

# Vydyne® R633H05

Polyamide 66/6 Copolymer

Ascend Performance Materials Operations LLC

Message:

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 Information	
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 D 4066 PA112G35
	ASTM D 6779 PA082G35
UL File Number	E70062
Appearance	Black
Forms	Pellets
Processing Method	Injection Molding

Physical	Dry	Conditioned	Unit	Test Method
Density	1.39	--	g/cm <sup>3</sup>	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	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/m <sup>2</sup>	
23°C	12	25	kJ/m <sup>2</sup>	
Charpy Unnotched Impact Strength				ISO 179/1eU
-30°C	44	91	kJ/m <sup>2</sup>	
23°C	51	92	kJ/m <sup>2</sup>	
Notched Izod Impact Strength				ISO 180
-30°C	12	19	kJ/m <sup>2</sup>	
23°C	13	22	kJ/m <sup>2</sup>	
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	
0.750 mm	PLC 0	--		
1.50 mm	PLC 0	--		
3.00 mm	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR)			UL 746	
	PLC 2	--		
Hot-wire Ignition (HWI)			UL 746	
0.750 mm	PLC 4	--		
1.50 mm	PLC 4	--		
3.00 mm	PLC 3	--		
Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating			UL 94	
0.750 mm	HB	--		
1.50 mm	HB	--		
3.00 mm	HB	--		
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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