

Vydyne® 20NSP BLK

polyamide 66



Vydyne 20NSP BLK is a general-purpose, highly nucleated, lubricated PA66 resin. Available in black, it is designed to crystallize rapidly in order to reduce cycle times and increase productivity through faster part set-up. The higher crystalline structure will increase tensile modulus and strength, reduce elongation and may slightly lower mold shrinkage when compared to standard general-purpose non nucleated PA66. The rapid crystallization of Vydyne 20NSP BLK resin may allow part ejection at a higher temperature compared to general-purpose PA66. Critical factors unique to each application such as mold design, part design, tolerances and other factors will dictate ultimate cycle

time benefits. It is recommended to check critical part dimensions against specifications before adopting shorter molding cycles. Vydyne 20NSP BLK resin has an external lubricant for improved machine feed and an internal lubricant for improved mold release.

Typical Applications/End Uses:

End uses for Vydyne 20NSP BLK include terminal blocks, bearings, control cams, electrical connectors, housings, cable ties, fasteners, switch components and industrial parts that require chemical resistance, stiffness, wear resistance and rigidity.

General				
Material Status	• Commercial: Active			
Availability	• Asia Pacific	• Europe	• North America	
Additive	• Lubricant	• Nucleating Agent		
Features	• Fast Molding Cycle • General Purpose • Good Mold Release	• Good Stiffness • High Rigidity • Lubricated	• Nucleated	
Uses	• Bearings • Cams • Connectors	• Electrical/Electronic Applications • Fasteners • General Purpose	• Housings • Industrial Applications	
Agency Ratings	• ASTM D4066 PA0131	• ASTM D6779 PA0131	• FED L-P-410A	
RoHS Compliance	• RoHS Compliant			
UL File Number	• E70062			
Appearance	• Black			
Forms	• Pellets			
Processing Method	• Injection Molding			

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 23°C, 2.00 mm	1.6	--	%	
Flow : 23°C, 2.00 mm	1.4	--	%	
Water Absorption				ISO 62
24 hr, 23°C	1.2	--	%	
Equilibrium, 23°C, 50% RH	2.4	--	%	
Outdoor Suitability (Black)	f2	--		UL 746C

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	3800	2500	MPa	ISO 527-2
Tensile Stress				ISO 527-2
Yield, 23°C	95.0	60.0	MPa	
Break, 23°C	75.0	50.0	MPa	
Tensile Strain (Yield, 23°C)	5.0	15	%	ISO 527-2
Nominal Tensile Strain at Break (23°C)	13	20	%	ISO 527-2
Flexural Modulus (23°C)	3200	1300	MPa	ISO 178
Flexural Strength (23°C)	100	35.0	MPa	ISO 178
Poisson's Ratio	0.40	--		ISO 527-2
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	5.0	5.0	kJ/m ²	
23°C	6.0	15	kJ/m ²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	No Break	No Break		
23°C	No Break	No Break		
Notched Izod Impact Strength				ISO 180
-30°C	5.0	5.0	kJ/m ²	
23°C	6.0	15	kJ/m ²	

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
0.45 MPa, Unannealed	230	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	90.0	--	°C	ISO 75-2/A
Melting Temperature	260	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	1.0E-4	--	cm/cm/°C	
Transverse : 23 to 55°C, 2.00 mm	1.0E-4	--	cm/cm/°C	
RTI Elec				UL 746
0.40 mm	130	--	°C	
0.71 mm	130	--	°C	
1.5 mm	130	--	°C	
3.0 mm	130	--	°C	
RTI Imp				UL 746
0.40 mm	75.0	--	°C	
0.71 mm	75.0	--	°C	
1.5 mm	75.0	--	°C	
3.0 mm	75.0	--	°C	
RTI Str				UL 746
0.40 mm	75.0	--	°C	
0.71 mm	85.0	--	°C	
1.5 mm	85.0	--	°C	
3.0 mm	85.0	--	°C	
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity (0.750 mm)	1.0E+13	--	ohms-cm	IEC 60093
Dielectric Strength (1.00 mm)	26	--	kV/mm	IEC 60243
Arc Resistance (3.00 mm)	PLC 5	--		ASTM D495
Comparative Tracking Index (3.00 mm)	600	--	V	IEC 60112
High Amp Arc Ignition (HAI)				UL 746
0.40 mm	PLC 1	--		
0.71 mm	PLC 0	--		
1.5 mm	PLC 0	--		
3.0 mm	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)	PLC 0	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.40 mm	PLC 4	--		
0.71 mm	PLC 4	--		
1.5 mm	PLC 3	--		
3.0 mm	PLC 2	--		

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.40 mm	V-2	--		
0.71 mm	V-2	--		
1.5 mm	V-2	--		
3.0 mm	V-2	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.40 mm	960	--	°C	
0.71 mm	960	--	°C	
1.5 mm	960	--	°C	
3.0 mm	960	--	°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.40 mm	825	--	°C	
0.71 mm	850	--	°C	
1.5 mm	850	--	°C	
3.0 mm	850	--	°C	
Oxygen Index	26	--	%	ISO 4589-2
Injection		Dry Unit		
Drying Temperature		< 70 °C		
Drying Time		1.0 to 3.0 hr		
Suggested Max Regrind		50 %		
Rear Temperature		260 to 280 °C		
Middle Temperature		270 to 285 °C		
Front Temperature		280 to 290 °C		
Nozzle Temperature		280 to 300 °C		
Processing (Melt) Temp		285 to 300 °C		
Mold Temperature		65 to 95 °C		

Notes

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