

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 We 	eight	
Additive	Heat Stabilizer	Lubricant	
Features	Good Mold ReleaseHeat Stabilized	High FlowHigh Rigidity	High StrengthLubricated
Uses	Automotive Under the HoodGears	 Housings Power/Other Tools	Transmission Applications
Agency Ratings	ASTM D4066 PA012G35ASTM D6779 PA012G35	• EC 1935/2004 • EU 10/2011	• EU 2023/2006 • FDA 21 CFR 177.1500
Automotive Specifications	CHRYSLER MS-DB-41 CPN2043DELPHI M-4692VFORD ESE-M4D287-A	FORD ESE-M4D287-BFORD WSK-M4D663-AGM 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	



Heat Deflection Temperature	Thermal	Dry	Conditioned	Unit	Test Method
1.8 MPa, Unannealed 250	Heat Deflection Temperature				
Melting Temperature 260 °C ISO 11357-3 CLTE ISO 11359-2 ISO 11359-2 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 TRTI Elec "C 0.75 mm 140 "C 1.5 mm 140 "C 3.0 mm 140 "C 1.5 mm 125 "C 1.5 mm 125 "C 3.0 mm 125 "C 1.5 mm 140 "C 1.5 mm 10 y Conditioned Unit Test Method Volume Resistivity (0.750 mm) 1.0E+13	0.45 MPa, Unannealed	260		°C	ISO 75-2/B
CLTE Flow: 23 to 55°C, 2.00 mm	1.8 MPa, Unannealed	250		°C	ISO 75-2/A
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 8TI Imp UL 746 C 0.75 mm 125 °C 3.0 mm 125 °C 3.0 mm 125 °C 3.0 mm 140 °C 0.75 mm 140 °C 1.5 mm 140 °C 1.5 mm 140 °C 3.0 mm 140 °C 1.5 mm 140 °C 3.0 mm 140 °C 4 c °C 5 c Resistance (3.00 mm) Elec 60243 10 c	Melting Temperature	260		°C	ISO 11357-3
Transverse : 23 to 55°C, 2.00 mm 1.1E-4 cm/cm/cm/cm RTI Elec 1.40 °C 0.75 mm 1.40 °C 1.5 mm 1.40 °C 3.0 mm 1.40 °C 3.0 mm 1.25 °C 1.5 mm 1.25 °C 3.0 mm 1.25 °C 3.0 mm 1.25 °C 7.5 mm 1.40 °C 1.5 mm 1.40 °C 3.0 mm 1.40 °C 1.5 mm 1.40 °C 3.0 mm 1.04 °C 1.5 mm 1.0E+13 °C 1.5 mm 1.0E+13 Nome Dielectric Strength (1.00 mm) 20 kV/mm IEC 60033 Comparative Tracking Index (3.00 mm) 250 to 399 V <td< td=""><td>CLTE</td><td></td><td></td><td></td><td>ISO 11359-2</td></td<>	CLTE				ISO 11359-2
RTI Elec UL 746 0.75 mm 140 °C 1.5 mm 140 °C 3.0 mm 140 °C 3.0 mm 140 °C RTI Imp UL 746 UL 746 0.75 mm 125 °C 1.5 mm 125 °C 3.0 mm 140 °C 1.5 mm 140 °C 1.5 mm 140 °C 3.0 mm 140 °C 1.5 mm 140 °C 1.5 mm 140 °C 1.5 mm 10 mm 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 Trac	Flow: 23 to 55°C, 2.00 mm	2.1E-5		cm/cm/°C	
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 3.0 mm 140 °C 1.5 mm 140 °C 3.0 mm 140 °C 4 cc °C °C 3.0 mm 10e °C 4 cc °C °C 5 cc °C °C 4 cc °C °C 4 cc °C °C 5 cc °C °C 6 cc kW/mm IEC 60033	Transverse: 23 to 55°C, 2.00 mm	1.1E-4		cm/cm/°C	
1.5 mm 140 °C 3.0 mm 140 °C RTII 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 3.0 mm 140 °C 4 C °C C 3.0 mm 140 °C 4 C °C C 3.0 mm 1.0 E+13 0hms-cm IEC 60093 Dielectric Strength (1.00 mm) 20 kV/mm IEC 600243 Arc Resistance (3.00 mm) PLC 6 V IEC 60112 High Amp Arc Ignition (HAl) V IEC 60112 0.75 mm PLC 0 UL 746 1.5 mm PLC 0 UL 746 <	RTI Elec				UL 746
