Vydyne® 21SPF

Polyamide 66

Ascend Performance Materials Operations LLC

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Technical Data

Product Description

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

Material Status	• Commercial: Active		
UL Yellow Card [1]	• E70062-249058		
Search for UL Yellow Card	• Ascend Performance Materials Operations LLC • Vydyne®		
Availability	• Asia Pacific	• Europe	• North America
Additive	• Lubricant		
Features	• Abrasion Resistant • Chemical Resistant • Fast Molding Cycle • Gasoline Resistant • General Purpose	• Good Color Stability • Good Mold Release • Good Toughness • High Rigidity • High Strength	• Lubricated • Oil Resistant • Solvent Resistant
Agency Ratings	• ASTM D4066 PA0111 • ASTM D6779 PA0111 • EC 1935/2004 • EU 10/2011	• EU 2023/2006 • FDA 21 CFR 177.1500 • FED L-P-410A • MIL M-20693B	• NSF STD-51 • SAE J1639 PA0121 Z6
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• RENAULT UB15b	• STELLANTIS MS-DB-41 CPN1938	• TOYOTA TSM 5516G Color: Class 2, Rev 9
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		
Resin ID	• PA66		

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F (23°C), 0.0787 in (2.00 mm)	2.0	--	%	
Flow : 73°F (23°C), 0.0787 in (2.00 mm)	2.0	--	%	
Water Absorption				ISO 62
24 hr, 73°F (23°C)	1.2	--	%	
Equilibrium, 73°F (23°C), 50% RH	2.4	--	%	
Outdoor Suitability	f2	--		UL 746C

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F (23°C))	421000 (2900)	276000 (1900)	psi (MPa)	ISO 527-1
Tensile Stress				ISO 527-2
Yield, 73°F (23°C)	12900 (89.0)	8700 (60.0)	psi (MPa)	
Break, 73°F (23°C)	11700 (81.0)	7110 (49.0)	psi (MPa)	
Tensile Strain				ISO 527-2
Yield, 73°F (23°C)	4.8	20	%	
Break, 73°F (23°C)	29	76	%	
Flexural Modulus (73°F (23°C))	479000 (3300)	160000 (1100)	psi (MPa)	ISO 178
Flexural Stress (73°F (23°C))	15200 (105)	4350 (30.0)	psi (MPa)	ISO 178
Poisson's Ratio (73°F (23°C))	0.40	--		ISO 527-2

Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-22°F (-30°C)	2.4 (5.0)	3.3 (7.0)	ft·lb/in² (kJ/m²)	
73°F (23°C)	2.9 (6.0)	11 (23)	ft·lb/in² (kJ/m²)	
Charpy Unnotched Impact Strength				ISO 179/1eU
-22°F (-30°C)	No Break	No Break		
73°F (23°C)	No Break	No Break		
Notched Izod Impact Strength				ISO 180/1A
-22°F (-30°C)	2.4 (5.0)	3.3 (7.0)	ft·lb/in² (kJ/m²)	
73°F (23°C)	2.9 (6.0)	11 (23)	ft·lb/in² (kJ/m²)	

Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load				
66 psi (0.45 MPa), Unannealed	410 (210)	--	°F (°C)	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	162 (72.0)	--	°F (°C)	ISO 75-2/A
Melting Temperature	500 (260)	--	°F (°C)	ISO 11357-3
CLTE				ISO 11359-2
Flow : 73 to 131°F (23 to 55°C), 0.0787 in (2.00 mm)	5.6E-5 (1.0E-4)	--	in/in/°F (cm/cm/°C)	
Transverse : 73 to 131°F (23 to 55°C), 0.0787 in (2.00 mm)	5.6E-5 (1.0E-4)	--	in/in/°F (cm/cm/°C)	
RTI Elec				UL 746B
0.016 in (0.40 mm)	266 (130)	--	°F (°C)	
0.028 in (0.71 mm)	266 (130)	--	°F (°C)	
0.06 in (1.5 mm)	266 (130)	--	°F (°C)	
0.12 in (3.0 mm)	266 (130)	--	°F (°C)	

