DuPont™ Zytel®

nylon resin

Zytel® 70G33L NC010

Glass Reinforced Nylon Resin

Zytel® 70G33L NC010 is a 33% glass reinforced general purpose PA 66 resin.

Property	Test Method	Units	Value	
			DAM	50%RH
Identification				
Resin Identification	ISO 1043-1/-2/-3/-4		PA66-GF33	
Part Marking Code	ISO 11469		>PA66-GF33<	
Mechanical				
Stress at Break	ISO 527-1/-2	MPa (kpsi)	200 (29.0)	140 (20.3)
Tensile Strength	ASTM D 638	MPa (kpsi)		
-40°C (-40°F)			214 (31.0)	207 (30.0)
23°C (73°F)			186 (27.0)	124 (18.0)
77°C (170°F)			110 (16.0)	86 (12.5)
Strain at Break	ISO 527-1/-2	%	3.5	5
Elongation at Break	ASTM D 638	%	3	4
Tensile Modulus	ISO 527-1/-2	MPa (kpsi)	10500 (1520)	8000 (1160)
Shear Strength	ASTM D 732	MPa (kpsi)	86 (12.5)	
Poisson's Ratio			0.39	
Flexural Modulus	ASTM D 790	MPa (kpsi)	8965 (1300)	6205 (900)
Flexural Modulus	ISO 178	MPa (kpsi)	9100 (1320)	6205 (900)
Flexural Strength	ASTM D 790	MPa (kpsi)	262 (38.0)	
Deformation Under Load	ASTM D 621	%		
50°C (122°F), 13.8MPa (2000psi)			0.8	

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.
ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.
Test temperatures are 23°C unless otherwise stated.

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Property	Test Method	Units	Value	
			DAM	50%RH
Mechanical				
Notched Izod Impact Strength	ISO 180/1A	kJ/m^2		
-40°C (-40°F)			9	10
-30°C (-22°F)			10	10
23°C (73°F)			11	15
Izod Impact	ASTM D 256	J/m (ft lb/in)	117 (2.2)	133 (2.5)
Unnotched Izod Impact Strength	ISO 180/1U	kJ/m^2		
-30°C (-22°F)			85	70
23°C (73°F)			95	90
Unnotched Impact	ASTM D 4812	J/m (ft lb/in)	1330 (24.9)	1490 (27.9)
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m^2		
-40°C (-40°F)			9	10
-30°C (-22°F)			10	10
23°C (73°F)			12	17
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m^2		
-30°C (-22°F)			70	75
23°C (73°F)			85	100
Thermal				
Deflection Temperature	ISO 75-1/-2	°C (°F)		
0.45MPa			261 (502)	
1.80MPa			249 (480)	
Heat Deflection Temperature	ASTM D 648	°C (°F)		
0.45MPa (66psi)			261 (502)	
1.8MPa (264psi)			249 (480)	
Melting Temperature	ISO 11357-1/-3	°C (°F)		
10°C/min			263 (505)	
Melting Point	ASTM D 3418	°C (°F)	263 (505)	

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Thermal				
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)		
-40 - 23°C (-40 - 73°F)			0.65 (0.36)	
23 - 55°C (73 - 130°F)			0.83 (0.46)	
55 - 160°C (130 - 320°F)			1.37 (0.76)	
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)		
-40 - 23°C (-40 - 73°F)			0.24 (0.13)	
23 - 55°C (73 - 130°F)			0.18 (0.10)	
55 - 160°C (130 - 320°F)			0.13 (0.07)	
Electrical				
Relative Permittivity	IEC 60250			
1E2 Hz			4.2	
1E6 Hz			4.0	
Volume Resistivity	ASTM D 257	ohm cm	1E15	
Volume Resistivity	IEC 60093	ohm m	1E13	
Dielectric Strength, Short Time	ASTM D 149	kV/mm (V/mil)		
3.2mm (0.126in)			20.9 (530)	
Dielectric Strength, Step by Step	ASTM D 149	kV/mm (V/mil)	17.3 (440)	
Dielectric Constant	ASTM D 150			
1E3 Hz			4.5	
1E6 Hz			3.7	
Dissipation Factor	ASTM D 150			
1E3 Hz			0.02	
1E6 Hz			0.02	
Dissipation Factor	IEC 60250	E-4		
1E2 Hz			100	
1E6 Hz			150	

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Property	Test Method	Units	Value	
			DAM	50%RH
Electrical				
Arc Resistance	ASTM D 495	s	135	
CTI	UL 746A	V		
3.0mm			600	
Flammability				
Flammability Classification	UL94			
0.71mm			HB	
Oxygen Index	ISO 4589-1/-2	%	24	
High Amperage Arc Ignition Resistance	UL 746A	arcs		
0.75mm			>200	
High Voltage Arc Tracking Rate	UL 746A	mm/min (in/min)	32.2 (1.27)	
Hot Wire Ignition	UL 746A	s		
0.71mm			8	
1.5mm			6	
3.0mm			9	
Temperature Index				
RTI, Electrical	UL 746B	°C		
0.71mm			130	
RTI, Impact	UL 746B	°C		
0.71mm			120	
RTI, Strength	UL 746B	°C		
0.71mm			130	
Other				
Specific Gravity	ASTM D 792		1.38	
Density	ISO 1183	kg/m^3 (g/cm^3)	1390 (1.39)	
Hardness, Rockwell	ASTM D 785			
Scale M			101	

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			DAM	50%RH
Other				
Taber Abrasion	ASTM D 1044	mg		
CS-17 Wheel, 1kg, 1000 cycles				14
Water Absorption	ASTM D 570	%		
Immersion 24h			0.7	
Saturation			5.4	
Water Absorption	ISO 62, Similar to	%		
Equilibrium 50%RH, 2.0mm			1.8	
Immersion 24h, 2.0mm			1.2	
Saturation, immersed			5.7	
Molding Shrinkage	ISO 294-4	%		
Normal, 2.0mm			1.1	
Parallel, 2.0mm			0.3	
Mold Shrinkage		%		
Flow, 1.6mm (0.063in)			0.2	
Flow, 3.2mm (0.126in)			0.3	
Flow, 6.4mm (0.25in)			0.5	
Transverse, 1.6mm (0.063in)			1.0	
Transverse, 3.2mm (0.126in)			1.0	
Transverse, 6.4mm (0.25in)			1.1	
Processing				
Melt Temperature Range		°C (°F)	285-305 (545-580)	
Melt Temperature Optimum		°C (°F)	295 (565)	
Mold Temperature Range		°C (°F)	70-120 (160-250)	
Mold Temperature Optimum		°C (°F)	100 (210)	
Drying Time, Dehumidified Dryer		h	2-4	
Drying Temperature		°C (°F)	80 (175)	
Processing Moisture Content		%	<0.20	

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