

# Vydyne® R515H Natural polyamide 66



Vydyne R515H Natural is high-flow, heat-stabilized, hydrolysis-resistant, 15% glass-fiber reinforced 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 also lubricated for improved flow and offers superior surface appearance.

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 R515H Natural 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 R515H Natural has excellent knit-line strength and fatigue resistance, which is essential for cycle testing with anti-freeze solutions.

#### Typical Applications/End Uses:

Vydyne R515H Natural is successfully used in a wide range of injection molding engineering applications, including automotive clips, radiator end tanks, parts of the air-conditioning and petrol distribution system, etc. (under the hood); electrical connectors, housings, bobbins, etc.; and in industrial applications such as gears, bearing shells, covers, housings, etc.

General	
Material Status	• Commercial: Active
Availability	• Asia Pacific • Europe • North America
Filler / Reinforcement	• Glass Fiber, 15% Filler by Weight
Additive	• Heat Stabilizer • Lubricant
Features	• Gasoline Resistance • Heat Stabilized • Lubricated • Good Chemical Resistance • High Flow • Oil Resistant • Good Mold Release • High Rigidity • Solvent Resistant • Grease Resistant • High Strength
Uses	• Automotive Under the Hood • Housings • Gears • Power/Other Tools
Agency Ratings	• ASTM D 4066 PA0121G15 • ASTM D 6779 PA0121G15
Automotive Specifications	• CHRYSLER MS-DB-41 • FORD ESA-M4D349-A • SAE J1639 PA1112 Color: Natural CPN2239 Color: Black Color: Natural • DAEWOO EDS-M-5161-11 • GM GMP.PA66.020
UL File Number	• E70062
Appearance	• Natural Color
Forms	• Pellets
Processing Method	• Injection Molding

Physical	Dry	Conditioned	Unit	Test Method
Density	1.24	--	g/cm <sup>3</sup>	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F, 0.0787 in	1.0	--	%	
Flow : 73°F, 0.0787 in	0.50	--	%	
Water Absorption (73°F, 24 hr)	1.0	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	2.2	--	%	ISO 62

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Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F)	957000	580000	psi	ISO 527-2
Tensile Stress (Break, 73°F)	17400	11600	psi	ISO 527-2
Tensile Strain (Break, 73°F)	3.0	13	%	ISO 527-2
Flexural Modulus (73°F)	856000	471000	psi	ISO 178
Flexural Stress (73°F)	24700	16000	psi	ISO 178
Poisson's Ratio	0.40	--		ISO 527-2
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-22°F	2.9	2.5	ft·lb/in <sup>2</sup>	
73°F	2.9	3.6	ft·lb/in <sup>2</sup>	
Charpy Unnotched Impact Strength				ISO 179
-22°F	15	18	ft·lb/in <sup>2</sup>	
73°F	19	20	ft·lb/in <sup>2</sup>	
Notched Izod Impact Strength				ISO 180
-22°F	2.7	2.6	ft·lb/in <sup>2</sup>	
73°F	3.1	3.3	ft·lb/in <sup>2</sup>	
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				ISO 75-2/B
66 psi, Unannealed	496	--	°F	
Heat Deflection Temperature				ISO 75-2/A
264 psi, Unannealed	466	--	°F	
Melting Temperature	500	--	°F	ISO 11357-3
CLTE - Flow (73 to 131°F, 0.0787 in)	1.7E-5	--	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F, 0.0787 in)	6.3E-5	--	in/in/°F	ISO 11359-2
RTI Elec				UL 746
0.0295 in	284	--	°F	
0.0591 in	284	--	°F	
0.118 in	284	--	°F	
RTI Imp				UL 746
0.0295 in	248	--	°F	
0.0591 in	248	--	°F	
0.118 in	248	--	°F	
RTI Str				UL 746
0.0295 in	257	--	°F	
0.0591 in	284	--	°F	
0.118 in	284	--	°F	

Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity (0.0295 in)	1.0E+13	--	ohm·cm	IEC 60093
Dielectric Strength (0.0394 in)	510	--	V/mil	IEC 60243
Arc Resistance (0.118 in)	PLC 6	--		ASTM D495
Comparative Tracking Index (0.118 in)	250 to 399	--	V	IEC 60112
High Amp Arc Ignition (HAI)				UL 746
0.0295 in	PLC 0	--		
0.0591 in	PLC 0	--		
0.118 in	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)	PLC 1	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.0295 in	PLC 4	--		
0.0591 in	PLC 3	--		
0.118 in	PLC 4	--		
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.0295 in	HB	--		
0.0591 in	HB	--		
0.118 in	HB	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.0295 in	1250	--	°F	
0.0591 in	1250	--	°F	
0.118 in	1250	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.0295 in	1290	--	°F	
0.0591 in	1290	--	°F	
0.118 in	1290	--	°F	
Injection		Dry	Unit	
Drying Temperature		176	°F	
Drying Time		4.0	hr	
Suggested Max Regrind		25	%	
Rear Temperature		536 to 590	°F	
Middle Temperature		536 to 590	°F	
Front Temperature		536 to 590	°F	
Nozzle Temperature		536 to 590	°F	
Processing (Melt) Temp		545 to 581	°F	
Mold Temperature		149 to 203	°F	

## Notes

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

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### North America

+1 888 927 2363

### Europe

+32 10 608 600

### Asia

+86 21 6340 3300

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