

Ascend Performance Materials Vydyn® R220/R228 Nylon 66, 40% Mineral Reinforced, Dry as Molded

Category : Polymer , Thermoplastic , Nylon , Nylon 66 , Nylon 66, 40% Mineral Filled

Material Notes:

Vydyn® R220 is a 40% mineral reinforced Nylon 66 resin formulated for improved impact strength. Also available in black as R228. It is an injection molding grade formulated to retain the inherent processing advantages of unreinforced Nylon 66 while enhancing rigidity, strength, and heat resistance. Vydyn R220/R228 maintains the chemical resistance typical of nylon to a wide variety of chemicals, gasoline, oils, greases, and solvents. Vydyn R220/R228 resins utilize a unique mineral reinforced nylon system developed by Solutia 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 Vydyn R220/R228 can often permit boss and rib design or wall cross section changes that would not be tolerable in other unreinforced thermoplastic materials. Thus Vydyn R220/R228 resins offer more uniform molded part strength and performance as well as wider latitude in part design. Vydyn R220/R228 are 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 from Vydyn R220/R228 have successfully withstood paint bake oven cycles without significant loss of either dimensional stability or part properties.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Ascend-Performance-Materials-Vydyn-R220R228-Nylon-66-40-Mineral-Reinforced-Dry-as-Molded.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.48 g/cc	1.48 g/cc	ISO 1183
Water Absorption	1.1 % @Time 86400 sec	1.1 % @Time 24.0 hour	ISO 62
Moisture Absorption at Equilibrium	1.6 %	1.6 %	50% RH; ISO 62
Linear Mold Shrinkage	0.010 cm/cm @Thickness 2.00 mm	0.010 in/in @Thickness 0.0787 in	ISO 294-4
Linear Mold Shrinkage, Transverse	0.011 cm/cm @Thickness 2.00 mm	0.011 in/in @Thickness 0.0787 in	ISO 294-4

Mechanical Properties	Metric	English	Comments
Tensile Strength, Yield	103 MPa	14900 psi	ISO 527
Elongation at Break	15 %	15 %	ISO 527
Elongation at Yield	9.0 %	9.0 %	ISO 527

Tensile Modulus Mechanical Properties	6.90 GPa Metric	1000 ksi English	ISO 527 Comments
Flexural Strength	124 MPa	18000 psi	ISO 178
Flexural Modulus	6.10 GPa	885 ksi	ISO 178
Poissons Ratio	0.35	0.35	ISO 527
Shear Modulus	2.56 GPa	371 ksi	Calculated
Izod Impact, Notched (ISO)	9.00 kJ/m ²	4.28 ft-lb/in ²	ISO 180
Charpy Impact Unnotched	10.9 J/cm ²	51.9 ft-lb/in ²	ISO 179
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	14.3 J/cm ²	68.1 ft-lb/in ²	ISO 179
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	0.620 J/cm ²	2.95 ft-lb/in ²	ISO 179
	@Temperature -30.0 °C	@Temperature -22.0 °F	
	0.740 J/cm ²	3.52 ft-lb/in ²	ISO 179
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	6.00 µm/m-°C	3.33 µin/in-°F	ISO 11359
	@Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	@Thickness 0.0787 in, Temperature 73.4 - 131 °F	
CTE, linear, Transverse to Flow	6.30 µm/m-°C	3.50 µin/in-°F	ISO 11359
	@Thickness 2.00 mm, Temperature 23.0 - 55.0 °C	@Thickness 0.0787 in, Temperature 73.4 - 131 °F	
Melting Point	258 °C	496 °F	ISO 3146
Deflection Temperature at 0.46 MPa (66 psi)	222 °C	432 °F	ISO 75
Deflection Temperature at 1.8 MPa (264 psi)	118 °C	244 °F	ISO 75
Vicat Softening Point	238 °C	460 °F	ISO 306
	@Load 5.10 kg	@Load 11.2 lb	
UL RTI, Electrical	105 °C	221 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	105 °C	221 °F	

Thermal Properties	Metric @ Thickness 1.50 mm	English @ Thickness 0.0591 in	UL 746B Comments
	105 °C	221 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical with Impact	90.0 °C	194 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	90.0 °C	194 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	90.0 °C	194 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
UL RTI, Mechanical without Impact	105 °C	221 °F	UL 746B
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	105 °C	221 °F	UL 746B
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	105 °C	221 °F	UL 746B
	@Thickness 3.00 mm	@Thickness 0.118 in	
Flammability, UL94	HB	HB	
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	HB	HB	
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	HB	HB	
	@Thickness 3.00 mm	@Thickness 0.118 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	5.50e+16 ohm-cm	5.50e+16 ohm-cm	IEC 60093
	@Thickness 3.00 mm	@Thickness 0.118 in	
Dielectric Strength	15.0 kV/mm	381 kV/in	IEC 60243
	@Thickness 3.00 mm	@Thickness 0.118 in	
Arc Resistance	60 - 120 sec	60 - 120 sec	UL 746A
	@Thickness 3.00 mm	@Thickness 0.118 in	
Comparative Tracking Index	>= 600 V	>= 600 V	IEC 60112
	@Thickness 3.00 mm	@Thickness 0.118 in	

Electrical Properties Hot Wire Ignition, HWI	7.0 - 15 sec Metric	7.0 - 15 sec English	Comments UL 746A
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	7.0 - 15 sec	7.0 - 15 sec	UL 746A
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	15 - 30 sec	15 - 30 sec	UL 746A
	@Thickness 3.00 mm	@Thickness 0.118 in	
High Amp Arc Ignition, HAI	>= 120 arcs	>= 120 arcs	UL 746A
	@Thickness 0.750 mm	@Thickness 0.0295 in	
	>= 120 arcs	>= 120 arcs	UL 746A
	@Thickness 1.50 mm	@Thickness 0.0591 in	
	>= 120 arcs	>= 120 arcs	UL 746A
	@Thickness 3.00 mm	@Thickness 0.118 in	
High Voltage Arc-Tracking Rate, HVTR	10.0 - 25.4 mm/min	0.394 - 1.00 in/min	UL 746A
	@Thickness 3.00 mm	@Thickness 0.118 in	

Processing Properties	Metric	English	Comments
Processing Temperature	280 - 310 °C	536 - 590 °F	
Melt Temperature	285 - 305 °C	545 - 581 °F	
Mold Temperature	65.0 - 95.0 °C	149 - 203 °F	
Injection Pressure	55.0 - 140 MPa	7980 - 20300 psi	
Hold Pressure	55.0 - 140 MPa	7980 - 20300 psi	
Back Pressure	0.200 - 1.00 MPa	29.0 - 145 psi	
Clamp Pressure	29.43 - 68.67 MPa	4268 - 9960 psi	
Cushion	0.300 - 0.640 cm	0.118 - 0.252 in	
Screw Speed	40 - 120 rpm	40 - 120 rpm	

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