Vydyne® 21SPF

polyamide 66

Vydyne 21SPF is a general-purpose, unfilled, lubricated PA66 resin with an enhanced crystallization temperature. Designed principally to decrease cycle time 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.

General

Additive	• Lubricant		
Features	• Abrasion Resistance • Gasoline Resistant • Good Mold Release • High Strength • Solvent Resistant	• Chemical Resistant • General Purpose • Good Toughness • Lubricated	• Fast Molding Cycle • Good Color Stability • High Rigidity • Oil Resistant
Agency Rating	• ASTM, D4066 PA0111 • EU, 10/2011 • FED, L-P-410A • RoHS Compliant	• ASTM, D6779 PA0111 • EU, 2023/2006 • MIL, M-20693B • SAE, J1639 PA0121 Z6	• EC, 1935/2004 • FDA, 21 CFR 177.1500 • NSF, STD-51
Automotive Specifications	• Renault UB15b	• Stellantis MS-DB-41 CPN 1938	• Toyota TSM5516G, Class 2, Rev 9 (compliance)
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	dry	cond.	Unit	Test Standard
Density	1.14	-	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 23°C, 2.00 mm	2.0	*	%	
Flow : 23°C, 2.00 mm	2.0	*	%	
Water Absorption				ISO 62
23°C, 24 hr	1.2	*	%	
Equilibrium, 23°C, 50% RH	2.4	*	%	
Outdoor Suitability	f2			UL 746C

Mechanical	dry	cond.	Unit	Test Standard
Tensile Modulus (23°C)	2900	1900	MPa	ISO 527-2
Tensile Stress (Yield, 23°C)	89	60	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	81	49	MPa	ISO 527-2
Tensile Strain (Yield, 23°C)	4.8	20	%	ISO 527-2
Tensile Strain (Break, 23°C)	29	76	%	ISO 527-2

Flexural Modulus (23°C)	3300	1100	MPa	ISO 178
Flexural Strength (23°C)	105	30	MPa	ISO 178
Poisson's Ratio (23°C)	0.4			ISO 527-2

Impact	dry	cond.	Unit	Test Standard
Charpy Notched Impact Strength				ISO 179/1eA
+23°C	6	23	kJ/m²	
-30°C	5	7	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179/1eU
+23°C	N	N	kJ/m²	
-30°C	N	N	kJ/m²	
Notched Izod Impact Strength				ISO 180/1A
+23°C	6	23	kJ/m²	
-30°C	5	7	kJ/m²	

Thermal	dry	cond.	Unit	Test Standard
Heat Deflection Temperature				ISO 75-2/A
1.80 MPa, Unannealed	72	-	°C	
0.45 MPa, Unannealed	210	-	°C	
Melting Temperature	260	*	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	100	*	E-6/K	
Transverse : 23 to 55°C, 2.00 mm	100	*	E-6/K	
RTI Elec				UL 746
0.400 mm	130		°C	
0.710 mm	130		°C	
1.50 mm	130		°C	
3.00 mm	130		°C	
RTI Imp				UL 746
0.400 mm	75		°C	
0.710 mm	75		°C	
1.50mm	75		°C	
3.00 mm	75		°C	
RTI Str				UL 746
0.400 mm	75		°C	
0.710 mm	85		°C	
1.50 mm	85		°C	
3.00 mm	85		°C	

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Electrical	dry	cond.	Unit	Test Standard
Volume Resistivity (1.00 mm)	1E11	-	Ohm*m	IEC 60093
Dielectric Strength (1.00 mm)	26	-	kV/mm	IEC 60243
Arc Resistance (3.00 mm)	5			ASTM D 495
Comparative Tracking Index (3.00 mm)	600		V	IEC 60112
High Amp Arc Ignition (HAI)				UL 746
0.400 mm	PLC 1			
0.710 mm	PLC 0			
1.50 mm	PLC 0			
3.00 mm	PLC 0			
High Voltage Arc Tracking Rate (HVTR), 3.00 mm	PLC 0			UL 746
Hot-wire Ignition (HWI)				UL 746
0.400 mm	PLC 4			
0.710 mm	PLC 4			
1.50 mm	PLC 3			
3.00 mm	PLC 2			

Flammability	dry	cond.	Unit	Test Standard
Flammability				UL 94
0.400 mm	V-2			
0.710 mm	V-2			
1.50 mm	V-2			
3.00 mm	V-2			
Glow Wire Flammability Index				IEC 60695-2-12
0.400 mm	960		°C	
0.710 mm	960		°C	
1.50 mm	960		°C	
3.00 mm	960		°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.400 mm	825		°C	
0.710 mm	850		°C	
1.50 mm	850		°C	
3.00 mm	850		°C	
Oxygen index	26	*	%	EN ISO 4589-2

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Railway Application	dry	cond.	Unit	Test Standard
Oxygen index	26	-	%	EN ISO 4589-2

Injection	Value	Unit
Drying Temperature	70	°C
Drying Time	1 - 3	h
Rear Temperature	260 - 280	°C
Middle Temperature	270 - 285	°C
Front Temperature	280 - 290	°C
Nozzle temperature	280 - 300	°C
Processing (Melt) Temperature	285 - 300	°C
Mold Temperature	65 - 95	°C

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