Vydyne® R533H NT
polyamide 66

Vydyne R533H NT is 33% glass-fiber reinforced, 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 NT 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 NT 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 NT 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			
Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Filler / Reinforcement	• Glass Fiber, 33% Filler by Weight		
Additive	• Heat Stabilizer	• Lubricant	
Features	• Good Mold Release • Heat Stabilized	• High Flow • High Rigidity	• High Strength • Lubricated
Uses	• Automotive Under the Hood • Gears	• Housings • Power/Other Tools	• Transmission Applications
Agency Ratings	• ASTM D4066 PA012G35 • ASTM D6779 PA012G35	• EC 1935/2004 • EU 10/2011	• EU 2023/2006 • FDA 21 CFR 177.1500
Automotive Specifications	• CHRYSLER MS-DB-41 CPN2043 • DELPHI M-4692V • FORD ESE-M4D287-A	• FORD ESE-M4D287-B • FORD WSK-M4D663-A • GM GMP.PA66.013	• GM GMP.PA66.054 • GM GMW15702-110057
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	Dry	Conditioned	Unit	Test Method
Density	1.40	--	g/cm³	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
24 hr, 23°C	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/m²	
23°C	11	14	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	70	85	kJ/m²	
23°C	80	90	kJ/m²	
Notched Izod Impact Strength				ISO 180
-30°C	10	12	kJ/m²	
23°C	12	14	kJ/m²	

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
0.75 mm	140	--	°C	
1.5 mm	140	--	°C	
3.0 mm	140	--	°C	
RTI Imp				UL 746
0.75 mm	125	--	°C	
1.5 mm	125	--	°C	
3.0 mm	125	--	°C	
RTI Str				UL 746
0.75 mm	140	--	°C	
1.5 mm	140	--	°C	
3.0 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
0.75 mm	PLC 0	--		
1.5 mm	PLC 0	--		
3.0 mm	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)	PLC 1	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.75 mm	PLC 4	--		
1.5 mm	PLC 3	--		
3.0 mm	PLC 4	--		

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.75 mm	HB	--		
1.5 mm	HB	--		
3.0 mm	HB	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.75 mm	725	--	°C	
1.5 mm	700	--	°C	
3.0 mm	875	--	°C	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.75 mm	750	--	°C	
1.5 mm	725	--	°C	
3.0 mm	750	--	°C	

Injection	Dry	Unit
Drying Temperature	80	°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 to 95	°C

Notes
Typical properties: these are not to be construed as specifications.

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