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
Mechanical				
Tensile Strength	ASTM D 638	MPa (kpsi)		
-40C (-40F)			214 (31.0)	207 (30.0)
23C (73F)			186 (27.0)	124 (18.0)
77C (170F)			110 (16.0)	86 (12.5)
Stress at Break	ISO 527-1/-2	MPa (kpsi)	193 (28.0)	126 (18.3)
Elongation at Break	ASTM D 638	%	3	4
Strain at Break	ISO 527-1/-2	%	3.2	5
Tensile Modulus	ISO 527-1/-2	MPa (kpsi)	10500 (1520)	7000 (1015)
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	%		
50C (122F), 13.8MPa (2000psi)			0.8	
Izod Impact	ASTM D 256	J/m (ft lb/in)	117 (2.2)	133 (2.5)
Notched Izod Impact	ISO 180/1A	kJ/m2		
-40C (-40F)			9	10
-30C (-22F)				10
23C (73F)			11	15
Unnotched Izod Impact	ISO 180/1U	kJ/m2		
-30C (-22F)				70
23C (73F)				90
Notched Charpy Impact	ISO 179/1eA	kJ/m2		
-40C (-40F)			9	10
-30C (-22F)			10	10
23C (73F)			12	16
Unnotched Charpy Impact	ISO 179/1eU	kJ/m2		
-30C (-22F)			85	70
23C (73F)			95	100

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Mechanical properties measured at 23°C (73°F) unless otherwise stated.

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			DAM	50%RH
Thermal				
Heat Deflection Temperature	ASTM D 648	°C (°F)		
0.45MPa (66psi)			261 (502)	
1.8MPa (264psi)			249 (480)	
Deflection Temperature	ISO 75-1/-2	°C (°F)		
1.80MPa			254 (489)	
CLTE, Parallel	ASTM E 831	E-4/C (E-4/F)		
-40 - 23C (-40 - 73F)			0.24 (0.13)	
23 - 55C (73 - 130F)			0.18 (0.10)	
55 - 160C (130 - 320F)			0.13 (0.07)	
CLTE, Normal	ASTM E 831	E-4/C (E-4/F)		
-40 - 23C (-40 - 73F)			0.65 (0.36)	
23 - 55C (73 - 130F)			0.83 (0.46)	
55 - 160C (130 - 320F)			1.37 (0.76)	
Melting Point	ASTM D 3418	°C (°F)	262 (504)	
Melting Temperature	ISO 3146C	°C (°F)	263 (505)	
Electrical				
Surface Resistivity	IEC 60093	ohm		
1mm			1E12	
Relative Permittivity	IEC 60250			
1E2 Hz, 1mm			4.2	
1E6 Hz, 1mm			3.9	
Volume Resistivity	ASTM D 257	ohm cm	1 E15	
Volume Resistivity	IEC 60093	ohm cm		
1mm			1E15	
Dielectric Strength, Short Time	ASTM D 149	kV/mm (V/mil)	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, 1mm			90	
1E6 Hz, 1mm			150	
Arc Resistance	ASTM D 495	s	135	
CTI	UL 746A	V	>600	

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Property	Test Method	Units	Value	
			DAM	50%RH
Flammability				
Flammability Classification	UL94			
0.71mm			HB	
1.5mm			HB	
3.0mm			HB	
Limited Oxygen Index	ISO 4589	%	24	
High Voltage Arc Tracking Rate	UL 746A	mm/min (in/min)	32.2 (1.27)	
Hot Wire Ignition	UL 746A	s	9	
Temperature Index				
RTI, Electrical	UL 746B	°C		
0.71mm			105	
1.5mm			120	
3.0mm			120	
RTI, Mechanical with Impact	UL 746B	°C		
0.71mm			65	
1.5mm			105	
3.0mm			105	
RTI, Mechanical without Impact	UL 746B	°C		
0.71mm			105	
1.5mm			120	
3.0mm			120	
Other				
Specific Gravity	ASTM D 792		1.38	
Density	ISO 1183	kg/m3 (g/cm3)	1390 (1.39)	
Hardness, Rockwell	ASTM D 785			
Scale M			101	
Taber Abrasion	ASTM D 1044	mg		
CS-17 Wheel, 1kg, 1000 cycles				14
Humidity Absorption	ISO 62, Similar to	%		
Equilibrium 50%RH			1.7	
Water Absorption	ASTM D 570	%		
Immersion 24h			0.7	
Saturation			5.4	
Water Absorption	ISO 62, Similar to	%		
Saturation, immersed			5.7	
Mold Shrinkage		%		
Flow, 3.2mm (0.126in)			0.2	
Molding Shrinkage	ISO 294-4	%		
Normal, 2.0mm			1.1	
Parallel, 2.0mm			0.4	

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Product Information

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			DAM	50%RH
Processing				
Melt Temperature Range		°C (°F)	290-305 (550-580)	
Mold Temperature Range		°C (°F)	65-120 (150-250)	
Processing Moisture Content		%	<0.20	

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