

DuPont™ Zytel®

nylon resin

Zytel® 70G33L NC010

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

Property	Test Method	Units	Value	
			DAM	50%RH
Identification				
Resin Identification	ISO 1043		PA66-GF33	
Part Marking Code	ISO 11469		>PA66-GF33<	
Mechanical				
Stress at Break	ISO 527	MPa (kpsi)	200 (29.0)	140 (20.3)
Strain at Break	ISO 527	%	3.5	5
Tensile Modulus	ISO 527	MPa (kpsi)	10500 (1520)	8000 (1160)
Poisson's Ratio			0.39	
Flexural Modulus	ISO 178	MPa (kpsi)	9300 (1350)	6205 (900)
Flexural Strength	ISO 178	MPa (kpsi)	290 (42)	200 (29)
Notched Charpy Impact Strength	ISO 179/1eA	kJ/m ²		
-40°C (-40°F)			10	10
-30°C (-22°F)			10	10
23°C (73°F)			13	17
Unnotched Charpy Impact Strength	ISO 179/1eU	kJ/m ²		
-30°C (-22°F)			70	75
23°C (73°F)			85	100

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.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Zytel® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

050320/050321

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.

Zytel® 70G33L NC010

Property	Test Method	Units	Value	
			DAM	50%RH
Thermal				
Deflection Temperature 0.45MPa	ISO 75f	°C (°F)	261 (502)	
1.80MPa			252 (486)	
Melting Temperature 10°C/min	ISO 11357-1/-3	°C (°F)	262 (504)	
CLTE, Normal -40 - 23°C (-40 - 73°F)	ISO 11359-1/-2	E-4/C (E-4/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 -40 - 23°C (-40 - 73°F)	ISO 11359-1/-2	E-4/C (E-4/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 1E2 Hz	IEC 60250		4.2	
1E6 Hz			4.0	
Volume Resistivity	IEC 60093	ohm m	1E13	
Dissipation Factor 1E2 Hz	IEC 60250	E-4	100	
1E6 Hz			150	
CTI 3.0mm	UL 746A	V	600	

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.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Zytel® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

050320/050321

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.

Zytel® 70G33L NC010

Property	Test Method	Units	Value	
			DAM	50%RH
Flammability				
Flammability Classification	UL94		HB	
0.71mm				
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				
Density	ISO 1183	kg/m ³ (g/cm ³)	1390 (1.39)	
Water Absorption	ISO 62, Similar to	%		
Equilibrium 50%RH			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	

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.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Zytel® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

050320/050321

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.

Product Information

Zytel® 70G33L NC010

Property	Test Method	Units	Value	
			DAM	50%RH
Other				
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	

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.

The DuPont Oval Logo, DuPont™, The miracles of science™ and Zytel® are trademarks or registered trademarks of DuPont Company. Copyright© 2005.

050320/050321

The information provided in this data sheet corresponds to our knowledge on the subject at the date of its publication. This information may be subject to revision as new knowledge and experience becomes available. The data provided fall within the normal range of product properties and relate only to the specific material designated; these data may not be valid for such material used in combination with any other materials, additives or pigments or in any process, unless expressly indicated otherwise. The data provided should not be used to establish specification limits or used alone as the basis of design; they are not intended to substitute for any testing you may need to conduct to determine for yourself the suitability of a specific material for your particular purposes. Since DuPont cannot anticipate all variations in actual end-use conditions DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent rights. DuPont advises you to seek independent counsel for a freedom to practice opinion on the intended application or end-use of our products. Caution: Do not use this product in medical applications involving permanent implantation in the human body. For other medical applications see "DuPont Medical Caution Statement", H-50102.