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	• Electrical/Electronic Applications • Fasteners • General Purpose	• Housings • Industrial Applications
Agency Ratings	• ASTM D 4066 PA0131 • ASTM D 6779 PA0131 • EC 1935/2004	• EU 10/2011 • EU 2023/2006 • FDA 21 CFR 177.1500	• FED L-P-410A • NSF STD-51
RoHS Compliance	• RoHS Compliant		
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/cm³	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 (23°C, 24 hr)	1.2	--	%	ISO 62
Water Absorption (Equilibrium, 23°C, 50% RH)	2.4	--	%	ISO 62
Outdoor Suitability	f2	--		UL 746C

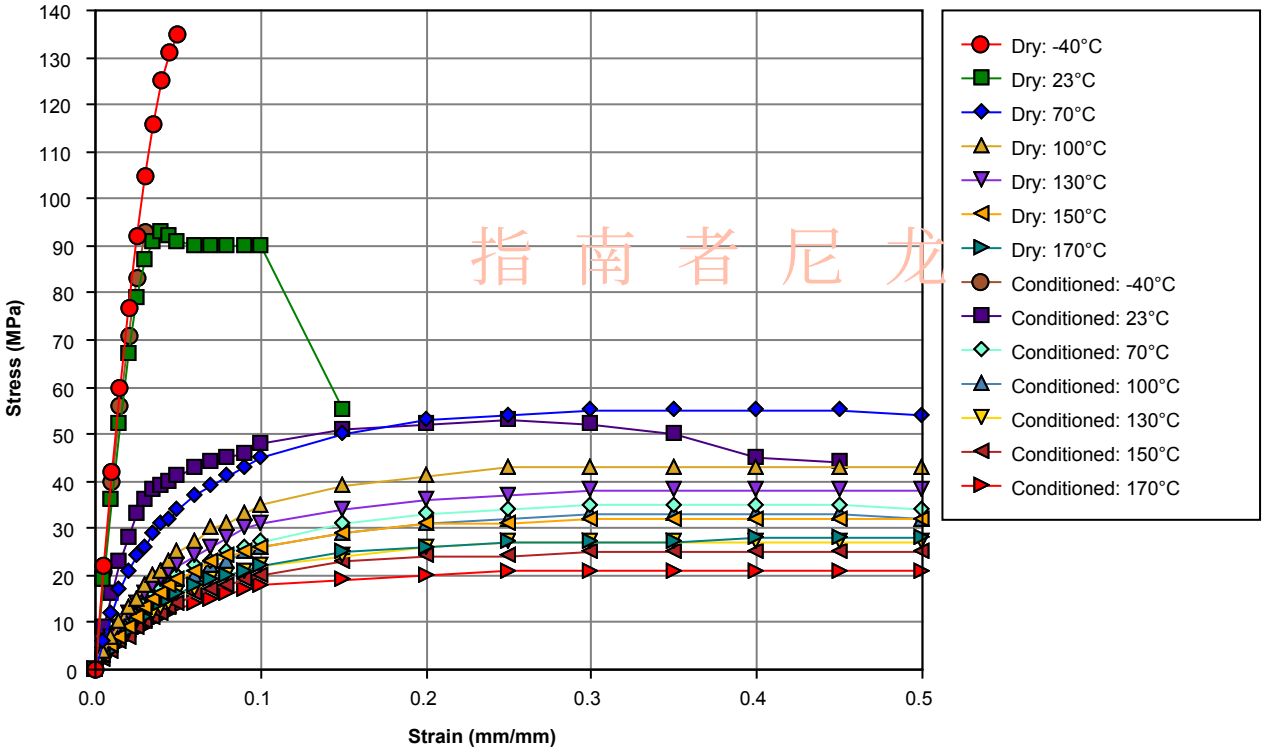
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	3800	2500	MPa	ISO 527-2
Tensile Stress (Yield, 23°C)	95.0	60.0	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	75.0	50.0	MPa	ISO 527-2
Tensile Strain (Yield, 23°C)	5.0	15	%	ISO 527-2
Nominal Tensile Strain at Break (23°C)	13	20	%	ISO 527-2
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/m²	
23°C	6.0	15	kJ/m²	
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/m²	
23°C	6.0	15	kJ/m²	

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				ISO 75-2/B
0.45 MPa, Unannealed	230	--	°C	
Heat Deflection Temperature				ISO 75-2/A
1.8 MPa, Unannealed	90.0	--	°C	
Melting Temperature	260	--	°C	ISO 11357-3
CLTE - Flow (23 to 55°C, 2.00 mm)	1.0E-4	--	cm/cm/°C	ISO 11359-2
CLTE - Transverse (23 to 55°C, 2.00 mm)	1.0E-4	--	cm/cm/°C	ISO 11359-2
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

Isothermal Stress vs. Strain (ISO 11403-1)



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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North America
+1 888 927 2363

Europe
+32 10 608 600

Asia
+86 21 6340 3300

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