Vydyne® 20NSP BLK

Ascend Performance Materials Operations LLC - Polyamide 66

Monday, November 4, 2019

General Information

Product Description

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		

ASTM & ISO Properties [1]

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F, 0.0787 in	1.6	--	%	
Flow : 73°F, 0.0787 in	1.4	--	%	
Water Absorption (24 hr, 73°F)	1.2	--	%	ISO 62
Water Absorption				ISO 62
Equilibrium, 73°F, 50% RH	2.4	--	%	
Outdoor Suitability (Black)	f2	--		UL 746C
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus (73°F)	551000	363000	psi	ISO 527-2
Tensile Stress (Yield, 73°F)	13800	8700	psi	ISO 527-2
Tensile Stress (Break, 73°F)	10900	7250	psi	ISO 527-2
Tensile Strain (Yield, 73°F)	5.0	15	%	ISO 527-2

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Mechanical	Dry	Conditioned	Unit	Test Method
Nominal Tensile Strain at Break				ISO 527-2
73°F	13	20	%	
Flexural Modulus (73°F)	464000	189000	psi	ISO 178
Flexural Strength (73°F)	14500	5080	psi	ISO 178
Poisson's Ratio	0.40	--		ISO 527-2
Impact	**Dry**	**Conditioned**	**Unit**	**Test Method**
Charpy Notched Impact Strength				ISO 179/1eA
-22°F	2.4	2.4	ft·lb/in²	
73°F	2.9	7.1	ft·lb/in²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-22°F	No Break	No Break		
73°F	No Break	No Break		
Notched Izod Impact Strength				ISO 180
-22°F	2.4	2.4	ft·lb/in²	
73°F	2.9	7.1	ft·lb/in²	
Thermal	**Dry**	**Conditioned**	**Unit**	**Test Method**
Heat Deflection Temperature				ISO 75-2/B
66 psi, Unannealed	446	--	°F	
Heat Deflection Temperature				ISO 75-2/A
264 psi, Unannealed	194	--	°F	
Melting Temperature	500	--	°F	ISO 11357-3
CLTE - Flow (73 to 131°F, 0.0787 in)	5.6E-5	--	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F, 0.0787 in)	5.6E-5	--	in/in/°F	ISO 11359-2
RTI Elec				UL 746
0.016 in	266	--	°F	
0.028 in	266	--	°F	
0.06 in	266	--	°F	
0.12 in	266	--	°F	
RTI Imp				UL 746
0.016 in	167	--	°F	
0.028 in	167	--	°F	
0.06 in	167	--	°F	
0.12 in	167	--	°F	
RTI Str				UL 746
0.016 in	167	--	°F	
0.028 in	185	--	°F	
0.06 in	185	--	°F	
0.12 in	185	--	°F	
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Volume Resistivity (0.0295 in)	1.0E+13	--	ohms·cm	IEC 60093
Dielectric Strength (0.0394 in)	660	--	V/mil	IEC 60243
Arc Resistance (0.118 in)	PLC 5	--		ASTM D495
Comparative Tracking Index				IEC 60112
0.118 in	600	--	V	
High Amp Arc Ignition (HAI)				UL 746
0.016 in	PLC 1	--		
0.028 in	PLC 0	--		
0.06 in	PLC 0	--		
0.12 in	PLC 0	--		

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Electrical	Dry	Conditioned	Unit	Test Method
High Voltage Arc Tracking Rate (HVTR)	PLC 0	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.016 in	PLC 4	--		
0.028 in	PLC 4	--		
0.06 in	PLC 3	--		
0.12 in	PLC 2	--		
Flammability	**Dry**	**Conditioned**	**Unit**	**Test Method**
Flame Rating				UL 94
0.016 in	V-2	--		
0.028 in	V-2	--		
0.06 in	V-2	--		
0.12 in	V-2	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.016 in	1760	--	°F	
0.028 in	1760	--	°F	
0.06 in	1760	--	°F	
0.12 in	1760	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.016 in	1520	--	°F	
0.028 in	1560	--	°F	
0.06 in	1560	--	°F	
0.12 in	1560	--	°F	
Oxygen Index	26	--	%	ISO 4589-2

Processing Information

Injection	Dry	Unit
Drying Temperature	< 158	°F
Drying Time	1.0 to 3.0	hr
Suggested Max Regrind	50	%
Rear Temperature	500 to 536	°F
Middle Temperature	518 to 545	°F
Front Temperature	536 to 554	°F
Nozzle Temperature	536 to 572	°F
Processing (Melt) Temp	545 to 572	°F
Mold Temperature	149 to 203	°F

Notes

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