

Solvay Specialty Polymers Amodel® AT-1002 HS Polyphthalamide (PPA)

Category : Polymer , Thermoplastic , Polyphthalamide (PPA)

Material Notes:

Amodel® AT-1002 HS is a neat, toughened, heat stabilized polyphthalamide (PPA) resin that offers superior retention of properties after humid thermal aging; high impact at low temperature and better mechanical properties than many unreinforced thermoplastic polyester and nylon resins. Features: Ductile; Good Chemical Resistance; Heat Stabilized; Hot Water Moldability; Impact Modified; Low Temperature Impact Resistance; Low Warpage; LubricatedUses: Automotive Applications; Automotive Electronics; Automotive Under the Hood; Machine/Mechanical Parts; Metal Replacement; Valves/Valve PartsInjection Molding Notes: Amodel® compounds are shipped in moisture-resistant packages at moisture levels according to specifications. Sealed, undamaged bags should be preferably stored in a dry room at a maximum temperature of 50°C (122°F) and should be protected from possible damage. If only a portion of a package is used, the remaining material should be transferred into a sealable container. It is recommended that Amodel® resins be dried prior to molding.Additional Properties: Penetration Impact - ASTM D3763 4448 NAutomotive Specifications DELPHI M-4853 Color: BK718 Black; DELPHI MS008756 Color: NT Natural; DELPHI MS008759 Color: BK718 Black; FORD WSS-M4D1008-A1; GM GMP.PPA.015 Color: Black; GM GMP.PPA.015 Color: Natural; GM GMW16799P-PPA Color: Natural; IMDS ID 11974222 Color: Black; IMDS ID 11974222 Color: NaturalInformation provided by Solvay Specialty Polymers.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Amodel-AT-1002-HS-Polyphthalamide-PPA.php

Physical Properties	Metric	English	Comments
Density	1.13 g/cc	0.0408 lb/in³	ISO 1183
Water Absorption	0.50 %	0.50 %	ISO 62
	@Time 86400 sec	@Time 24.0 hour	
Linear Mold Shrinkage, Flow	0.020 cm/cm	0.020 in/in	
Linear Mold Shrinkage, Transverse	0.021 cm/cm	0.021 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	68.3 MPa	9910 psi	ISO 527-2
Tensile Strength	83.4 MPa	12100 psi	ASTM D638
Tensile Strength, Yield	38.6 MPa	5600 psi	2; ISO 527-2
	@Temperature 100 °C	@Temperature 212 °F	
	75.2 MPa	10900 psi	2; ISO 527-2
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	15 %	15 %	ISO 527-2
	80 %	80 %	ASTM D638

Mechanical Properties	Metric	English	Comments
Elongation at Yield	@Temperature 100 Â°C	@Temperature 212 Â°F	ISO 527-2
	5.0 %	5.0 %	
	@Temperature 23.0 Â°C	@Temperature 73.4 Â°F	ISO 527-2
Tensile Modulus	2.76 GPa	400 ksi	ASTM D638
	2.10 GPa	305 ksi	
	@Temperature 100 Â°C	@Temperature 212 Â°F	2; ISO 527-2
	2.76 GPa	400 ksi	
	@Temperature 23.0 Â°C	@Temperature 73.4 Â°F	2; ISO 527-2
Flexural Strength	103 MPa	14900 psi	ASTM D790
	49.6 MPa	7190 psi	
	@Temperature 100 Â°C	@Temperature 212 Â°F	2; ISO 178
	79.3 MPa	11500 psi	
	@Temperature 23.0 Â°C	@Temperature 73.4 Â°F	2; ISO 178
Flexural Modulus	2.21 GPa	321 ksi	ASTM D790
	1.72 GPa	249 ksi	
	@Temperature 100 Â°C	@Temperature 212 Â°F	ISO 178
	2.28 GPa	331 ksi	
	@Temperature 23.0 Â°C	@Temperature 73.4 Â°F	ISO 178
Shear Strength	64.1 MPa	9300 psi	ASTM D732
Izod Impact, Notched	1.40 J/cm	2.62 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	13.0 kJ/mÂ²	6.19 ft-lb/inÂ²	Type 1, Notch A; ISO 180
Izod Impact, Unnotched (ISO)	NB	NB	Type 1; ISO 180
Charpy Impact Unnotched	NB	NB	Type 1, Edgewise; ISO 179
Charpy Impact, Notched	1.30 J/cmÂ²	6.19 ft-lb/inÂ²	Type 1, Edgewise; ISO 179
Dart Drop, Total Energy	54.2 J	40.0 ft-lb	Instrumented; ASTM D3763