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Thermal	Dry	Conditioned	Unit	Test Method
RTI Imp				UL 746B
0.016 in (0.40 mm)	167 (75.0)	--	°F (°C)	
0.028 in (0.71 mm)	167 (75.0)	--	°F (°C)	
0.06 in (1.5 mm)	167 (75.0)	--	°F (°C)	
0.12 in (3.0 mm)	167 (75.0)	--	°F (°C)	
RTI Str				UL 746B
0.016 in (0.40 mm)	167 (75.0)	--	°F (°C)	
0.028 in (0.71 mm)	185 (85.0)	--	°F (°C)	
0.06 in (1.5 mm)	185 (85.0)	--	°F (°C)	
0.12 in (3.0 mm)	185 (85.0)	--	°F (°C)	
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Volume Resistivity (0.0394 in (1.00 mm))	1.0E+13	--	ohms·cm	IEC 60093
Electric Strength (0.0394 in (1.00 mm))	660 (26)	--	V/mil (kV/mm)	IEC 60243-1
Arc Resistance (0.118 in (3.00 mm))	PLC 5	--		ASTM D495
Comparative Tracking Index				IEC 60112
0.118 in (3.00 mm)	600	--	V	
High Amp Arc Ignition (HAI)				UL 746A
0.016 in (0.40 mm)	PLC 1	--		
0.028 in (0.71 mm)	PLC 0	--		
0.06 in (1.5 mm)	PLC 0	--		
0.12 in (3.0 mm)	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)				UL 746A
0.118 in (3.00 mm)	PLC 0	--		
Hot-wire Ignition (HWI)				UL 746A
0.016 in (0.40 mm)	PLC 4	--		
0.028 in (0.71 mm)	PLC 4	--		
0.06 in (1.5 mm)	PLC 3	--		
0.12 in (3.0 mm)	PLC 2	--		
Flammability	**Dry**	**Conditioned**	**Unit**	**Test Method**
Flame Rating				UL 94
0.016 in (0.40 mm)	V-2	--		
0.028 in (0.71 mm)	V-2	--		
0.06 in (1.5 mm)	V-2	--		
0.12 in (3.0 mm)	V-2	--		

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Flammability	Dry	Conditioned	Unit	Test Method
Glow Wire Flammability Index				IEC 60695-2-12
0.016 in (0.40 mm)	1760 (960)	--	°F (°C)	
0.028 in (0.71 mm)	1760 (960)	--	°F (°C)	
0.06 in (1.5 mm)	1760 (960)	--	°F (°C)	
0.12 in (3.0 mm)	1760 (960)	--	°F (°C)	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.016 in (0.40 mm)	1520 (825)	--	°F (°C)	
0.028 in (0.71 mm)	1560 (850)	--	°F (°C)	
0.06 in (1.5 mm)	1560 (850)	--	°F (°C)	
0.12 in (3.0 mm)	1560 (850)	--	°F (°C)	
Oxygen Index	26	--	%	ISO 4589-2

Injection	Dry (English)	Dry (SI)
Drying Temperature	158 °F	70 °C
Drying Time	1.0 to 3.0 hr	1.0 to 3.0 hr
Rear Temperature	500 to 536 °F	260 to 280 °C
Middle Temperature	518 to 545 °F	270 to 285 °C
Front Temperature	536 to 554 °F	280 to 290 °C
Nozzle Temperature	536 to 572 °F	280 to 300 °C
Processing (Melt) Temp	545 to 572 °F	285 to 300 °C
Mold Temperature	149 to 203 °F	65 to 95 °C

Notes

[1] A UL Yellow Card contains UL-verified flammability and electrical characteristics. UL Prospector continually works to link Yellow Cards to individual plastic materials in Prospector, however this list may not include all of the appropriate links. It is important that you verify the association between these Yellow Cards and the plastic material found in Prospector. For a complete listing of Yellow Cards, visit the UL Yellow Card Search.

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

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Supplier

Ascend Performance Materials Operations LLC
Houston, Houston USA
Telephone: 888-927-2363
Web: http://www.ascendmaterials.com/

Distributor

Chase Plastic Services, Inc.
Chase Plastics Services is a North American distributor with representatives throughout the region. Please find your rep here: http://www.chaseplastics.com/contact/locations
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Web: http://www.chaseplastics.com/
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INTERPOLIMERI S.P.A.
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PolySource is a North American resin and plastics distributor. Please feel to reach out to your Technical Sales Account Manager. https://polysource.net/our-team/
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