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 3.0 mm 140 °C 4 C °C 5 mm 140 °C 3.0 mm 140 °C 4 c °C 5 mm 1.0 mm °C 4 c Arc 4 c 4 kV/mm IEC 60033 5 c 4 kV/mm IEC 60243 6 c 4 kV/mm IEC 60112 1 c 4 kV/mm IEC 60112 1 c 4 kV/mm IEC 60112 1 c 4 kV/mm IEC 6011	0.75 mm	140		°C	
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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 UL 746 1.5 mm PLC 0 UL 746 High Voltage Arc Tracking Rate (HVTR) PLC 1 UL 746 Hot-wire Ignition (HWI) 0.75 mm PLC 4 UL 746 1.5 mm PLC 3 UL 746	3.0 mm	140		°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 UL 746 Hot-wire Ignition (HWI) PLC 4 UL 746 0.75 mm PLC 4 UL 746 1.5 mm PLC 4	RTI Imp				UL 746
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 UL 746 Hot-wire Ignition (HWI) UL 746 0.75 mm PLC 4 1.5 mm PLC 4 1.5 mm PLC 3	0.75 mm	125		°C	
RTI Str UL 746 0.75 mm 140 °C 1.5 mm 140 °C 3.0 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 UL 746 0.75 mm PLC 0 UL 746 High Voltage Arc Tracking Rate (HVTR) PLC 1 UL 746 Hot-wire Ignition (HWI) UL 746 UL 746 0.75 mm PLC 4 L 1.5 mm PLC 3 UL 746	1.5 mm	125		°C	
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 UL 746 0.75 mm PLC 0 UL 746 High Voltage Arc Tracking Rate (HVTR) PLC 1 UL 746 Hot-wire Ignition (HWI) UL 746 UL 746 0.75 mm PLC 4 UL 746 1.5 mm PLC 3	3.0 mm	125		°C	
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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 UL 746 0.75 mm PLC 0 1.5 mm PLC 0 High Voltage Arc Tracking Rate (HVTR) PLC 1 UL 746 Hot-wire Ignition (HWI) PLC 4 UL 746 0.75 mm PLC 4 1.5 mm PLC 3	1.5 mm	140		°C	
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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 UL 746 0.75 mm PLC 4 1.5 mm PLC 3	Volume Resistivity (0.750 mm)	1.0E+13		ohms∙cm	IEC 60093
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 UL 746 0.75 mm PLC 4 1.5 mm PLC 3	Dielectric Strength (1.00 mm)	20		kV/mm	IEC 60243
High Amp Arc Ignition (HAI) 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 UL 746 1.5 mm PLC 3	Arc Resistance (3.00 mm)	PLC 6			ASTM D495
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	Comparative Tracking Index (3.00 mm)	250 to 399		V	IEC 60112
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High Voltage Arc Tracking Rate (HVTR) PLC 1 UL 746 Hot-wire Ignition (HWI) UL 746 UL 746 0.75 mm PLC 4 1.5 mm PLC 3	1.5 mm	PLC 0			
Hot-wire Ignition (HWI) 0.75 mm PLC 4 1.5 mm PLC 3	3.0 mm	PLC 0			
0.75 mm PLC 4 1.5 mm PLC 3	High Voltage Arc Tracking Rate (HVTR)	PLC 1			UL 746
1.5 mm PLC 3	Hot-wire Ignition (HWI)				UL 746
	0.75 mm	PLC 4			
3.0 mm PLC 4	1.5 mm	PLC 3			
	3.0 mm	PLC 4			



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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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