Vydyne® R633H05
polyamide 66/6 copolymer

Vydyne R633H05 is 33% glass-fiber reinforced PA66/6 copolymer resin for superior surface appearance. Available in black, this injection-molding grade resin is lubricated for machine feed and mold release.

Vydyne R633H05 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 PA66/6 resins over aluminum and/or zinc die-cast parts.

Vydyne R633H05 is specially formulated to minimize the oxidative and thermal degradation of the PA66/6 copolymer when exposed to elevated temperatures for extended periods of time. Product provides improved retention of physical properties under exposure to longterm heat.

Vydyne R633H05 provides a higher heat distortion temperature, better resistance to creep, higher impact and better dimensional stability compared with unreinforced PA66/6. This product also provides a combination of excellent surface appearance with high tensile and modulus properties. This property balance enables usage of Vydyne R633H05 in applications where aesthetics and performance are important.

Typical Applications/End Uses:
Vydyne R633H05 resin has been used for many under-the-hood automotive applications, motor housings for power tools, and garden appliances. These resins have 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	• Copolymer • Good Mold Release	• Good Surface Finish • Heat Stabilized	• High Tensile Strength • Lubricated
Uses	• Automotive Under the Hood • Gears	• Housings • Lawn and Garden Equipment	• Metal Replacement • Power/Other Tools
Agency Ratings	• ASTM D4066 PA112G35	• ASTM D6779 PA082G35	
Automotive Specifications	• CHRYSLER MS-DB-41 CPN4005 • FORD ESB-M4D133-A	• FORD ESL-M4D533-A • GM GMP.PA66/6.002	• GM GMP.PA66/6.004
UL File Number	• E70062		
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding		

Physical	Dry	Conditioned	Unit	Test Method
Density	1.39	--	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	1.3	--	%	
Equilibrium, 23°C, 50% RH	2.3	--	%	
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus (23°C)	10800	8000	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	184	130	MPa	ISO 527-2
Tensile Strain (Break, 23°C)	4.0	6.0	%	ISO 527-2
Flexural Modulus (23°C)	8800	6800	MPa	ISO 178
Flexural Strength (23°C)	255	195	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	11	15	kJ/m²	
23°C	12	25	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	44	91	kJ/m²	
23°C	51	92	kJ/m²	
Notched Izod Impact Strength				ISO 180
-30°C	12	19	kJ/m²	
23°C	13	22	kJ/m²	
Thermal	**Dry**	**Conditioned**	**Unit**	**Test Method**
Heat Deflection Temperature				
0.45 MPa, Unannealed	230	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	220	--	°C	ISO 75-2/A
Melting Temperature	233	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	1.5E-5	--	cm/cm/°C	
Transverse : 23 to 55°C, 2.00 mm	1.0E-4	--	cm/cm/°C	

Electrical	Dry	Conditioned	Unit	Test Method
Arc Resistance (3.00 mm)	PLC 5	--		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 2	--		UL 746
Hot-wire Ignition (HWI)				UL 746
0.75 mm	PLC 4	--		
1.5 mm	PLC 4	--		
3.0 mm	PLC 3	--		

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.75 mm	HB	--		
1.5 mm	HB	--		
3.0 mm	HB	--		

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
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