

DuPont™ Zytel® 70G33HSL BK083

NYLON RESIN

Product Information

Zytel® 70G33HSL BK083 is a 33% Glass Reinforced, Heat Stabilized, Polyamide 66

Product information	Value	Unit	Test Standard
Resin Identification	PA66-GF33	-	ISO 1043
Part Marking Code	PA66-GF33	-	ISO 11469
Rheological properties	dry / cond	Unit	Test Standard
Molding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Molding shrinkage, normal	1.1 / -	%	ISO 294-4, 2577
Mechanical properties	dry / cond	Unit	Test Standard
Tensile Modulus	1.6E6 / 1.09E6	psi	ISO 527-1/-2
Stress at break	29000 / 18900	psi	ISO 527-1/-2
Strain at break	3.5 / 5	%	ISO 527-1/-2
Tensile creep modulus			ISO 899-1
1h	* / 1.16E6	psi	
1000h	* / 798000	psi	
Charpy impact strength			ISO 179/1eU
73°F	42.8 / -	ftlb/in ²	
-22°F	42.8 / 38.1	ftlb/in ²	
Charpy notched impact strength, -22°F	5.71 / 5.71	ftlb/in ²	ISO 179/1eA
Thermal properties	dry / cond	Unit	Test Standard
Melting temperature, 18°F/min	505 / *	°F	ISO 11357-1/-3
Glass transition temperature, 18°F/min	176 / -	°F	ISO 11357-1/-2
Temp. of deflection under load			ISO 75-1/-2
260 psi	482 / *	°F	
65 psi	500 / *	°F	
Thermal conductivity of melt	0.22	W/(m K)	-
Spec. heat capacity solid	1330	J/(kg K)	-
Spec. heat capacity of melt	2210	J/(kg K)	-
RTI, electrical			UL 746B
30mil	221	°F	
60mil	221	°F	
120mil	266	°F	
RTI, impact			UL 746B
30mil	203	°F	
60mil	221	°F	
120mil	221	°F	
RTI, strength			UL 746B
30mil	239	°F	
60mil	257 / *	°F	
120mil	266	°F	
Flammability	dry / cond	Unit	Test Standard
Burning Behav. at 60mil nom. thickn.	HB / *	class	IEC 60695-11-10
Thickness tested	0.0591 / *	in	IEC 60695-11-10
UL recognition	yes / *	-	UL 94
Burning Behav. at thickness h	HB / *	class	IEC 60695-11-10
Thickness tested	0.0276 / *	in	IEC 60695-11-10
UL recognition	yes / *	-	UL 94
Oxygen index	24 / *	%	ISO 4589-1/-2
FMVSS Class	B	-	ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	<80	in/min	ISO 3795 (FMVSS 302)
Electrical properties	dry / cond	Unit	Test Standard
Volume resistivity	>1E13 / 1E10	Ohm*m	IEC 62631-3-1
Comparative tracking index	600 / -	-	IEC 60112

Revised: 2019-03-22

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Other properties	dry / cond	Unit	Test Standard
Humidity absorption, 80mil	1.8 / *	%	Sim. to ISO 62
Water absorption, 80mil	5.7 / *	%	Sim. to ISO 62
Density	1.39 / -	g/cm ³	ISO 1183
Injection	dry / cond	Unit	Test Standard
Drying Recommended	yes		-
Drying Temperature	≥176	°F	-
Drying Time, Dehumidified Dryer	2 - 4	h	-
Processing Moisture Content	≤0.2	%	-
Melt Temperature Optimum	563	°F	-
Min. melt temperature	545	°F	-
Max. melt temperature	581	°F	-
Max. screw tangential speed	0.2 / *	m/s	-
Mold Temperature Optimum	212	°F	-
Min. mold temperature	158	°F	-
Max. mold temperature	248	°F	-
Hold pressure range	7250 - 14500	psi	-
Hold pressure time	0.0762	s/mil	-
Ejection temperature	410	°F	-

Characteristics	
Processing	• Injection Molding
Delivery form	• Pellets
Additives	• Lubricants • Release agent
Special characteristics	• Heat stabilized or stable to heat
Regional Availability	• North America • South and Central America

