

Zytel® 70G33L NC010

NYLON RESIN

DuPont Engineering Polymers



Prospector

Product Description

Zytel® 70G33L NC010 is a 33% glass fiber reinforced polyamide 66 resin for injection molding.

General

Material Status	• Commercial: Active
Availability	• Asia Pacific • Europe • North America
Filler / Reinforcement	• Glass Fiber Reinforcement, 33% Filler by Weight
Features	• General Purpose • Good Creep Resistance • Ultrasonic Weldable
Uses	• Appliance Components • Automotive Applications • Electrical/Electronic Applications • Industrial Applications
RoHS Compliance	• Contact Manufacturer
Appearance	• Natural Color
Processing Method	• Injection Molding
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)
Part Marking Code (ISO 11469)	• >PA66-GF33<
Resin ID (ISO 1043)	• PA66-GF33

Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity				
--	1.38	--	g/cm ³	ASTM D792
--	1.39	--	g/cm ³	ISO 1183
Molding Shrinkage				
Flow: 1.60 mm	0.20	--	%	Internal Method
Flow: 3.20 mm	0.30	--	%	Internal Method
Flow: 6.40 mm	0.50	--	%	Internal Method
Across Flow: 1.60 mm	1.0	--	%	Internal Method
Across Flow: 3.20 mm	1.0	--	%	Internal Method
Across Flow: 6.40 mm	1.1	--	%	Internal Method
Across Flow: 2.00 mm	1.1	--	%	ISO 294-4
Flow: 2.00 mm	0.30	--	%	ISO 294-4
Water Absorption				
23°C, 24 hr	0.70	--	%	ASTM D570
23°C, 24 hr	1.2	--	%	ISO 62
Saturation, 23°C	5.4	--	%	ASTM D570
Saturation, 23°C	5.7	--	%	ISO 62
Equilibrium, 23°C, 50% RH	1.8	--	%	ISO 62
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	10500	8000	MPa	ISO 527-2
Tensile Stress				
Break, 23°C	200	140	MPa	ISO 527-2
-40°C	214	207	MPa	ASTM D638
23°C	186	124	MPa	ASTM D638
77°C	110	86.0	MPa	ASTM D638
Tensile Elongation				
Break, 23°C	3.0	4.0	%	ASTM D638
Break, 23°C	3.5	5.0	%	ISO 527-2
Flexural Modulus				
23°C	8970	6210	MPa	ASTM D790
23°C	9300	6210	MPa	ISO 178
Flexural Strength				
23°C	262	--	MPa	ASTM D790
23°C	290	200	MPa	ISO 178
Shear Strength (23°C)	86.0	--	MPa	ASTM D732

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Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-40°C	10	10	kJ/m ²	
-30°C	10	10	kJ/m ²	
23°C	13	17	kJ/m ²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	70	75	kJ/m ²	
23°C	85	100	kJ/m ²	
Notched Izod Impact				
23°C	120	130	J/m	ASTM D256
-40°C	10	10	kJ/m ²	ISO 180/1A
-30°C	10	10	kJ/m ²	ISO 180/1A
23°C	12	15	kJ/m ²	ISO 180/1A
Unnotched Izod Impact				
23°C	1300	1500	J/m	ASTM D4812
-30°C	70	70	kJ/m ²	ISO 180/1U
23°C	80	90	kJ/m ²	ISO 180/1U
Hardness	Dry	Conditioned	Unit	Test Method
Rockwell Hardness (M-Scale)	101	--		ASTM D785
Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	261	--	°C	ASTM D648 ISO 75-2/B
1.8 MPa, Unannealed	249	--	°C	ASTM D648
1.8 MPa, Unannealed	252	--	°C	ISO 75-2/A
Glass Transition Temperature	80.0	--	°C	ISO 11357-2
Melting Temperature				
-- ²	262	--	°C	ISO 11357-3
--	263	--	°C	ASTM D3418
CLTE				ASTM E831 ISO 11359-2
Flow: -40 to 23°C	0.000024	--	cm/cm/°C	
Flow: 23 to 55°C	0.000018	--	cm/cm/°C	
Flow: 55 to 160°C	0.000013	--	cm/cm/°C	
Transverse: -40 to 23°C	0.000065	--	cm/cm/°C	
Transverse: 23 to 55°C	0.000083	--	cm/cm/°C	
Transverse: 55 to 160°C	0.00014	--	cm/cm/°C	
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity				
23°C	1.0E+15	--	ohm·cm	ASTM D257
--	1.0E+15	--	ohm·cm	IEC 60093
Dielectric Strength ³ (23°C, 3.20 mm)	21	--	kV/mm	ASTM D149
Dielectric Constant				
23°C, 1 kHz	4.50	--		ASTM D150
23°C, 1 MHz	3.70	--		ASTM D150
23°C, 100 Hz	4.20	--		IEC 60250
23°C, 1 MHz	4.00	--		IEC 60250
Dissipation Factor				
23°C, 1 kHz	0.020	--		ASTM D150
23°C, 1 MHz	0.020	--		ASTM D150
23°C, 100 Hz	0.010	--		IEC 60250
23°C, 1 MHz	0.015	--		IEC 60250
Comparative Tracking Index	600	--	V	IEC 60112

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Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating - UL				UL 94
0.710 mm	HB	--		
1.50 mm	HB	--		
3.00 mm	HB	--		
Flammability Classification				IEC 60695-11-10, -20
0.710 mm	HB	--		
1.50 mm	HB	--		
3.00 mm	HB	--		
Oxygen Index	24	--	%	ISO 4589-2
UL	Dry	Conditioned	Unit	Test Method
RTI Str				UL 746
0.710 mm	130	--	°C	
1.50 mm	130	--	°C	
3.00 mm	130	--	°C	
RTI Imp				UL 746
0.710 mm	120	--	°C	
1.50 mm	120	--	°C	
3.00 mm	120	--	°C	
RTI Elec				UL 746
0.710 mm	130	--	°C	
1.50 mm	130	--	°C	
3.00 mm	130	--	°C	
Comparative Tracking Index (CTI)	600	--	V	UL 746
Comparative Tracking Index (CTI) (PLC)				UL 746
3.00 mm	PLC 0	--		

Injection	Dry Unit
Drying Temperature	80.0 °C
Drying Time	2.0 to 4.0 hr
Suggested Max Moisture	< 0.20 %
Processing (Melt) Temp	285 to 305 °C
Melt Temperature, Optimum	295 °C
Mold Temperature	70.0 to 120 °C
Mold Temperature, Optimum	100 °C
Drying Recommended	Yes, if moisture content of resin exceeds recommended level

Notes

¹ Typical properties: these are not to be construed as specifications.

² 10°C/min

³ Method A (Short-Time)