

Vydyne® R533H NAT

Polyamide 66

Ascend Performance Materials Operations LLC

Message:

Vydyne R533H NAT is 33% glass-fiber reinforced, hydrolysis-resistant, heat-stabilized PA66 resin. Available in natural, it is specifically designed to maximize the retention of physical properties when exposed to anti-freeze solutions at elevated temperatures. This product is lubricated for improved machine feed and flow.

Glass-reinforced Vydyne resins provide higher heat distortion temperature, resistance to creep and better dimensional stability when compared with unreinforced PA66. These products have good chemical resistance to a broad range of chemicals including gasoline, hydraulic fluids and most solvents. Vydyne R533H NAT resin is heat-stabilized to minimize oxidative degradation of the polymer when exposed to elevated temperatures in service. This product provides improved retention of physical properties under exposure to long-term heat. Also, Vydyne R533H NAT resin has excellent knit-line strength and fatigue resistance, which is essential for cycle testing with anti-freeze solutions.

Typical Applications/End Uses:

Vydyne R533H NAT resin has been used for many under-the-hood automotive applications, motor housings for power tools and garden appliances. This resin has also been used in miscellaneous brackets, gears and clips that require high rigidity and strength.

General Information				
Filler / Reinforcement		Glass Fiber,33% Filler by Weight		
Additive		Heat Stabilizer		
		Lubricant		
Features		Good Flow		
		Good Mold Release		
		Heat Stabilized		
		High Rigidity		
		High Strength		
		Hydrolysis Resistant		
		Lubricated		
Uses		Automotive Under the Hood		
		Gears		
		Housings		
		Power/Other Tools		
Agency Ratings		ASTM D 4066 PA0121G35		
		ASTM D 6779 PA0121G35		
UL File Number		E70062		
Appearance		Natural Color		
Forms		Pellets		
Processing Method		Injection Molding		
Physical	Dry	Conditioned	Unit	Test Method
Density	1.40	--	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	0.80	--	%	
Equilibrium, 23°C, 50% RH	1.7	--	%	
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	10600	7900	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	205	145	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	3.0	5.0	%	ISO 527-2
Flexural Modulus (23°C)	10200	6500	MPa	ISO 178
Flexural Stress (23°C)	290	200	MPa	ISO 178
Poisson's Ratio	0.40	--		ISO 527-2
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-30°C	10	12	kJ/m ²	
23°C	11	14	kJ/m ²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	70	85	kJ/m ²	
23°C	80	90	kJ/m ²	
Notched Izod Impact Strength				ISO 180
-30°C	10	12	kJ/m ²	
23°C	12	14	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	250	--	°C	ISO 75-2/A
Melting Temperature	260	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	2.1E-5	--	cm/cm/°C	
Transverse : 23 to 55°C, 2.00 mm	1.1E-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	125	--	°C	

1.50 mm	125	--	°C	
3.00 mm	125	--	°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+13	--	ohms · cm	IEC 60093
Dielectric Strength (1.00 mm)	20	--	kV/mm	IEC 60243
Arc Resistance (3.00 mm)	PLC 6	--		ASTM D495
Comparative Tracking Index (3.00 mm)	250 to 399	--	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	675	--	°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.750 mm	700	--	°C	
1.50 mm	700	--	°C	
3.00 mm	700	--	°C	
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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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519
Phone: +86 13424755533
Email: sales@su-jiao.com
No. 215, Lianhe North Road, Fengxian District, Shanghai, China

