

Ascend Performance Materials Vydyne® 21SPF Nylon 66, General Purpose, High Productivity, DAM

Category : Polymer , Thermoplastic , Nylon , Nylon 66

Material Notes:

Vydyne® 21SPF is general-purpose PA66 resin. Available in natural, it is designed principally for injection-molding fabrication. This grade offers a well-balanced 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. Vydyne 21SPF resin permits product of molded parts with good initial color plus good property and color retention when using regrind. This resin is recognized by Underwriters Laboratories and conforms to the requirements of many industrial, federal and military specifications for premium-quality, general-purpose PA66 resins. Vydyne 21SPF resin is internally and externally lubricated for improved machine feed and exceptional mold release. It is intended for use in high-productivity applications. In many applications, the molding cycle can be reduced because parts may be removed from the cavity at higher temperatures. In difficult molds where parts have a tendency to stick in the cavity. Vydyne 21SPF can reduce or eliminate the need for mold release sprays. Critical molded part dimensions should be check against specifications before implementing shorter molding cycles on a routine product basis. Availability: Asia Pacific Europe North America Filler/Reinforcement: Glass Fiber Mineral Additive: Lubricant Features: Good Mold Release High Rigidity High Strength High Tensile Strength Lubricated Outstanding Surface Finish Uses: Automotive Under the Hood Gears Housings Lawn and Garden Equipment Metal Replacement Power/Other Tools Appearance: Natural Color Forms: Pellets Processing Method: Injection Molding Information provided by Ascend

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http://www.lookpolymers.com/polymer_Ascend-Performance-Materials-Vydyne-21SPF-Nylon-66-General-Purpose-High-Productivity-DAM.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.14 g/cc	1.14 g/cc	ISO 1183
Water Absorption	1.2 %	1.2 %	24 hrs; ISO 62
Moisture Absorption at Equilibrium	2.4 %	2.4 %	Equilibrium at 50%rh; ISO 62
Linear Mold Shrinkage	0.020 cm/cm @Thickness 2.00 mm	0.020 in/in @Thickness 0.0787 in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.020 cm/cm @Thickness 2.00 mm	0.020 in/in @Thickness 0.0787 in	ISO 294-4

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	60.0 MPa	8700 psi	ISO 527-2
Tensile Strength, Yield	88.0 MPa	12800 psi	ISO 527-2
Elongation at Break	20 %	20 %	ISO 527-2

Elongation at Yield Mechanical Properties	5.0 % Metric	5.0 % English	ISO 527-2 Comments
Tensile Modulus	3.30 GPa	479 ksi	ISO 527-2
Flexural Strength	105 MPa	15200 psi	ISO 178
Flexural Modulus	3.30 GPa	479 ksi	ISO 178
Poissons Ratio	0.40	0.40	ISO 527-2
Izod Impact, Notched (ISO)	6.00 kJ/m ²	2.86 ft-lb/in ²	ISO 180
	5.00 kJ/m ²	2.38 ft-lb/in ²	
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Charpy Impact Unnotched	NB	NB	ISO 179/1EU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	NB	NB	ISO 179/1EU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Charpy Impact, Notched	0.500 J/cm ²	2.38 ft-lb/in ²	ISO 179/1EA
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	0.600 J/cm ²	2.86 ft-lb/in ²	ISO 179/1EA
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	10.0 µm/m-°C	5.56 µin/in-°F	ISO 11359-2
	@Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	@Thickness 0.0787 in, Temperature 73.4 - 131 °F	
CTE, linear, Transverse to Flow	10.0 µm/m-°C	5.56 µin/in-°F	ISO 11359-2
	@Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	@Thickness 0.0787 in, Temperature 73.4 - 131 °F	
Melting Point	260 °C	500 °F	ISO 11357-3
Deflection Temperature at 0.46 MPa (66 psi)	210 °C	410 °F	ISO 75-B/2
Deflection Temperature at 1.8 MPa (264 psi)	72.0 °C	162 °F	ISO 75-A/2
UL RTI, Electrical	130 °C	266 °F	UL 746
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	130 °C	266 °F	

