

# Vydyne® 20NSP polyamide 66



Vydyne 20NSP is a general-purpose, highly nucleated, lubricated PA66 resin available in natural color. 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 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 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 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	• Fasteners • General Purpose • Housings	• Industrial Applications	
Agency Ratings	• ASTM D 4066 PA0131	• ASTM D 6779 PA0131	• FED L-P-410A	
RoHS Compliance	• RoHS Compliant			
Automotive Specifications	• ASTM D4000 PA131	• ASTM D4066 PA0131	• FEDERAL LP410A	
UL File Number	• E70062			
Appearance	• Natural Color			
Forms	• Pellets			
Processing Method	• Injection Molding			
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)			

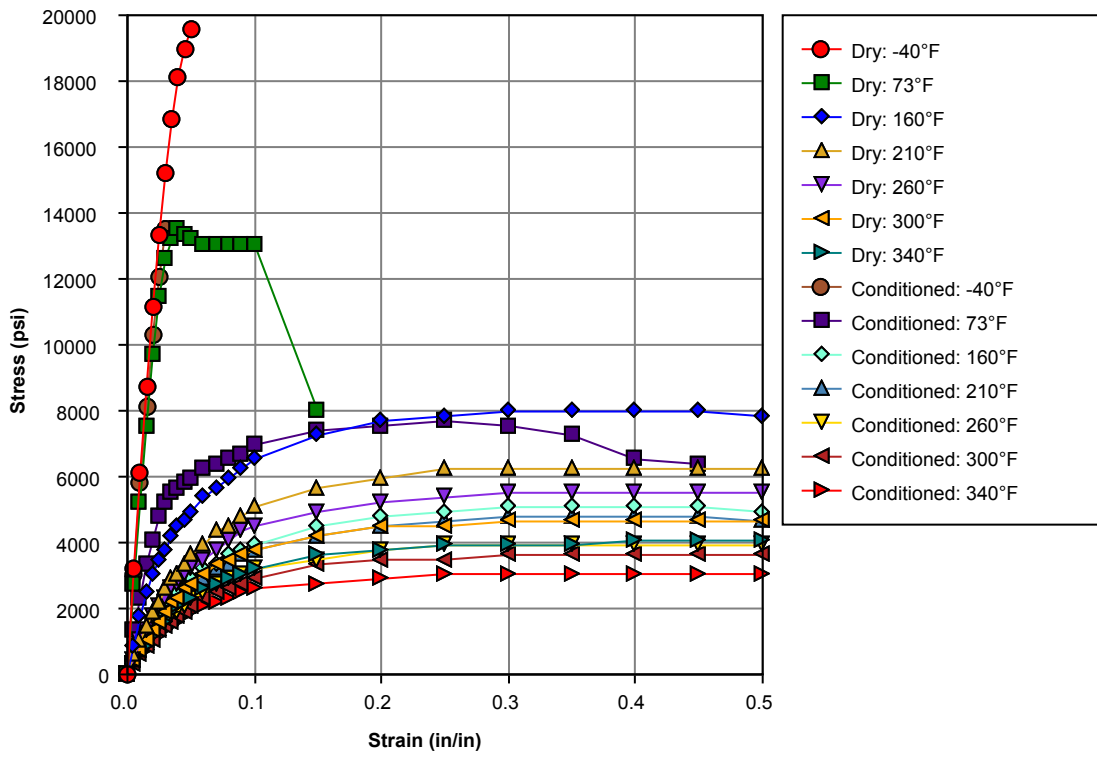
Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm <sup>3</sup>	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F, 0.0787 in	1.6	--	%	
Flow : 73°F, 0.0787 in	1.4	--	%	
Water Absorption (73°F, 24 hr)	1.2	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	2.4	--	%	ISO 62

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
Nominal Tensile Strain at Break (73°F)	13	20	%	ISO 527-2
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/in <sup>2</sup>	
73°F	2.9	7.1	ft·lb/in <sup>2</sup>	
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/in <sup>2</sup>	
73°F	2.9	7.1	ft·lb/in <sup>2</sup>	

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature 66 psi, Unannealed	446	--	°F	ISO 75-2/B
Heat Deflection Temperature 264 psi, Unannealed	194	--	°F	ISO 75-2/A
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
0.0157 in	266	--	°F	
0.0280 in	266	--	°F	
0.0591 in	266	--	°F	
0.118 in	266	--	°F	
RTI Imp				UL 746
0.0157 in	167	--	°F	
0.0280 in	167	--	°F	
0.0591 in	167	--	°F	
0.118 in	167	--	°F	
RTI Str				UL 746
0.0157 in	167	--	°F	
0.0280 in	185	--	°F	
0.0591 in	185	--	°F	
0.118 in	185	--	°F	
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity (0.0295 in)	1.0E+10	--	ohm·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 (0.118 in)	600	--	V	IEC 60112
High Amp Arc Ignition (HAI)				UL 746
0.0280 in	PLC 0	--		
0.0591 in	PLC 0	--		
0.118 in	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)	PLC 0	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.0280 in	PLC 4	--		
0.0591 in	PLC 3	--		
0.118 in	PLC 3	--		

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.0157 in	V-2	--		
0.0280 in	V-2	--		
0.0591 in	V-2	--		
0.118 in	V-2	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.0280 in	1470	--	°F	
0.0591 in	1470	--	°F	
0.118 in	1710	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.0280 in	1290	--	°F	
0.0591 in	1290	--	°F	
0.118 in	1290	--	°F	
Oxygen Index	26	--	%	ISO 4589-2

**Isothermal Stress vs. Strain (ISO 11403-1)**



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**

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

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