Thermal Properties	Metric	English	Comments
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Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	78.0 $\mu\text{m/m-}^{\circ}\text{C}$ @Temperature 0.000 - 100 $^{\circ}\text{C}$	43.3 $\mu\text{in/in-}^{\circ}\text{F}$ @Temperature 32.0 - 212 $^{\circ}\text{F}$	2
	130 $\mu\text{m/m-}^{\circ}\text{C}$ @Temperature 100 - 200 $^{\circ}\text{C}$	72.2 $\mu\text{in/in-}^{\circ}\text{F}$ @Temperature 212 - 392 $^{\circ}\text{F}$	2
CTE, linear, Transverse to Flow	93.0 $\mu\text{m/m-}^{\circ}\text{C}$ @Temperature 0.000 - 100 $^{\circ}\text{C}$	51.7 $\mu\text{in/in-}^{\circ}\text{F}$ @Temperature 32.0 - 212 $^{\circ}\text{F}$	TMA; ASTM E831
	140 $\mu\text{m/m-}^{\circ}\text{C}$ @Temperature 100 - 200 $^{\circ}\text{C}$	77.8 $\mu\text{in/in-}^{\circ}\text{F}$ @Temperature 212 - 392 $^{\circ}\text{F}$	TMA; ASTM E831
Melting Point	315 $^{\circ}\text{C}$	599 $^{\circ}\text{F}$	ASTM D3418
	315 $^{\circ}\text{C}$	599 $^{\circ}\text{F}$	ISO 11357-3
Deflection Temperature at 0.46 MPa (66 psi)	163 $^{\circ}\text{C}$	325 $^{\circ}\text{F}$	Annealed; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	118 $^{\circ}\text{C}$	244 $^{\circ}\text{F}$	Unannealed; Flatwise; ISO 75-2/A
	121 $^{\circ}\text{C}$	250 $^{\circ}\text{F}$	Annealed; ASTM D648
Flammability, UL94	HB	HB	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.20e+16 ohm-cm	1.20e+16 ohm-cm	ASTM D257
Surface Resistance	8.00e+13 ohm	8.00e+13 ohm	ASTM D257
Dielectric Constant	3.3 @Frequency 60.0 Hz	3.3 @Frequency 60.0 Hz	ASTM D150
	3.3 @Frequency 1.00e+6 Hz	3.3 @Frequency 1.00e+6 Hz	ASTM D150
Dielectric Strength	17.0 kV/mm	432 kV/in	ASTM D149
Dissipation Factor	0.0040 @Frequency 60.0 Hz	0.0040 @Frequency 60.0 Hz	ASTM D150
	0.016 @Frequency 1.00e+6 Hz	0.016 @Frequency 1.00e+6 Hz	ASTM D150

Comparative Tracking Index Electrical Properties	>= 600 V Metric	>= 600 V English	ASTM D3638 Comments
High Voltage Arc-Tracking Rate, HVTR	12.0 mm/min	0.472 in/min	UL 746

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	304 Â°C	579 Â°F	
Front Barrel Temperature	324 Â°C	615 Â°F	
Melt Temperature	321 - 329 Â°C	610 - 624 Â°F	
Mold Temperature	<= 90.0 Â°C	<= 194 Â°F	
Drying Temperature	110 Â°C	230 Â°F	
	@Time 14400 sec	@Time 4.00 hour	
Moisture Content	<= 0.060 %	<= 0.060 %	
Screw Speed	100 - 200 rpm	100 - 200 rpm	

Descriptive Properties	Value	Comments
Additive	Heat Stabilizer	
	Impact Modifier	
	Lubricant	
	Mold Release	
Availability	Africa & Middle East	
	Asia Pacific	
	Europe	
	Latin America	
	North America	
Color	Black; Natural	
Form	Pellets	
Processing Technique	Water-Heated Mold Injection Molding	
RoHS Compliance	RoHS Compliant	
Screw Compression Ratio	2.5:1.0	

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