Vydyne® R220

Polyamide 66

Ascend Performance Materials Operations LLC

Message:

Vydyne R220 is a 40% mineral-reinforced PA66 resin formulated for improved impact strength. Available in natural, it is an injection-molding grade formulated to retain the inherent processing advantages of unreinforced PA66 while enhancing rigidity, strength and heat resistance. Vydyne R220 maintains the chemical resistance typical of PA66 to a wide variety of chemicals, gasoline, oils, greases and solvents.
Vydyne R220 resin utilizes a unique mineral-reinforced PA66 system developed by Ascend Performance Materials to satisfy the market need for a high-rigidity thermoplastic as an alternative to certain metals. This mineral system provides two key features:
(1) isotropic behavior-property development in molded parts is usually independent of flow direction.
(2) a reduction in the tendency to develop sink marks in heavy cross sections such as molded-in bosses and ribs.
While not sink-free, parts made from Vydyne R220 can often permit boss and rib design or wall cross section changes that would not be tolerable in other unreinforced thermoplastic materials. Thus Vydyne R220 resin offers more uniform molded part strength and performance, as well as wider latitude in part design.
Vydyne R220 resin is a workhorse of Ascend Performance Materials' full line of mineral-reinforced PA66 resins, providing the best overall balance of properties. Vydyne R220 is heat stabilized and designed to provide increased ductility and reduced melt viscosity vs. unreinforced materials.This ductility improvement results in tougher, more impact-resistant molded parts. The reduction in melt viscosity enhances overall ease of injection-molding, resulting in minor reductions in tensile strength, modulus and heat distortion temperature. Parts manufactured from Vydyne R220 have successfully withstood paint bake oven cycles without significant loss of either dimensional stability or part properties.

General Information	
Filler / Reinforcement	Mineral,40% Filler by Weight
Additive	Heat Stabilizer
Features	Ductile
	Gasoline Resistance
	Good Chemical Resistance
	Good Impact Resistance
	Good Strength
	Good Toughness
	Grease Resistant
	Heat Stabilized
	High Heat Resistance
	High Rigidity
	Oil Resistant
	Solvent Resistant
Uses	Automotive Exterior Parts
	Automotive Under the Hood
	Cams
	Gears
	Housings
	Industrial Applications
	Power/Other Tools
Agency Ratings	ASTM D 4066 PA022M40

ASTM D 6779 PA022M40

FED L-P-410A

MIL M-20693B

UL File Number	E70062
Appearance	Natural Color
Forms	Pellets
Processing Method	Injection Molding
Multi-Point Data	Isothermal Stress vs. Strain (ISO 11403-1)

Physical	Dry	Conditioned	Unit	Test Method
Density	1.48	--	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 23°C, 2.00 mm	1.0	--	%	
Flow : 23°C, 2.00 mm	1.1	--	%	
Water Absorption				ISO 62
23°C, 24 hr	1.1	--	%	
Equilibrium, 23°C, 50% RH	1.6	--	%	

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (23°C)	6900	2600	MPa	ISO 527-2
Tensile Stress (Break, 23°C)	103	73.0	MPa	ISO 527-2
Tensile Strain				ISO 527-2
Yield, 23°C	1.5	16	%	
Break, 23°C	6.0	30	%	
Flexural Modulus (23°C)	6100	2300	MPa	ISO 178
Flexural Stress (23°C)	124	50.0	MPa	ISO 178
Poisson's Ratio	0.40	--		ISO 527

Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-30°C	6.0	8.0	kJ/m²	
23°C	7.0	17	kJ/m²	
Charpy Unnotched Impact Strength				ISO 179
-30°C	110	130	kJ/m²	
23°C	140 kJ/m²	No Break		
Notched Izod Impact Strength				ISO 180
-30°C	7.0	7.0	kJ/m²	
23°C	9.0	16	kJ/m²	

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				

0.45 MPa, Unannealed	222	--	°C	ISO 75-2/B
1.8 MPa, Unannealed	118	--	°C	ISO 75-2/A
Melting Temperature	258	--	°C	ISO 11357-3
CLTE				ISO 11359-2
Flow : 23 to 55°C, 2.00 mm	6.3E-4	--	cm/cm/°C	
Transverse : 23 to 55°C, 2.00 mm	6.0E-4	--	cm/cm/°C	

Additional Information	Dry	Conditioned		Test Method
Automotive Materials - (thickness d = 1mm)	+	--		FMVSS 302

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

Recommended distributors for this material

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