

# Vydyne® 21SPC

## polyamide 66



Vydyne 21SPC is a general-purpose, unfilled, lubricated, PA66 resin. Designed principally for injection-molding fabrication, this product offers a combination of engineering properties characterized by high strength; rigidity; good toughness; high melt point; good surface lubricity; abrasion resistance; and resistance to many chemicals, machine and motor oils, solvents and gasoline.

21SPC is intended for use in high-productivity applications. In many applications, the molding cycle can be reduced because parts may be removed from the cavity at higher temperatures. In difficult molds where parts have a tendency to stick in the cavity, 21SPC can reduce or eliminate the need for mold release sprays. Critical molded-part dimensions should be checked against specifications before implementing shorter molding cycles on a routine production basis.

21SPC permits production of molded parts with good initial color plus good property and color retention when using regrind.

General			
Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Additive	• Lubricant		
Features	<ul style="list-style-type: none"> <li>• Abrasion Resistant</li> <li>• Chemical Resistant</li> <li>• Fast Molding Cycle</li> <li>• Gasoline Resistant</li> </ul>	<ul style="list-style-type: none"> <li>• General Purpose</li> <li>• Good Mold Release</li> <li>• Good Toughness</li> <li>• High Rigidity</li> </ul>	<ul style="list-style-type: none"> <li>• High Strength</li> <li>• Lubricated</li> <li>• Oil Resistant</li> <li>• Solvent Resistant</li> </ul>
Uses	<ul style="list-style-type: none"> <li>• Automotive Applications</li> <li>• Bearings</li> <li>• Bushings</li> <li>• Cams</li> </ul>	<ul style="list-style-type: none"> <li>• Connectors</li> <li>• Electrical/Electronic Applications</li> <li>• Fasteners</li> <li>• General Purpose</li> </ul>	<ul style="list-style-type: none"> <li>• Housings</li> <li>• Industrial Applications</li> </ul>
Agency Ratings	<ul style="list-style-type: none"> <li>• ASTM D4066 PA0111</li> <li>• ASTM D6779 PA0111</li> <li>• EC 1935/2004</li> <li>• EU 10/2011</li> </ul>	<ul style="list-style-type: none"> <li>• EU 2023/2006</li> <li>• FDA 21 CFR 177.1500</li> <li>• FED L-P-410A</li> <li>• MIL M-20693B</li> </ul>	<ul style="list-style-type: none"> <li>• NSF STD-51</li> <li>• SAE J1639 PA0121 Z6</li> </ul>
RoHS Compliance	• RoHS Compliant		
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm <sup>3</sup>	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 23°C, 2.00 mm	1.7	--	%	
Flow : 23°C, 2.00 mm	1.8	--	%	
Water Absorption				ISO 62
24 hr, 23°C	1.2	--	%	
Equilibrium, 23°C, 50% RH	2.4	--	%	
Outdoor Suitability (All Colors)	f2	--		UL 746C
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	2800	1800	MPa	ISO 527-1
Tensile Stress				ISO 527-2
Yield, 23°C	86.0	56.0	MPa	
Break, 23°C	56.0	46.0	MPa	
Tensile Strain (Yield, 23°C)	4.8	22	%	ISO 527-2
Nominal Tensile Strain at Break (23°C)	23	87	%	ISO 527-2
Flexural Modulus (23°C)	2900	1500	MPa	ISO 178
Flexural Strength (23°C)	80.0	50.0	MPa	ISO 178
Poisson's Ratio	0.40	--		ISO 527
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	5.0	7.0	kJ/m <sup>2</sup>	
23°C	6.0	20	kJ/m <sup>2</sup>	
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	7.0	kJ/m <sup>2</sup>	
23°C	6.0	20	kJ/m <sup>2</sup>	

Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	200	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	70.0	--	°C	ISO 75-2/A
Melting Temperature	260	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C	1.0E-4	--	cm/cm/°C	
Transverse : 23 to 55°C	1.0E-4	--	cm/cm/°C	
RTI Elec				
				UL 746B
0.40 mm	130	--	°C	
0.71 mm	130	--	°C	
1.5 mm	130	--	°C	
3.0 mm	130	--	°C	
RTI Imp				
				UL 746B
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 746B
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 746A
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 746A
Hot-wire Ignition (HWI)				UL 746A
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	25	--	%	ISO 4589-2

Injection	Dry	Unit
Drying Temperature	< 70	°C
Drying Time	1.0 to 3.0	hr
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

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

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