DuPont™ Zytel®

nylon resin

Zytel® 70G13L NC010

Glass Reinforced Nylon Resin

Zytel® 70G13L NC010 is a 13% 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-GF13	
Part Marking Code	ISO 11469		>PA66-GF13<	
Mechanical				
Stress at Break	ISO 527-1/-2	MPa (kpsi)	120 (17.4)	75 (10.9)
Tensile Strength	ASTM D 638	MPa (kpsi)	121 (17.5)	83 (12.0)
Strain at Break	ISO 527-1/-2	%	3	13
Elongation at Break	ASTM D 638	%	3	8
Tensile Modulus	ISO 527-1/-2	MPa (kpsi)	5500 (798)	3500 (508)
Shear Strength	ASTM D 732	MPa (kpsi)	76 (11)	
Flexural Modulus	ASTM D 790	MPa (kpsi)	4830 (700)	2760 (400)
Flexural Modulus	ISO 178	MPa (kpsi)	4800 (696)	2900 (420)
Flexural Strength	ASTM D 790	MPa (kpsi)	165 (24.0)	
Deformation Under Load	ASTM D 621	%		
50°C (122°F), 27.6MPa (4000psi)			1.1	
Notched Izod Impact Strength	ISO 180/1A	kJ/m^2		
-40°C (-40°F)			4	3
-30°C (-22°F)			4	3
23°C (73°F)			4.5	4

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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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Mechanical				
Izod Impact	ASTM D 256	J/m (ft lb/in)	48 (0.9)	53 (1.0)
Unnotched Izod Impact Strength	ISO 180/1U	kJ/m^2		
-30°C (-22°F)			35	28
23°C (73°F)			40	55
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m^2		
-40°C (-40°F)			4	4
-30°C (-22°F)			4	4
23°C (73°F)			4.5	6
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m^2		
-30°C (-22°F)			30	30
23°C (73°F)			32	70
Thermal				
Deflection Temperature	ISO 75-1/-2	°C (°F)		
0.45MPa			258 (496)	
1.80MPa			235 (455)	
Heat Deflection Temperature	ASTM D 648	°C (°F)		
1.8MPa (264psi)			243 (470)	
Melting Temperature	ISO 11357-1/-3	°C (°F)		
10°C/min			263 (505)	
Melting Point	ASTM D 3418	°C (°F)	263 (505)	
CLTE, Normal	ISO 11359-1/-2	E-4/C (E-4/F)		
-40 - 23°C (-40 - 73°F)			0.77 (0.43)	
23 - 55°C (73 - 130°F)			0.96 (0.53)	
55 - 160°C (130 - 320°F)			1.58 (0.88)	
CLTE, Parallel	ISO 11359-1/-2	E-4/C (E-4/F)		
-40 - 23°C (-40 - 73°F)			0.42 (0.23)	
23 - 55°C (73 - 130°F)			0.40 (0.22)	
55 - 160°C (130 - 320°F)			0.27 (0.15)	

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Electrical				
Relative Permittivity	IEC 60250			
1E2 Hz			3.9	
1E6 Hz			3.2	
Volume Resistivity	IEC 60093	ohm m	1E14	
Dissipation Factor	IEC 60250	E-4		
1E2 Hz			130	
1E6 Hz			150	
Electric Strength	IEC 60243-1	kV/mm (V/mil)		
2.0mm			25 (635)	
Arc Resistance	ASTM D 495	s	135	
CTI	IEC 60112	V	>600	
CTI	UL 746A	V	>600	
Flammability				
Flammability Classification	UL94			
0.71mm			HB	
Oxygen Index	ISO 4589-1/-2	%	24	
Glow Wire Flammability Index	IEC 60695-2-12	°C		
0.75mm			650	
1.5mm			650	
3.0mm			800	
Glow Wire Ignition Temperature	IEC 60695-2-13	°C		
0.75mm			675	
High Amperage Arc Ignition Resistance	UL 746A	arcs		
0.71mm			>200	
High Voltage Arc Tracking Rate	UL 746A	mm/min (in/min)	32.2 (1.27)	

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Property	Test Method	Units	Value	
			DAM	50%RH
Flammability				
Hot Wire Ignition	UL 746A	s		
0.71mm			12	
1.5mm			7	
3.0mm			8	
Temperature Index				
RTI, Electrical	UL 746B	°C		
0.71mm			125	
RTI, Impact	UL 746B	°C		
0.71mm			120	
RTI, Strength	UL 746B	°C		
0.71mm			125	
Other				
Specific Gravity	ASTM D 792		1.22	
Density	ISO 1183	kg/m^3 (g/cm^3)	1230 (1.23)	
Hardness, Rockwell	ASTM D 785			
Scale M			95	84
Scale R			122	113
Taber Abrasion	ASTM D 1044	mg		
CS-17 Wheel, 1kg, 1000 cycles				12
Water Absorption	ASTM D 570	%		
Saturation			7.1	
Water Absorption	ISO 62, Similar to	%		
Equilibrium 50%RH, 2.0mm			2.2	
Immersion 24h, 2.0mm			1.7	
Saturation, immersed, 2.0mm			7.6	
Molding Shrinkage	ISO 294-4	%		
Normal, 2.0mm			1.2	
Parallel, 2.0mm			0.7	

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Other				
Mold Shrinkage		%		
Flow, 1.6mm (0.063in)			0.6	
Flow, 3.2mm (0.126in)			0.7	
Flow, 6.4mm (0.25in)			0.9	
Transverse, 1.6mm (0.063in)			1.2	
Transverse, 3.2mm (0.126in)			1.4	
Transverse, 6.4mm (0.25in)			1.7	
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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