

Vydyne® R220

polyamide 66



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.

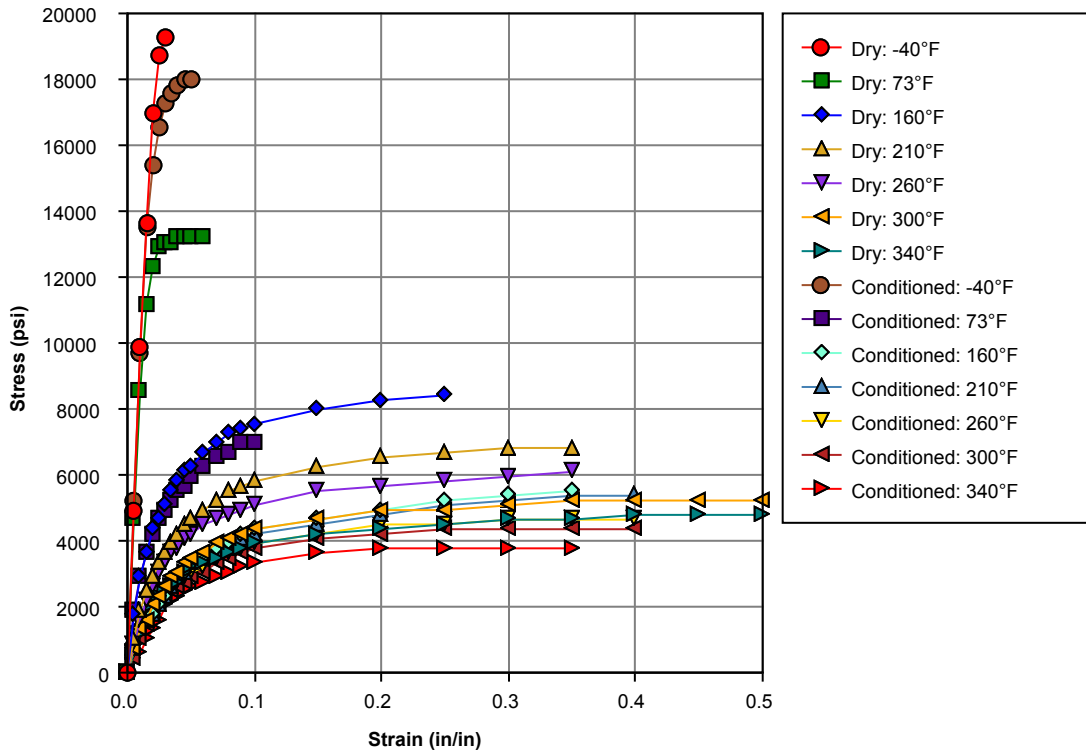
Vydyne R220 resin is a workhorse of Ascend Performance Materials' full line of mineral-reinforced PA66 resins, providing the best overall balance of properties. Vydyne R220 is heat stabilized and designed to provide increased ductility and reduced melt viscosity vs. unreinforced materials. This ductility 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			
Material Status	• Commercial: Active		
Availability	• Asia Pacific	• Europe	• North America
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	
Automotive Specifications	• ASTM D4000 PA120 M4D A22130 • ASTM D4066 PA022 M40 • CHRYSLER MS-DB-41 CPN2310 Color: Natural	• CHRYSLER MS-DB-41 CPN3189 Color: Gray • FEDERAL LP410A • FORD ESB-M4D353-A4	• GM GMP.PA66.007 • TagAZ TAMS-8764-01
UL File Number	• E70062		
Appearance	• Natural Color		
Forms	• Pellets		
Processing Method	• Injection Molding		
Multi-Point Data	• Isothermal Stress vs. Strain (ISO 11403-1)		

© 2015 Ascend Performance Materials Operations LLC. The Ascend Performance Materials and Vydyne marks and logos are trademarks of Ascend Performance Materials Operations LLC. These trademarks have been registered in jurisdictions throughout the world, including the United States of America and the European Community.

Physical	Dry	Conditioned	Unit	Test Method
Density	1.48	--	g/cm ³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow : 73°F, 0.0787 in	1.0	--	%	
Flow : 73°F, 0.0787 in	1.1	--	%	
Water Absorption (73°F, 24 hr)	1.1	--	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	1.6	--	%	ISO 62
Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus (73°F)	1.00E+6	377000	psi	ISO 527-2
Tensile Stress (Break, 73°F)	14900	10600	psi	ISO 527-2
Tensile Strain (Yield, 73°F)	1.5	16	%	ISO 527-2
Tensile Strain (Break, 73°F)	6.0	30	%	ISO 527-2
Flexural Modulus (73°F)	885000	334000	psi	ISO 178
Flexural Stress (73°F)	18000	7250	psi	ISO 178
Poisson's Ratio	0.40	--		ISO 527
Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179
-22°F	2.9	3.8	ft·lb/in ²	
73°F	3.3	8.1	ft·lb/in ²	
Charpy Unnotched Impact Strength				ISO 179
-22°F	52	61	ft·lb/in ²	
73°F	68 ft·lb/in ²	No Break		
Notched Izod Impact Strength				ISO 180
-22°F	3.3	3.3	ft·lb/in ²	
73°F	4.3	7.6	ft·lb/in ²	
Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				ISO 75-2/B
66 psi, Unannealed	432	--	°F	
Heat Deflection Temperature				ISO 75-2/A
264 psi, Unannealed	244	--	°F	
Melting Temperature	496	--	°F	ISO 11357-3
CLTE - Flow (73 to 131°F, 0.0787 in)	3.5E-4	--	in/in/°F	ISO 11359-2
CLTE - Transverse (73 to 131°F, 0.0787 in)	3.3E-4	--	in/in/°F	ISO 11359-2
Additional Information	Dry	Conditioned	Unit	Test Method
Automotive Materials - (thickness d = 1 mm)	+	--		FMVSS 302

Isothermal Stress vs. Strain (ISO 11403-1)



Injection	Dry Unit
Drying Temperature	176 °F
Drying Time	4.0 hr
Suggested Max Regrind	25 %
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

Notes

Typical properties: these are not to be construed as specifications.

¹ Typical properties: these are not to be construed as specifications.



North America

+1 888 927 2363

Europe

+32 10 608 600

Asia

+86 21 6340 3300

Disclaimer of Warranty and Liability

NOTICE: Although the information and recommendations set forth herein (hereinafter "information") are presented in good faith and believed to be correct as of the date hereof, Ascend Performance Materials Operations LLC makes no representations or warranties as to the completeness or accuracy thereof.

Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purposes prior to use. In no event will Ascend Performance Materials Operations LLC be responsible for damages of any nature whatsoever resulting from the use of or reliance upon information or the products to which information refers. Nothing contained herein is to be construed as a recommendation to use any product, equipment or formulation in conflict with any patent, and Ascend Performance Materials Operations LLC makes no representation or warranty, express or implied, that use thereof will not infringe any patent. No representations or warranties, either express or implied, of merchantability, fitness for a particular purpose or of any other nature are made hereunder with respect to information or the product to which information refers.