Vydyne® R533 NAT

Ascend Performance Materials Operations LLC - *Polyamide 66*

General Information

Product Description

Vydyne R533 NAT is a general purpose, 33% glass-filled, high viscosity PA66 based resin designed for injection molding applications. R533 NAT 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, 33% Filler by Weight		
Additive	• Lubricant		
Features	• Chemical Resistant • Corrosion Resistant • Good Dimensional Stability • Good Electrical Properties	• Good Flow • Good Mold Release • High Rigidity • High Strength	• Lubricated • Non-Corrosive
Agency Ratings	• ASTM D4066 PA011G35 • ASTM D6779 PA011G35 • EC 1935/2004	• EU 10/2011 • EU 2023/2006 • FDA 21 CFR 177.1500	• NSF STD-51
Automotive Specifications	• AISIN TO20141124 - P-PA66-GF33-003	• APTIV M4692V	• STELLANTIS MS-DB-41 CPN1853
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		
Resin ID	• PA66-GF33		

Properties [1]

Physical	Dry	Conditioned	Unit	Test Method
Density	1.40	--	g/cm³	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)	0.80	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	1.7	--	%	ISO 62
Mechanical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Tensile Modulus (73°F)	1.54E+6	1.15E+6	psi	ISO 527-1
Tensile Stress (Break, 73°F)	29700	21000	psi	ISO 527-2
Tensile Strain (Break, 73°F)	3.0	5.0	%	ISO 527-2
Flexural Modulus (73°F)	1.48E+6	943000	psi	ISO 178
Flexural Stress (73°F)	42100	29000	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
-40°F	5.2	5.2	ft·lb/in²	
-22°F	5.2	5.2	ft·lb/in²	
73°F	6.2	8.1	ft·lb/in²	
Charpy Unnotched Impact Strength				ISO 179/1eU
-40°F	33	36	ft·lb/in²	
-22°F	34	37	ft·lb/in²	
73°F	41	48	ft·lb/in²	
Notched Izod Impact Strength				ISO 180/1A

-40°F	4.8	5.2	ft·lb/in²	
-22°F	4.8	5.7	ft·lb/in²	
73°F	5.7	7.6	ft·lb/in²	
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)	482	--	°F	ISO 75-2/A
Melting Temperature	500	--	°F	ISO 11357-3
CLTE - Flow (73 to 131°F, 0.0787 in)	1.2E-5	--	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F, 0.0787 in)	5.9E-5	--	in/in/°F	ISO 11359-2
RTI Elec				UL 746B
0.030 in	248	--	°F	
0.06 in	248	--	°F	
0.12 in	248	--	°F	
RTI Imp				UL 746B
0.030 in	212	--	°F	
0.06 in	212	--	°F	
0.12 in	221	--	°F	
RTI Str				UL 746B
0.030 in	257	--	°F	
0.06 in	257	--	°F	
0.12 in	257	--	°F	
Electrical	**Dry**	**Conditioned**	**Unit**	**Test Method**
Volume Resistivity (0.0394 in)	1.0E+14	--	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)	600	--	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 4	--		
0.12 in	PLC 3	--		
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	1380	--	°F	
0.06 in	1340	--	°F	
0.12 in	1470	--	°F	
Glow Wire Ignition Temperature				IEC 60695-2-13
0.030 in	1430	--	°F	
0.06 in	1340	--	°F	
0.12 in	1380	--	°F	

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
ature	149 to 203	°F