

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

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. This material was specifically designed for automotive electrical/electronic applications such as connectors, sockets and sensors. - Black: AT-1002 HS BK 718 - Natural: AT-1002 HS NT
Injection Notes: Injection Rate: 1 to 3 in/sec Holding Pressure: 50% of injection pressure
Data is presented for dry polymer unless noted as 'conditioned'. Information 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-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Density	1.13 g/cc	0.0408 lb/in ³	ISO 1183/A
Water Absorption	0.50 % @Time 86400 sec	0.50 % @Time 24.0 hour	ASTM D570
Linear Mold Shrinkage, Flow	0.020 cm/cm	0.020 in/in	ASTM D955
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 @Temperature 23.0 °C	9910 psi @Temperature 73.4 °F	ISO 527-2
Tensile Strength	76.5 MPa	11100 psi	Conditioned; ASTM D638
	83.4 MPa	12100 psi	ASTM D638
Tensile Strength, Yield	38.6 MPa @Temperature 100 °C	5600 psi @Temperature 212 °F	ISO 527-2
	75.2 MPa @Temperature 23.0 °C	10900 psi @Temperature 73.4 °F	ISO 527-2
Elongation at Break	80 %	80 %	Type IV; ASTM D638
	100 %	100 %	Type IV, Conditioned; ASTM D638
	15 % @Temperature 23.0 °C	15 % @Temperature 73.4 °F	ISO 527-2
	3.7 %	3.7 %	

Elongation at Yield Mechanical Properties	Metric @ Temperature 100 °C	English @ Temperature 212 °F	ISO 527-2 Comments
	5.0 %	5.0 %	ISO 527-2
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Modulus	2.76 GPa	400 ksi	Conditioned; ASTM D638
	2.76 GPa	400 ksi	ASTM D638
	2.10 GPa	305 ksi	ISO 527-2
	@Temperature 100 °C	@Temperature 212 °F	
	2.76 GPa	400 ksi	ISO 527-2
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Strength	73.1 MPa	10600 psi	Conditioned; ASTM D790
	103 MPa	14900 psi	ASTM D790
	49.6 MPa	7190 psi	ISO 178
	@Temperature 100 °C	@Temperature 212 °F	
	79.3 MPa	11500 psi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Modulus	2.21 GPa	321 ksi	ASTM D790
	2.28 GPa	331 ksi	Conditioned; ASTM D790
	1.72 GPa	249 ksi	ISO 178
	@Temperature 100 °C	@Temperature 212 °F	
	2.28 GPa	331 ksi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Shear Strength	57.2 MPa	8300 psi	Conditioned; ASTM D732
	64.1 MPa	9300 psi	ASTM D732
Izod Impact, Notched	1.40 J/cm	2.62 ft-lb/in	ASTM D256
	1.50 J/cm	2.81 ft-lb/in	Conditioned; ASTM D256
Izod Impact, Notched (ISO)	13.0 kJ/m ²	6.19 ft-lb/in ²	ISO 180/1A
Izod Impact, Unnotched (ISO)	NB	NB	ISO 180/1U
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact Unnotched	NB	NB	ISO 179/1eU

Charpy Impact, Notched Mechanical Properties	1.30 J/cm² Metric	6.19 ft-lb/in² English	ISO 179/1eA Comments
Dart Drop, Total Energy	47.5 J	35.0 ft-lb	Conditioned; ASTM D3763
	54.2 J	40.0 ft-lb	ASTM D3763
Penetration	4003	4003	N, Penetration Impact, Maximum Load, Conditioned; ASTM D3763
	4448	4448	N, Penetration Impact, Maximum Load; ASTM D3763

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	78.0 µm/m-°C	43.3 µin/in-°F	TMA; ASTM E831
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	130 µm/m-°C	72.2 µin/in-°F	TMA; ASTM E831
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
CTE, linear, Transverse to Flow	93.0 µm/m-°C	51.7 µin/in-°F	ASTM E831
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	140 µm/m-°C	77.8 µin/in-°F	ASTM E831
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
Melting Point	315 °C	599 °F	Peak; ASTM D3418
	315 °C	599 °F	ISO 11357-3
Deflection Temperature at 0.46 MPa (66 psi)	163 °C	325 °F	Annealed; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	118 °C	244 °F	Unannealed; ISO 75-2/Af
	121 °C	250 °F	Annealed; ASTM D648
Flammability, UL94	HB	HB	UL 94

Electrical Properties	Metric	English	Comments
Volume Resistivity	7.00e+14 ohm-cm	7.00e+14 ohm-cm	Conditioned; ASTM D257
	1.20e+16 ohm-cm	1.20e+16 ohm-cm	ASTM D257
Surface Resistance	2.50e+13 ohm	2.50e+13 ohm	Conditioned; ASTM D257
	8.00e+13 ohm	8.00e+13 ohm	ASTM D257

Electrical Properties	Metric	English	Comments
Dielectric Constant	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	ASTM D150
	3.3	3.3	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	3.8	3.8	Conditioned; ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	3.8	3.8	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	17.0 kV/mm	432 kV/in	Conditioned; ASTM D149
	17.0 kV/mm	432 kV/in	ASTM D149
Dissipation Factor	0.0040	0.0040	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.016	0.016	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.018	0.018	Conditioned; ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.035	0.035	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Comparative Tracking Index	>= 600 V	>= 600 V	Conditioned; ASTM D3638
	>= 600 V	>= 600 V	ASTM D3638
High Voltage Arc-Tracking Rate, HVTR	12.0 mm/min	0.472 in/min	Conditioned; UL 746
	12.0 mm/min	0.472 in/min	UL 746

Processing Properties	Metric	English	Comments
Rear Barrel Temperature	304 °C	579 °F	
Front Barrel Temperature	324 °C	615 °F	
Melt Temperature	321 - 329 °C	610 - 624 °F	
Mold Temperature	<= 90.0 °C	<= 194 °F	

Drying Temperature Processing Properties	110 °C Metric	230 °F English	Comments
Dry Time	4.00 hour	4.00 hour	
Moisture Content	0.060 %	0.060 %	

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