Ascend Performance Materials Vydyne® R513H Nylon 66, 13% Glass Filled, Dry as Molded

Category : Polymer , Thermoplastic , Nylon , Nylon 66 , Nylon 66, 10% Glass Fiber Filled

Material Notes:

Vydyne® R513H is general-purpose, 13% glass-reinforced, heat stabilized PA66 resin. Available in natural, it is an injection-molding grade resin that is lubricated for machine feed, flow, and mold release. Glass-reinforced Vydyne resins provide a higher heat distortion temperature, better resistance to creep, higher impact, and better dimensional stability when compared with unreinforced PA66. This product has good chemical resistance to a broad range of chemicals, including many aliphatic and aromatic hydrocarbons found in most solvent, gasoline, hydraulic fluids, greases and machine oils. Vydyne R513 has tensile strength and modulus properties just below aluminum and zinc can replace these metals in numerous applications due to an excellent balance of properties. Reduction in production costs, energy consumption and part weight are key advantages of Vydyen glass-reinforced PA66 resins over aluminum and/or zinc die-cast parts. Vydyne R513H is heat-stabilized and formulated to minimize the oxidative and thermal degradation of the PA66 polymer when exposed to elevated temperature for extended periods of time. Vydyne R513H provides improved retention of physical properties under exposure to long-term heat. The continuous operating use temperature is 275°F, with short-term peak temperature as high as 475°F. Typical Applications/End Uses: Vydyne R513H resin has been used for many under-th-hood automotive applications, motor housings for power tools and garden appliances. The resin has also been used in miscellaneous brackets, gears and clips, which require high rigidity and strength.Availability:Asia PacificEuropeNorth AmericaFiller/Reinforcement:Glass Fiber, 13% Filler by Weight Additive:Heat StabilizerLubricant Features: Gasoline ResistanceGood Chemical Resistance Good FlowGood Mold ReleaseGrease ResistantHeat Stabilized High RigidityHigh StrengthLubricatedOil ResistantSolvent ResistantUses: Automotive Under the Hood GearsHousings Power/Other ToolsAppearance: Natural ColorForms: PelletsProcessing Method: Injection Molding

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http://www.lookpolymers.com/polymer_Ascend-Performance-Materials-Vydyne-R513H-Nylon-66-13-Glass-Filled-Dry-as-Molded.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.23 g/cc	1.23 g/cc	ISO 1183
Water Absorption	1.0 % @Time 86400 sec	1.0 % @Time 24.0 hour	ISO 62
Moisture Absorption at Equilibrium	2.2 %	2.2 %	50% RH; ISO 62
Linear Mold Shrinkage	0.0050 cm/cm @Thickness 2.00 mm	0.0050 in/in @Thickness 0.0787 in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.010 cm/cm @Thickness 2.00 mm	0.010 in/in @Thickness 0.0787 in	ISO 294-4

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	115 MPa	16700 psi	ISO 527-2
	115 MPa	16700 psi	ISO 527-2

Mechanical Properties	Metric	English	Comments
Elongation at Break	3.0 %	3.0 %	ISO 527-2
Tensile Modulus	6.20 GPa	899 ksi	ISO 527-2
Flexural Strength	165 MPa	23900 psi	ISO 178
Flexural Modulus	5.20 GPa	754 ksi	ISO 178
Poissons Ratio	0.40	0.40	ISO 527-2
Izod Impact, Notched (ISO)	5.10 kJ/m²	2.43 ft-lb/in²	ISO 180
Charpy Impact Unnotched	3.10 J/cm² @Temperature -30.0 °C	14.8 ft-lb/in² @Temperature -22.0 °F	ISO 179
	3.80 J/cm² @Temperature 23.0 °C	18.1 ft-lb/in² @Temperature 73.4 °F	ISO 179
Charpy Impact, Notched	0.600 J/cm² @Temperature 23.0 °C	2.86 ft-lb/in² @Temperature 73.4 °F	ISO 179
	0.600 J/cm² @Temperature -30.0 °C	2.86 ft-lb/in² @Temperature -22.0 °F	ISO 179

Thermal Properties	Metric	English	Comments
CTE, linear	3.00 µm/m-°C @Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	1.67 µin/in-°F @Thickness 0.0787 in, Temperature 73.4 - 131 °F	ISO 11359-2
CTE, linear, Transverse to Flow	11.0 µm/m-°C @Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	6.11 µin/in-°F @Thickness 0.0787 in, Temperature 73.4 - 131 °F	ISO 11359-2
Melting Point	260 °C	500 °F	ISO 11357-3
Deflection Temperature at 0.46 MPa (66 psi)	258 °C	496 °F	ISO 75-2/B
Deflection Temperature at 1.8 MPa (264 psi)	240 °C	464 °F	ISO 75-2/A
UL RTI, Electrical	140 °C @Thickness 0.710 mm	284 °F @Thickness 0.0280 in	UL 746
	140 °C @Thickness 1.50 mm	284 °F @Thickness 0.0591 in	UL 746
	140 °C	284 °F	