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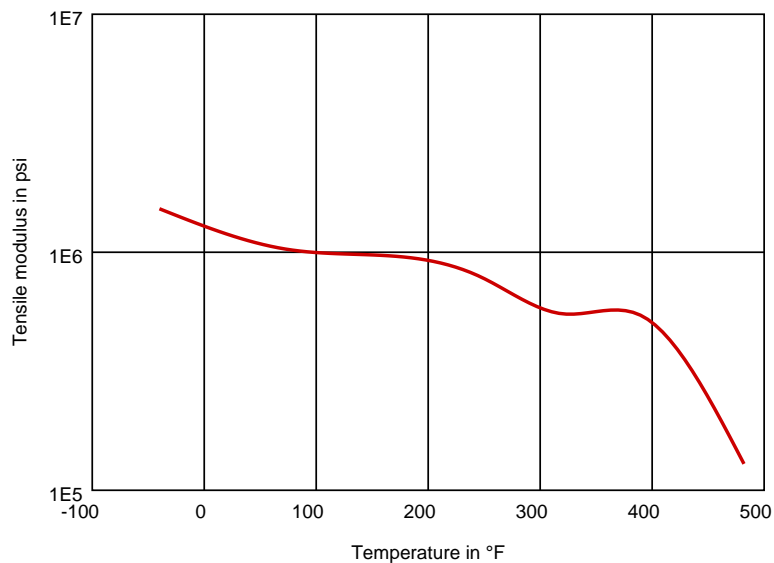


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Diagrams

Tensile modulus-temperature (cond.)



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Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass) (23 °C)
- ✓ Citric Acid solution (10% by mass) (23 °C)
- ✓ Lactic Acid (10% by mass) (23 °C)
- ✗ Hydrochloric Acid (36% by mass) (23 °C)
- ✗ Nitric Acid (40% by mass) (23 °C)
- ✗ Sulfuric Acid (38% by mass) (23 °C)
- ✗ Sulfuric Acid (5% by mass) (23 °C)
- ✗ Chromic Acid solution (40% by mass) (23 °C)

Bases

- ✗ Sodium Hydroxide solution (35% by mass) (23 °C)
- ✓ Sodium Hydroxide solution (1% by mass) (23 °C)
- ✓ Ammonium Hydroxide solution (10% by mass) (23 °C)

Alcohols

- ✓ Isopropyl alcohol (23 °C)
- ✓ Methanol (23 °C)
- ✓ Ethanol (23 °C)

Hydrocarbons

- ✓ n-Hexane (23 °C)
- ✓ Toluene (23 °C)
- ✓ iso-Octane (23 °C)

Ketones

- ✓ Acetone (23 °C)

Ethers

- ✓ Diethyl ether (23 °C)

Mineral oils

- ✓ SAE 10W40 multigrade motor oil (23 °C)
- ✓ SAE 10W40 multigrade motor oil (130 °C)
- ✓ SAE 80/90 hypoid-gear oil (130 °C)
- ✓ Insulating Oil (23 °C)

Standard Fuels

- ✓ ISO 1817 Liquid 1 - E5 (60 °C)
- ✓ ISO 1817 Liquid 2 - M15E4 (60 °C)
- ✓ ISO 1817 Liquid 3 - M3E7 (60 °C)
- ✓ ISO 1817 Liquid 4 - M15 (60 °C)
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23 °C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23 °C)

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- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (23°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (90°C)
- ✓ Diesel fuel (pref. ISO 1817 Liquid F) (>90°C)

Salt solutions

- ✓ Sodium Chloride solution (10% by mass) (23°C)
- ✗ Sodium Hypochlorite solution (10% by mass) (23°C)
- ✓ Sodium Carbonate solution (20% by mass) (23°C)
- ✓ Sodium Carbonate solution (2% by mass) (23°C)
- ✗ Zinc Chloride solution (50% by mass) (23°C)

Other

- ✓ Ethyl Acetate (23°C)
- ✗ Hydrogen peroxide (23°C)
- ✓ DOT No. 4 Brake fluid (130°C)
- ✓ Ethylene Glycol (50% by mass) in water (108°C)
- ✓ 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C)
- ✓ 50% Oleic acid + 50% Olive Oil (23°C)
- ✓ Water (23°C)
- ✓ Water (90°C)
- ✗ Phenol solution (5% by mass) (23°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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