

## Vydyne® R513H Black

Ascend Performance Materials Operations LLC - Polyamide 66

### General Information

#### Product Description

Vydyne R513H Black is a general purpose, 13% glass-filled, heat-stabilized PA66 based resin designed for injection molding applications. R513H BK02 offers improved flow with a black surface finish and maintains the excellent resistance typical of PA66 in chemicals, machine and motor oils, solvents, and gasoline.

#### General

Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
Filler / Reinforcement	• Glass Fiber, 13% Filler by Weight		
Additive	• Heat Stabilizer	• Lubricant	
Features	• Chemical Resistant	• Grease Resistant	• Hydrolysis Resistant
	• Gasoline Resistant	• Heat Stabilized	• Lubricated
	• Good Flow	• High Rigidity	• Oil Resistant
	• Good Mold Release	• High Strength	• Solvent Resistant
Agency Ratings	• ASTM D4066 PA012G15	• ASTM D6779 PA012G15	• SAE J1639 PA1112
Automotive Specifications	• AISIN TO20141124 - P-PA66-GF13-802	• STELLANTIS MS-DB-41 CPN2239	
UL File Number	• E70062		
Appearance	• Black		
Forms	• Pellets		
Processing Method	• Injection Molding		
Resin ID	• PA66-GF13		

### Properties <sup>1</sup>

Physical	Dry	Conditioned	Unit	Test Method
Density	1.23	--	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 (24 hr, 73°F)	1.0	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	2.2	--	%	ISO 62
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F)	899000	566000	psi	ISO 527-1
Tensile Stress (Break, 73°F)	16700	10900	psi	ISO 527-2
Tensile Strain (Break, 73°F)	3.0	13	%	ISO 527-2
Flexural Modulus (73°F)	754000	457000	psi	ISO 178
Flexural Stress (73°F)	23900	15400	psi	ISO 178
Poisson's Ratio (73°F)	0.40	--		ISO 527-2
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-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 179/1eU
-22°F	15	18	ft·lb/in <sup>2</sup>	
73°F	18	20	ft·lb/in <sup>2</sup>	
Notched Izod Impact Strength				ISO 180/1A
-22°F	2.4	2.6	ft·lb/in <sup>2</sup>	
73°F	2.4	4.0	ft·lb/in <sup>2</sup>	

#### Thermal

Thermal	Dry	Conditioned	Unit	Test Method
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Deflection Temperature Under Load (66 psi, Unannealed)	496	--	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	464	--	°F	ISO 75-2/A
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 746B
0.030 in	284	--	°F	
0.06 in	284	--	°F	
0.12 in	284	--	°F	
RTI Imp				UL 746B
0.030 in	248	--	°F	
0.06 in	248	--	°F	
0.12 in	248	--	°F	
RTI Str				UL 746B
0.030 in	257	--	°F	
0.06 in	284	--	°F	
0.12 in	284	--	°F	

Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity (0.0394 in)	1.0E+13	--	ohms·cm	IEC 60093
Electric Strength (0.0394 in)	510	--	V/mil	IEC 60243-1
Arc Resistance (0.118 in)	PLC 6	--		ASTM D495
High Amp Arc Ignition (HAI)				UL 746A
0.030 in	PLC 0	--		
0.06 in	PLC 0	--		
0.12 in	PLC 0	--		
High Voltage Arc Tracking Rate (HVTR) (0.118 in)	PLC 1	--		UL 746A
Hot-wire Ignition (HWI)				UL 746A
0.016 in	PLC 4	--		
0.030 in	PLC 3	--		
0.06 in	PLC 4	--		

Flammability	Dry	Conditioned	Unit	Test Method
Flame Rating				UL 94
0.030 in	HB	--		
0.06 in	HB	--		
0.12 in	HB	--		
Glow Wire Flammability Index				IEC 60695-2-12
0.030 in	1250	--	°F	
0.06 in	1250	--	°F	
0.12 in	1250	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.030 in	1290	--	°F	
0.06 in	1290	--	°F	
0.12 in	1290	--	°F	
Oxygen Index	25	--	%	ISO 4589-2

### Processing Information

Injection	Dry Unit
Drying Temperature	176 °F
Drying Time	4.0 hr
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