Thermal Properties	Metric @Thickness 0.400 mm	English @Thickness 0.0157 in	UL 746 Comments
	130 °C	266 °F	UL 746
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	130 °C	266 °F	UL 746
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical with Impact	75.0 °C	167 °F	UL 746
	@Thickness 0.400 mm	@Thickness 0.0157 in	
	75.0 °C	167 °F	UL 746
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	75.0 °C	167 °F	UL 746
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	75.0 °C	167 °F	UL 746
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical without Impact	75.0 °C	167 °F	UL 746
	@Thickness 0.400 mm	@Thickness 0.0157 in	
	85.0 °C	185 °F	UL 746
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	85.0 °C	185 °F	UL 746
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	85.0 °C	185 °F	UL 746
	@Thickness 3.00 mm	@Thickness 0.118 in	
Flammability, UL94	V-2	V-2	
	@Thickness 0.400 mm	@Thickness 0.0157 in	
	V-2	V-2	
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	V-2	V-2	
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	V-2	V-2	
	@Thickness 3.00 mm	@Thickness 0.118 in	
Oxygen Index	26 %	26 %	ASTM D2863

Thermal Properties	700 °C Metric	1290 °F English	Ignition Temperature; IEC 60695-2-13
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	700 °C	1290 °F	Ignition Temperature; IEC 60695-2-13
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	700 °C	1290 °F	Ignition Temperature; IEC 60695-2-13
	@Thickness 3.00 mm	@Thickness 0.118 in	
	800 °C	1470 °F	Flammability Index; IEC 60695-2-12
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	800 °C	1470 °F	Flammability Index; IEC 60695-2-12
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	930 °C	1710 °F	Flammability Index; IEC 60695-2-12
	@Thickness 3.00 mm	@Thickness 0.118 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+10 ohm-cm	1.00e+10 ohm-cm	IEC 60093
	@Thickness 0.750 mm	@Thickness 0.0295 in	
Dielectric Strength	26.0 kV/mm	660 kV/in	IEC 60243
	@Thickness 1.00 mm	@Thickness 0.0394 in	
Arc Resistance	120 - 179 sec	120 - 179 sec	ASTM D495
	@Thickness 3.00 mm	@Thickness 0.118 in	
Comparative Tracking Index	>= 600 V	>= 600 V	IEC 60112
	@Thickness 3.00 mm	@Thickness 0.118 in	
Hot Wire Ignition, HWI	7.0 - 15 sec	7.0 - 15 sec	UL 746
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	15 - 30 sec	15 - 30 sec	UL 746
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	15 - 30 sec	15 - 30 sec	UL 746
	@Thickness 3.00 mm	@Thickness 0.118 in	
High Amp Arc Ignition, HAI	>= 120 arcs	>= 120 arcs	UL 746A
	@Thickness 0.710 mm	@Thickness 0.0280 in	
	>= 120 arcs	>= 120 arcs	UL 746
	@Thickness 1.50 mm	@Thickness 0.0591 in	

Electrical Properties	Metric	English	Comments
	@Thickness 3.00 mm	@Thickness 0.118 in	UL 746
High Voltage Arc-Tracking Rate, HVTR	0.000 - 10.0 mm/min	0.000 - 0.394 in/min	UL 746

Processing Properties	Metric	English	Comments
Processing Temperature	285 - 300 °C	545 - 572 °F	Melt
Rear Barrel Temperature	260 - 280 °C	500 - 536 °F	
Middle Barrel Temperature	270 - 285 °C	518 - 545 °F	
Front Barrel Temperature	280 - 290 °C	536 - 554 °F	
Nozzle Temperature	280 - 300 °C	536 - 572 °F	
Mold Temperature	65.0 - 95.0 °C	149 - 203 °F	
Drying Temperature	<= 70.0 °C	<= 158 °F	

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