

Vydyne® R543H Natural

Ascend Performance Materials Operations LLC - *Polyamide 66*

General Information

Product Description

Vydyne R543H Natural is a general purpose, 43% glass-filled, heat-stabilized, high viscosity PA66 based resin designed for injection molding applications. R543H Natural offers standard flow with a natural 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, 43% Filler by Weight		
Additive	• Heat Stabilizer	• Lubricant	
Features	• Chemical Resistant	• Good Impact Resistance	• High Strength
	• Creep Resistant	• Good Mold Release	• High Tensile Strength
	• Gasoline Resistant	• Grease Resistant	• Lubricated
	• Good Dimensional Stability	• Heat Stabilized	• Oil Resistant
	• Good Flow	• High Rigidity	• Solvent Resistant
Agency Ratings	• ASTM D4066 PA012G45	• EC 1935/2004	• EU 2023/2006
	• ASTM D6779 PA012G45	• EU 10/2011	• FDA 21 CFR 177.1500
Automotive Specifications	• AISIN TO20141124 - P-PA66-GF45-802	• TOYOTA TSM 5603G Color: Class 2C, Rev 5	
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		
Resin ID	• PA66-GF43		

Properties ¹

Physical	Dry	Conditioned	Unit	Test Method
Density	1.50	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F, 0.0787 in	0.90	--	%	
Flow : 73°F, 0.0787 in	0.40	--	%	
Water Absorption (24 hr, 73°F)	0.60	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	1.5	--	%	ISO 62
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F)	2.15E+6	1.64E+6	psi	ISO 527-1
Tensile Stress (Break, 73°F)	32600	24700	psi	ISO 527-2
Tensile Strain (Break, 73°F)	3.0	4.0	%	ISO 527-2
Flexural Modulus (73°F)	1.81E+6	1.36E+6	psi	ISO 178
Flexural Stress (73°F)	49300	36300	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	6.2	6.7	ft·lb/in ²	
73°F	6.7	9.5	ft·lb/in ²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-22°F	41	43	ft·lb/in ²	
73°F	44	45	ft·lb/in ²	
Notched Izod Impact Strength				ISO 180/1A
-22°F	6.2	6.2	ft·lb/in ²	
73°F	6.2	9.0	ft·lb/in ²	



Thermal	Dry	Conditioned	Unit	Test Method
Deflection Temperature Under Load (66 psi, Unannealed)	500	--	°F	ISO 75-2/B
Deflection Temperature Under Load (264 psi, Unannealed)	486	--	°F	ISO 75-2/A
Melting Temperature	500	--	°F	ISO 11357-3
CLTE - Flow (73 to 131°F, 0.0787 in)	8.9E-6	--	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F, 0.0787 in)	5.7E-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	266	--	°F	
0.06 in	266	--	°F	
0.12 in	266	--	°F	
RTI Str				UL 746B
0.030 in	284	--	°F	
0.06 in	284	--	°F	
0.12 in	284	--	°F	
Electrical	Dry	Conditioned	Unit	Test Method
Volume Resistivity (0.0394 in)	1.0E+12	--	ohms·cm	IEC 60093
Electric Strength (0.0394 in)	510	--	V/mil	IEC 60243-1
Arc Resistance (0.118 in)	PLC 5	--		ASTM D495
Comparative Tracking Index (0.118 in)	400 to 599	--	V	IEC 60112
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
0.030 in	PLC 4	--		
0.06 in	PLC 3	--		
0.12 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	1760	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.030 in	1290	--	°F	
0.06 in	1290	--	°F	
0.12 in	1380	--	°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

