

Solvay Specialty Polymers Amodel® AS-4145 HS Polyphthalamide (PPA) (Unverified Data**)

Category : Polymer , Thermoplastic , Polyphthalamide (PPA)

Material Notes:

Amodel AS-4145 HS polyphthalamide (PPA) is a 45% glass reinforced resin that is hot-water moldable. Key properties include high heat resistance, high strength and stiffness over a broad temperature range, low moisture absorption, excellent chemical resistance and excellent electrical properties. This resin is ideal for automotive electrical and electronic applications, including connectors, sockets, switches and sensors. It is also a good choice for under-hood enclosures that protect critical control systems such as anti-lock brakes, traction control, steering, electronic engine control, transmission and chassis control units. Its rapid crystallization rate and high flow can result in shorter cycles, thereby enhancing molding productivity and lowering costs. - Black: AS-4145 HS BK 324Data 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-AS-4145-HS-Polyphthalamide-PPA-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Density	1.55 g/cc	0.0560 lb/in ³	ISO 1183/A
Filler Content	45 %	45 %	Glass Fiber Reinforcement
Water Absorption	0.21 % @Time 86400 sec	0.21 % @Time 24.0 hour	ASTM D570
Linear Mold Shrinkage, Flow	0.0040 cm/cm	0.0040 in/in	ASTM D955
Linear Mold Shrinkage, Transverse	0.0080 cm/cm	0.0080 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	186 MPa	27000 psi	Conditioned; ASTM D638
	224 MPa	32500 psi	ISO 527-2
	228 MPa	33100 psi	ASTM D638
Elongation at Break	2.1 %	2.1 %	Conditioned; ASTM D638
	2.2 %	2.2 %	ISO 527-2
	2.4 %	2.4 %	ASTM D638
Tensile Modulus	15.2 GPa	2200 ksi	Conditioned; ASTM D638
	15.2 GPa	2200 ksi	ASTM D638
	16.1 GPa	2340 ksi	ISO 527-2
Flexural Strength			ISO 178

Mechanical Properties	327 MPa Metric	47400 psi English	Comments
Flexural Yield Strength	269 MPa	39000 psi	Conditioned; ASTM D790
	328 MPa	47600 psi	ASTM D790
Flexural Modulus	13.1 GPa	1900 ksi	ASTM D790
	13.1 GPa	1900 ksi	Conditioned; ASTM D790
	13.4 GPa	1940 ksi	ISO 178
Compressive Strength	159 MPa	23100 psi	Conditioned; ASTM D695
	172 MPa	24900 psi	ASTM D695
Poissons Ratio	0.40	0.40	ASTM E132
Shear Modulus	5.43 - 5.75 GPa	788 - 834 ksi	Calculated
Shear Strength	75.8 MPa	11000 psi	Conditioned; ASTM D732
	89.6 MPa	13000 psi	ASTM D732
Izod Impact, Notched	0.960 J/cm	1.80 ft-lb/in	Conditioned; ASTM D256
	1.00 J/cm	1.87 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	10.0 kJ/m ²	4.76 ft-lb/in ²	ISO 180/1A
Charpy Impact Unnotched	6.30 J/cm ²	30.0 ft-lb/in ²	ISO 179/1eU
Charpy Impact, Notched	1.00 J/cm ²	4.76 ft-lb/in ²	ISO 179/1eA

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	13.0 µm/m-°C	7.22 µin/in-°F	TMA; ASTM E831
	@Temperature 149 - 249 °C	@Temperature 300 - 480 °F	
	16.0 µm/m-°C	8.89 µin/in-°F	TMA; ASTM E831
	@Temperature 0.000 - 90.0 °C	@Temperature 32.0 - 194 °F	
CTE, linear, Transverse to Flow	59.0 µm/m-°C	32.8 µin/in-°F	ASTM E831
	@Temperature 0.000 - 90.0 °C	@Temperature 32.0 - 194 °F	
	110 µm/m-°C	61.1 µin/in-°F	ASTM E831
	@Temperature 149 - 249 °C	@Temperature 300 - 480 °F	
Melting Point	320 °C	608 °F	ISO 11357-3

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	210 °C	410 °F	Continuous; ASTM D3045
	@Time 4.32e+6 sec	@Time 1200 hour	
Deflection Temperature at 0.46 MPa (66 psi)	320 °C	608 °F	Annealed; ASTM D648
	@Thickness 3.18 mm	@Thickness 0.125 in	
Deflection Temperature at 1.8 MPa (264 psi)	298 °C	568 °F	Unannealed; ISO 75-2/A
	300 °C	572 °F	
Flammability, UL94	HB	HB	UL 94
	@Thickness 3.18 mm	@Thickness 0.125 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	6.00e+14 ohm-cm	6.00e+14 ohm-cm	Conditioned; ASTM D257
	8.00e+15 ohm-cm	8.00e+15 ohm-cm	
Dielectric Constant	3.7	3.7	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.0	4.0	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.0	4.0	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	4.9	4.9	Conditioned; ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
Dielectric Strength	24.0 kV/mm	610 kV/in	ASTM D149
	@Thickness 1.59 mm	@Thickness 0.0626 in	
	25.0 kV/mm	635 kV/in	Conditioned; ASTM D149
	@Thickness 1.59 mm	@Thickness 0.0626 in	
Dissipation Factor	0.0040	0.0040	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.011	0.011	ASTM D150
	@Frequency 1.00e+6	@Frequency 1.00e+6	

Electrical Properties	Hz Metric	Hz English	Comments
	0.024	0.024	Conditioned; ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.037	0.037	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Comparative Tracking Index	600 V	600 V	UL 746
	600 V	600 V	Conditioned; UL 746
High Voltage Arc-Tracking Rate, HVTR	13.0 mm/min	0.512 in/min	UL 746
	14.0 mm/min	0.551 in/min	Conditioned; UL 746

Processing Properties	Metric	English	Comments
Feed Temperature	79.4 °C	175 °F	Hopper Temperature
Rear Barrel Temperature	318 - 324 °C	604 - 615 °F	
Front Barrel Temperature	327 - 332 °C	621 - 630 °F	
Melt Temperature	329 - 343 °C	624 - 649 °F	
Mold Temperature	65.6 - 93.3 °C	150 - 200 °F	
Drying Temperature	121 °C	250 °F	
Dry Time	4.00 hour	4.00 hour	
Moisture Content	0.10 %	0.10 %	

Descriptive Properties	Value	Comments
Additive	Heat Stabilizer	
	Lubricant	
	Mold Release	
Appearance	Black	
Automotive Specifications	ASTM D6779 PA102G45	
	TYCO 100-1632 Color: BK-324 Black	
Availability	Africa & Middle East	
	Asia Pacific	

Descriptive Properties	Value	Comments
	North America	
	South America	
Features	Fast Molding Cycle	
	Good Chemical Resistance	
	Good Creep Resistance	
	Good Dimensional Stability	
	Good Stiffness	
	Heat Stabilized	
	High Heat Resistance	
	High Strength	
	Hot Water Moldability	
	Low Moisture Absorption	
	Lubricated	
Forms	Pellets	
Generic	PPA	
Processing Method	Water-Heated Mold Injection Molding	
RoHS Compliance	RoHS Compliant	
Uses	Abrasive Cleaning Material	

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