

Vydyne® 21SPF BLK

Ascend Performance Materials Operations LLC - Polyamide 66

General Information

Product Description

Vydyne 21SPF BLK 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 • General Purpose • High Strength • Chemical Resistant • Good Mold Release • Lubricated • Fast Molding Cycle • Good Toughness • Oil Resistant • Gasoline Resistant • High Rigidity • Solvent Resistant
Agency Ratings	• ASTM D4066 PA0111 • FED L-P-410A • SAE J1639 PA0121 Z6 • ASTM D6779 PA0111 • MIL M-20693B
RoHS Compliance	• RoHS Compliant
Automotive Specifications	• STELLANTIS MS-DB-41 • TOYOTA TSM 5516G CPN1948 Color: Class 2, Rev 9
UL File Number	• E70062
Appearance	• Black
Forms	• Pellets
Processing Method	• Injection Molding
Resin ID	• PA66

Properties ¹

Physical	Dry	Conditioned	Unit	Test Method
Density	1.14	--	g/cm ³	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/in ²	
73°F	2.9	11	ft·lb/in ²	
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 ²	
73°F	2.9	11	ft·lb/in ²	
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
0.016 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	
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
0.016 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	--		
Flammability	Dry	Conditioned	Unit	Test Method
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	
0.030 in	1560	--	°F	
0.06 in	1560	--	°F	
0.12 in	1560	--	°F	
Oxvaen Index				ISO 4589-2
	26	--	%	
	26	--	%	

Processing Information

Dry Un

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

¹ Typical properties: these are not to be construed as specifications.

² Railway Application