Thermal Properties	Metric	English	Comments
	@Thickness 3.00 mm	@Thickness 0.118 in	UL 746
UL RTI, Mechanical with Impact	120 °C @Thickness 0.710 mm	248 °F @Thickness 0.0280 in	UL 746
	120 °C @Thickness 1.50 mm	248 °F @Thickness 0.0591 in	UL 746
	120 °C @Thickness 3.00 mm	248 °F @Thickness 0.118 in	UL 746
UL RTI, Mechanical without Impact	125 °C @Thickness 0.710 mm	257 °F @Thickness 0.0280 in	UL 746
	140 °C @Thickness 1.50 mm	284 °F @Thickness 0.0591 in	UL 746
	140 °C @Thickness 3.00 mm	284 °F @Thickness 0.118 in	UL 746
Flammability, UL94	HB @Thickness 0.710 mm	HB @Thickness 0.0280 in	
	HB @Thickness 1.50 mm	HB @Thickness 0.0591 in	
	HB @Thickness 3.00 mm	HB @Thickness 0.118 in	
Oxygen Index	25 %	25 %	ASTM D2863
Glow Wire Test	675 °C @Thickness 0.710 mm	1250 °F @Thickness 0.0280 in	Flame Index; IEC 60695-2-12
	675 °C @Thickness 1.50 mm	1250 °F @Thickness 0.0591 in	Flame Index; IEC 60695-2-12
	675 °C @Thickness 3.00 mm	1250 °F @Thickness 0.118 in	Flame Index; IEC 60695-2-12
	700 °C @Thickness 0.710 mm	1290 °F @Thickness 0.0280 in	Ignition Temperature; IEC 60695-2-12
	700 °C @Thickness 1.50 mm	1290 °F @Thickness 0.0591 in	Ignition Temperature; IEC 60695-2-12

Thermal Properties	Metric	English	Comments
	700 °C	1290 °F	Ignition Temperature; IEC 60695-2-12
	@Thickness 3.00 mm	@Thickness 0.118 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+13 ohm-cm @Thickness 0.750 mm	1.00e+13 ohm-cm @Thickness 0.0295 in	IEC 60093
Dielectric Strength	20.0 kV/mm @Thickness 3.00 mm	508 kV/in @Thickness 0.118 in	IEC 60243
Arc Resistance	60 - 120 sec @Thickness 3.00 mm	60 - 120 sec @Thickness 0.118 in	ASTM D495
Comparative Tracking Index	250 - 399 V @Thickness 3.00 mm	250 - 399 V @Thickness 0.118 in	IEC 60112
Hot Wire Ignition, HWI	7.0 - 15 sec @Thickness 3.00 mm	7.0 - 15 sec @Thickness 0.118 in	UL 746
	7.0 - 15 sec @Thickness 0.710 mm	7.0 - 15 sec @Thickness 0.0280 in	UL 746
	15 - 30 sec @Thickness 1.50 mm	15 - 30 sec @Thickness 0.0591 in	UL 746
High Amp Arc Ignition, HAI	>= 120 arcs @Thickness 0.710 mm	>= 120 arcs @Thickness 0.0280 in	UL 746
	>= 120 arcs @Thickness 1.50 mm	>= 120 arcs @Thickness 0.0591 in	UL 746
	>= 120 arcs @Thickness 3.00 mm	>= 120 arcs @Thickness 0.118 in	UL 746
High Voltage Arc-Tracking Rate, HVTR	10.1 - 25.4 mm/min	0.398 - 1.00 in/min	UL 746

Processing Properties	Metric	English	Comments
Processing Temperature	285 - 305 °C	545 - 581 °F	Melt
Rear Barrel Temperature	280 - 310 °C	536 - 590 °F	
Middle Barrel Temperature	280 - 310 °C	536 - 590 °F	
Front Barrel Temperature	280 - 310 °C	536 - 590 °F	

Processing Properties	Metric	English	Comments
Nozzle Temperature	280 - 310 °C	536 - 590 °F	
Mold Temperature	65.0 - 95.0 °C	149 - 203 °F	
Drying Temperature	80.0 °C	176 °F	
Dry Time	4.00 hour	4.00 hour	

Descriptive Properties	Value	Comments
Suggested Max Regrind	25%	

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