Vydyne® 21SPF1

Ascend Performance Materials Operations LLC - *Polyamide 66*

General Information

Product Description

Vydyne 21SPF1 is a general-purpose, unfilled, lubricated PA66 resin with an enhanced crystallization temperature, and enhanced processing. Designed principally to further decrease cycle time, with a 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 • SAE J1639 PA0121 Z6
Automotive Specifications	• VOLKSWAGEN 50127 [1]		
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		
Resin ID	• PA66		

Properties [2]

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm³	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)	479000	232000	psi	ISO 527-1
Tensile Stress (Yield, 73°F)	12800	7980	psi	ISO 527-2
Tensile Stress (Break, 73°F)	8700	6530	psi	ISO 527-2
Tensile Strain (Yield, 73°F)	5.0	20	%	ISO 527-2
Tensile Strain (Break, 73°F)	20	> 50	%	ISO 527-2
Flexural Modulus (73°F)	479000	152000	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/in²	
73°F	2.9	11	ft·lb/in²	
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/in²	
73°F	2.9	11	ft·lb/in²	
Thermal	**Dry**	**Conditioned**	**Unit**	**Test Method**
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
0.028 in	266	--	°F	
0.06 in	266	--	°F	
0.12 in	266	--	°F	
RTI Imp				UL 746B
0.028 in	167	--	°F	
0.06 in	167	--	°F	
0.12 in	167	--	°F	
RTI Str				UL 746B
0.028 in	185	--	°F	
0.06 in	185	--	°F	
0.12 in	185	--	°F	
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
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
0.028 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
0.028 in	PLC 4	--		
0.06 in	PLC 3	--		
0.12 in	PLC 2	--		
Flammability	**Dry**	**Conditioned**	**Unit**	**Test Method**
Flame Rating				UL 94
0.028 in	V-2	--		
0.06 in	V-2	--		
0.12 in	V-2	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.028 in	1760	--	°F	
0.06 in	1760	--	°F	
0.12 in	1760	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.028 in	1560	--	°F	
0.06 in	1560	--	°F	
0.12 in	1560	--	°F	
Oxygen Index	26	--	%	ISO 4589-2

Processing Information

Injection	**Dry**	**Unit**
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
Melt) Temp	545 to 572	°F
ature	149 to 203	°F