

Vydyne® R543H Natural

Polyamide 66

Ascend Performance Materials Operations LLC

Message:

Vydyne R543H Natural is general-purpose, hydrolysis-resistant, 43% glass-fiber reinforced 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. These products have good chemical resistance to a broad range of chemicals, including many aliphatic and aromatic hydrocarbons found in most solvents, gasoline, hydraulic fluids, greases and machine oils.

Vydyne R543H Natural 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 Vydyne glass-reinforced PA66 resins over aluminum and/ or zinc die-cast parts.

Vydyne R543H Natural is formulated to minimize the oxidative and thermal degradation of the PA66 polymer when exposed to elevated temperatures for extended periods of time. Vydyne R543H Natural provides improved retention of physical properties under exposure to long-term heat. The continuous operating use temperature is 275°F, with short-term peak temperatures as high as 475°F.

Typical Applications/End Uses:
To come

General Information	
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
	Hydrolysis Resistant
	Lubricated
	Oil Resistant
	Solvent Resistant
Uses	Automotive Under the Hood
	Gears
	Housings
	Lawn and Garden Equipment

Power/Other Tools

Agency Ratings		ASTM D 4066 PA012G45		
		ASTM D 6779 PA012G45		
UL File Number		E70062		
Appearance		Natural Color		
Forms		Pellets		
Processing Method		Injection Molding		
Physical	Dry	Conditioned	Unit	Test Method
Density	1.50	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 23°C, 2.00 mm	0.90	--	%	
Flow : 23°C, 2.00 mm	0.40	--	%	
Water Absorption				ISO 62
23°C, 24 hr	0.60	--	%	
Equilibrium, 23°C, 50% RH	1.5	--	%	
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	14800	11300	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	225	170	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	3.0	4.0	%	ISO 527-2
Flexural Modulus (23°C)	12500	9400	MPa	ISO 178
Flexural Stress (23°C)	340	250	MPa	ISO 178
Poisson's Ratio	0.40	--		ISO 527-2
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-30°C	13	14	kJ/m ²	
23°C	14	20	kJ/m ²	
Charpy Unnotched Impact Strength				ISO 179
-30°C	87	90	kJ/m ²	
23°C	92	95	kJ/m ²	
Notched Izod Impact Strength				ISO 180
-30°C	13	13	kJ/m ²	
23°C	13	19	kJ/m ²	
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
0.45 MPa, Unannealed	260	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	252	--	°C	ISO 75-2/A

Melting Temperature	260	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	1.6E-5	--	cm/cm/°C	
Transverse : 23 to 55°C, 2.00 mm	1.0E-4	--	cm/cm/°C	
RTI Elec				UL 746
0.750 mm	140	--	°C	
1.50 mm	140	--	°C	
3.00 mm	140	--	°C	
RTI Imp				UL 746
0.750 mm	130	--	°C	
1.50 mm	130	--	°C	
3.00 mm	130	--	°C	
RTI Str				UL 746
0.750 mm	140	--	°C	
1.50 mm	140	--	°C	
3.00 mm	140	--	°C	
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity (0.750 mm)	1.0E+12	--	ohms·cm	IEC 60093
Dielectric Strength (1.00 mm)	20	--	kV/mm	IEC 60243
Arc Resistance (3.00 mm)	PLC 5	--		ASTM D495
Comparative Tracking Index (3.00 mm)	400 to 599	--	V	IEC 60112
High Amp Arc Ignition (HAI)				UL 746
0.750 mm	PLC 0	--		
1.50 mm	PLC 0	--		
3.00 mm	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)	PLC 1	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.750 mm	PLC 4	--		
1.50 mm	PLC 3	--		
3.00 mm	PLC 4	--		
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.750 mm	HB	--		
1.50 mm	HB	--		
3.00 mm	HB	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.750 mm	675	--	°C	

1.50 mm	675	--	°C	
3.00 mm	960	--	°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.750 mm	700	--	°C	
1.50 mm	700	--	°C	
3.00 mm	750	--	°C	
Oxygen Index	25	--	%	ISO 4589-2
Additional Information	Dry	Conditioned		Test Method
Automotive Materials - (thickness d = 1mm)	+	--		FMVSS 302
Injection	Dry	Unit		
Drying Temperature	80.0		°C	
Drying Time	4.0		hr	
Suggested Max Regrind	25		%	
Rear Temperature	280 to 310		°C	
Middle Temperature	280 to 310		°C	
Front Temperature	280 to 310		°C	
Nozzle Temperature	280 to 310		°C	
Processing (Melt) Temp	285 to 305		°C	
Mold Temperature	65.0 to 95.0		°C	

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