

Zytel® 70G13HS1L BK031
NYLON RESIN
DuPont Engineering Polymers



Prospector

Product Description

Zytel® 70G13HS1L BK031 is a 13% glass fiber reinforced, heat stabilized, black polyamide 66 resin for injection molding.

General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Filler / Reinforcement	• Glass Fiber Reinforcement, 13% Filler by Weight		
Additive	• Heat Stabilizer		
Features	• General Purpose • Good Thermal Stability	• Heat Stabilized • Ultrasonic Weldable	
RoHS Compliance	• Contact Manufacturer		
Appearance	• Black		
Processing Method	• Injection Molding		
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)		
Part Marking Code (ISO 11469)	• >PA66-GF13<		
Resin ID (ISO 1043)	• PA66-GF13		

Physical	Dry	Conditioned	Unit	Test Method
Specific Gravity				
--	1.22	--	(g/cm ³)	ASTM D792
--	1.23	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow: 0.0787 in (2.00 mm)	1.0	--	%	
Flow: 0.0787 in (2.00 mm)	0.50	--	%	

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F (23°C))	798000 (5500)	508000 (3500)	psi (MPa)	ISO 527-2
Tensile Stress				
Break, 73°F (23°C)	17400 (120)	10900 (75.0)	psi (MPa)	ISO 527-2
73°F (23°C)	17000 (117)	--	psi (MPa)	ASTM D638
Tensile Elongation				
Break, 73°F (23°C)	2.7	--	%	ASTM D638
Break, 73°F (23°C)	2.7	12	%	ISO 527-2
Flexural Modulus				
73°F (23°C)	701000 (4830)	--	psi (MPa)	ASTM D790
73°F (23°C)	711000 (4900)	--	psi (MPa)	ISO 178
Flexural Strength				
73°F (23°C)	23900 (165)	--	psi (MPa)	ASTM D790
73°F (23°C)	27600 (190)	14500 (100)	psi (MPa)	ISO 178

Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-40°F (-40°C)	2.1 (4.5)	--	ft-lb/in ² (kJ/m ²)	
73°F (23°C)	2.4 (5.0)	--	ft-lb/in ² (kJ/m ²)	
Notched Izod Impact				
73°F (23°C)	0.90	--	ft-lb/in	ASTM D256

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Impact	Dry	Conditioned	Unit	Test Method
	(48)		(J/m)	
-40°F (-40°C)	2.1 (4.5)	--	ft-lb/in ² (kJ/m ²)	ISO 180/1A
73°F (23°C)	2.1 (4.5)	--	ft-lb/in ² (kJ/m ²)	ISO 180/1A
Unnotched Izod Impact (73°F (23°C))	9.9 (530)	--	ft-lb/in (J/m)	ASTM D4812
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
66 psi (0.45 MPa), Unannealed	496 (258)	--	°F (°C)	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	468 (242)	--	°F (°C)	ASTM D648
264 psi (1.8 MPa), Unannealed	460 (238)	--	°F (°C)	ISO 75-2/A
Melting Temperature				
-- ²	504 (262)	--	°F (°C)	ISO 11357-3
--	505 (263)	--	°F (°C)	ASTM D3418
CLTE				ASTM E831 ISO 11359-2
Flow: -40 to 73°F (-40 to 23°C)	0.000023 (0.000042)	--	in/in/°F (cm/cm/°C)	
Flow: 73 to 131°F (23 to 55°C)	0.000022 (0.000040)	--	in/in/°F (cm/cm/°C)	
Flow: 131 to 320°F (55 to 160°C)	0.000015 (0.000027)	--	in/in/°F (cm/cm/°C)	
Transverse: -40 to 73°F (-40 to 23°C)	0.000043 (0.000077)	--	in/in/°F (cm/cm/°C)	
Transverse: 73 to 131°F (23 to 55°C)	0.000053 (0.000096)	--	in/in/°F (cm/cm/°C)	
Transverse: 131 to 320°F (55 to 160°C)	0.000088 (0.00016)	--	in/in/°F (cm/cm/°C)	
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating - UL				UL 94
0.0280 in (0.710 mm)	HB	--		
0.0591 in (1.50 mm)	HB	--		
0.118 in (3.00 mm)	HB	--		
Flammability Classification				IEC 60695-11-10, -20
0.0280 in (0.710 mm)	HB	--		
0.0591 in (1.50 mm)	HB	--		
0.118 in (3.00 mm)	HB	--		

UL	Dry	Conditioned	Unit	Test Method
RTI Str				UL 746
0.0280 in (0.710 mm)	284 (140)	--	°F (°C)	
0.0591 in (1.50 mm)	284 (140)	--	°F (°C)	
0.118 in (3.00 mm)	284 (140)	--	°F (°C)	
RTI Imp				UL 746
0.0280 in (0.710 mm)	257 (125)	--	°F (°C)	
0.0591 in (1.50 mm)	257 (125)	--	°F (°C)	
0.118 in (3.00 mm)	257 (125)	--	°F (°C)	
RTI Elec				UL 746
0.0280 in (0.710 mm)	284 (140)	--	°F (°C)	
0.0591 in (1.50 mm)	284 (140)	--	°F (°C)	
0.118 in (3.00 mm)	284 (140)	--	°F (°C)	
Comparative Tracking Index (CTI)	> 600	--	V	UL 746
Comparative Tracking Index (CTI) (PLC)	PLC 0	--		UL 746

Injection	Dry (English)	Dry (SI)
Drying Temperature	176 °F	80.0 °C
Drying Time	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	< 0.20 %	< 0.20 %
Processing (Melt) Temp	545 to 581 °F	285 to 305 °C
Melt Temperature, Optimum	563 °F	295 °C
Mold Temperature	158 to 248 °F	70.0 to 120 °C
Mold Temperature, Optimum	212 °F	100 °C
Drying Recommended	Yes, if moisture content of resin exceeds recommended level	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