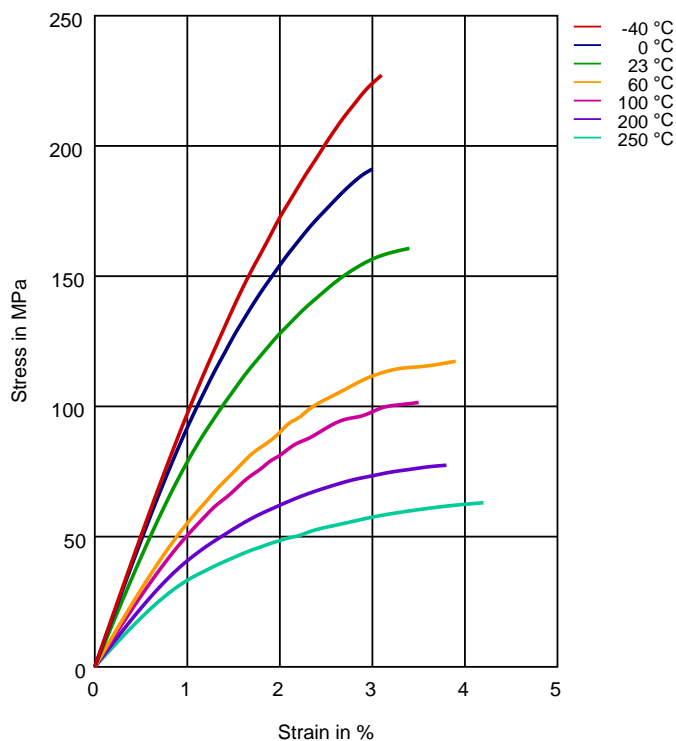
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Stress-strain (cond.)



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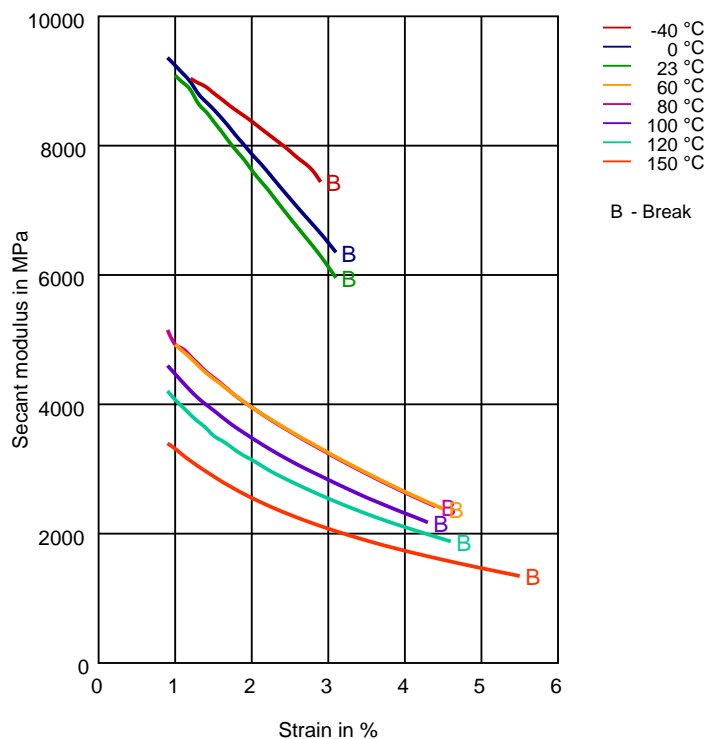
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Secant modulus-strain (dry)



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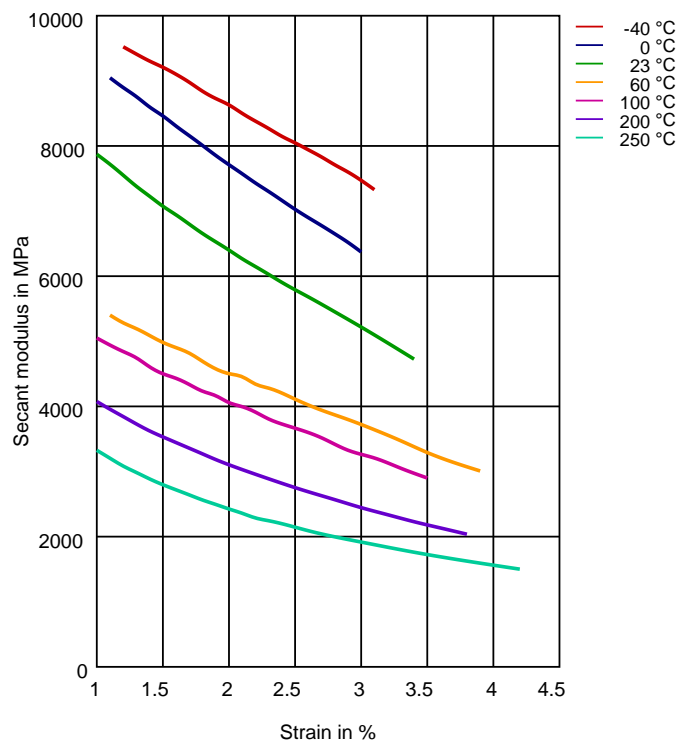
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Secant modulus-strain (cond.)



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Chemical Media Resistance

Other

- ✓ Water (23°C)
- ✓ 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).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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