

**Vydyne® 21SPF**

Ascend Performance Materials Operations LLC - Polyamide 66

**General Information**
**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		
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		

**Properties <sup>1</sup>**

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	2.0	--	%	
Flow : 73°F, 0.0787 in	2.0	--	%	
Water Absorption (24 hr, 73°F)	1.2	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	2.4	--	%	ISO 62
Outdoor Suitability	f2	--		UL 746C
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F)	421000	276000	psi	ISO 527-1
Tensile Stress (Yield, 73°F)	12900	8700	psi	ISO 527-2
Tensile Stress (Break, 73°F)	11700	7110	psi	ISO 527-2
Tensile Strain (Yield, 73°F)	4.8	20	%	ISO 527-2
Tensile Strain (Break, 73°F)	29	76	%	ISO 527-2
Flexural Modulus (73°F)	479000	160000	psi	ISO 178
Flexural Stress (73°F)	15200	4350	psi	ISO 178
Poisson's Ratio (73°F)	0.40	--		ISO 527-2
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-22°F	2.4	3.3	ft·lb/in <sup>2</sup>	
73°F	2.9	11	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 180/1A
-22°F	2.4	3.3	ft·lb/in <sup>2</sup>	
73°F	2.9	11	ft·lb/in <sup>2</sup>	
<b>Thermal</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Deflection Temperature Under Load (66 psi, Unannealed)	410	--	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	162	--	°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 746B
0.016 in	266	--	°F	
0.028 in	266	--	°F	
0.06 in	266	--	°F	
0.12 in	266	--	°F	
RTI Imp				UL 746B
0.016 in	167	--	°F	
0.028 in	167	--	°F	
0.06 in	167	--	°F	
0.12 in	167	--	°F	
RTI Str				UL 746B
0.016 in	167	--	°F	
0.028 in	185	--	°F	
0.06 in	185	--	°F	
0.12 in	185	--	°F	
<b>Electrical</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Volume Resistivity (0.0394 in)	1.0E+13	--	ohms·cm	IEC 60093
Electric Strength (0.0394 in)	660	--	V/mil	IEC 60243-1
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 746A
0.016 in	PLC 1	--		
0.028 in	PLC 0	--		
0.06 in	PLC 0	--		
0.12 in	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR) (0.118 in)	PLC 0	--		UL 746A
Hot-wire Ignition (HWI)				UL 746A
0.016 in	PLC 4	--		
0.028 in	PLC 4	--		
0.06 in	PLC 3	--		
0.12 in	PLC 2	--		
<b>Flammability</b>	<b>Dry</b>	<b>Conditioned</b>	<b>Unit</b>	<b>Test Method</b>
Flame Rating				UL 94
0.016 in	V-2	--		
0.028 in	V-2	--		
0.06 in	V-2	--		
0.12 in	V-2	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.016 in	1760	--	°F	
0.028 in	1760	--	°F	
0.06 in	1760	--	°F	
0.12 in	1760	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.016 in	1520	--	°F	
0.028 in	1560	--	°F	
	1560	--	°F	
	1560	--	°F	
	26	--	%	ISO



**Processing Information**

<b>Injection</b>	<b>Dry Unit</b>
Drying Temperature	158 °F
Drying Time	1.0 to 3.0 hr
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**

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> Railway Application

