

Ascend Performance Materials Vydyn® R543H Nylon 66, 43% Glass Filled, Dry as Molded

Category : Polymer , Thermoplastic , Nylon , Nylon 66 , Nylon 66, 40% Glass Fiber Filled

Material Notes:

Vydyn® R543H is general-purpose, 43% glass-reinforced PA66 resin. Available in natural, it is an injection-molding grade resin that is lubricated for improved machine feed, flow and mold release. Glass-reinforced Vydyn resins provide a higher heat distortion temperature, better resistance to creep, higher impact and better dimensional stability when compared with unreinforced PA66. These products have 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. Vydyn R543H resin has tensile strength and modulus properties just below aluminum and zinc and 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 Vydyn glass-reinforced PA66 resins over aluminum and/or zinc die-cast parts. Vydyn R543H is formulated to minimize the oxidative and thermal degradation of the PA66 polymer when exposed to elevated temperatures for extended periods of time. Vydyn R543H 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. Availability: Asia Pacific Europe North America Filler/Reinforcement: Glass Fiber, 43% Filler by Weight Additive: Heat Stabilizer Lubricant Features: Gasoline Resistance Good Chemical Resistance Good Creep Resistance Good Dimensional Stability Good Flow Good Impact Resistance Good Mold Release Grease Resistant Heat Stabilized High Rigidity High Strength High Tensile Strength Lubricated Oil Resistant Solvent Resistant Uses: Automotive Under the Hood Gears Housings Lawn and Garden Equipment Power/Other Tools Appearance: Natural Color Forms: Pellets Processing Method: Injection Molding

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http://www.lookpolymers.com/polymer_Ascend-Performance-Materials-Vydyn-R543H-Nylon-66-43-Glass-Filled-Dry-as-Molded.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.50 g/cc	1.50 g/cc	ISO 1183
Water Absorption	0.60 % @Time 86400 sec	0.60 % @Time 24.0 hour	ISO 62
Moisture Absorption at Equilibrium	1.5 %	1.5 %	50% RH; ISO 62
Linear Mold Shrinkage	0.0040 cm/cm @Thickness 2.00 mm	0.0040 in/in @Thickness 0.0787 in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.0090 cm/cm @Thickness 2.00 mm	0.0090 in/in @Thickness 0.0787 in	ISO 294-4

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	225 MPa	32600 psi	ISO 527-2
Elongation at Break	3.0 %	3.0 %	ISO 527-2

Tensile Modulus Mechanical Properties	14.8 GPa Metric	2150 ksi English	ISO 527-2 Comments
Flexural Strength	340 MPa	49300 psi	ISO 178
Flexural Modulus	12.5 GPa	1810 ksi	ISO 178
Poissons Ratio	0.40	0.40	ISO 527-2
Izod Impact, Notched (ISO)	13.0 kJ/m ²	6.19 ft-lb/in ²	ISO 180
	13.0 kJ/m ² @Temperature -30.0 °C	6.19 ft-lb/in ² @Temperature -22.0 °F	ISO 180
Charpy Impact Unnotched	8.70 J/cm ² @Temperature -30.0 °C	41.4 ft-lb/in ² @Temperature -22.0 °F	ISO 179
	9.20 J/cm ² @Temperature 23.0 °C	43.8 ft-lb/in ² @Temperature 73.4 °F	ISO 179
Charpy Impact, Notched	1.30 J/cm ² @Temperature -30.0 °C	6.19 ft-lb/in ² @Temperature -22.0 °F	ISO 179
	1.40 J/cm ² @Temperature 23.0 °C	6.66 ft-lb/in ² @Temperature 73.4 °F	ISO 179

Thermal Properties	Metric	English	Comments
CTE, linear	1.60 µm/m-°C @Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	0.889 µin/in-°F @Thickness 0.0787 in, Temperature 73.4 - 131 °F	ISO 11359-2
CTE, linear, Transverse to Flow	10.0 µm/m-°C @Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	5.56 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)	260 °C	500 °F	ISO 75-2/B
Deflection Temperature at 1.8 MPa (264 psi)	252 °C	486 °F	ISO 75-2/A
UL RTI, Electrical	140 °C @Thickness 0.750 mm	284 °F @Thickness 0.0295 in	UL 746B
	140 °C @Thickness 1.50 mm	284 °F @Thickness 0.0591 in	UL 746B

Thermal Properties	140 °C Metric	284 °F English	Comments
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical with Impact	130 °C	266 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	130 °C	266 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	130 °C	266 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical without Impact	140 °C	284 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	140 °C	284 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	140 °C	284 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
Flammability, UL94	HB	HB	
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	HB	HB	
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	HB	HB	
	@Thickness 3.00 mm	@Thickness 0.118 in	
Oxygen Index	25 %	25 %	ASTM D2863
Glow Wire Test	675 °C	1250 °F	Flammability Index; IEC 60695-2-12
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	675 °C	1250 °F	Flammability Index; IEC 60695-2-12
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	700 °C	1290 °F	Ignition Temperature; IEC 60695-2-12
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	700 °C	1290 °F	Ignition Temperature; IEC 60695-2-12
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	750 °C	1380 °F	Ignition Temperature; IEC 60695-2-12
	@Thickness 3.00 mm	@Thickness 0.118 in	

Thermal Properties	Metric	English	Comments
	@Thickness 3.00 mm	@Thickness 0.118 in	Flammability Index, IEC 60695-2-12

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+12 ohm-cm @Thickness 0.750 mm	1.00e+12 ohm-cm @Thickness 0.0295 in	IEC 60093
Dielectric Strength	20.0 kV/mm @Thickness 1.00 mm	508 kV/in @Thickness 0.0394 in	IEC 60243
Arc Resistance	120 - 179 sec @Thickness 3.00 mm	120 - 179 sec @Thickness 0.118 in	ASTM D495
Comparative Tracking Index	400 - 599 V @Thickness 3.00 mm	400 - 599 V @Thickness 0.118 in	IEC 60112
Hot Wire Ignition, HWI	7.0 - 15 sec @Thickness 0.750 mm	7.0 - 15 sec @Thickness 0.0295 in	UL 746
	7.0 - 15 sec @Thickness 3.00 mm	7.0 - 15 sec @Thickness 0.118 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 0.750 mm	>= 120 arcs @Thickness 0.0295 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	280 - 310 °C	536 - 590 °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
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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