

Solvay Specialty Polymers Amodel® AS-1133 HS Polyphthalamide (PPA) (Unverified Data**)

Category : Polymer , Thermoplastic , Polyphthalamide (PPA)

Material Notes:

Amodel AS-1133 HS is a 33% glass reinforced, heat stabilized polyphthalamide (PPA) resin that provides excellent structural integrity in molded parts, even those with wall thicknesses greater than 0.125 in (3 mm). Key properties of this structural resin are high heat deflection temperature, high flexural modulus, high tensile strength, excellent creep resistance and low moisture absorption. - Black: AS-1133 HS BK 324 - Natural: AS-1133 HS NTData 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-1133-HS-Polyphthalamide-PPA-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Density	1.44 g/cc	0.0520 lb/in ³	ISO 1183/B
Filler Content	33 %	33 %	Glass Fiber Reinforcement
Water Absorption	0.21 % @Time 86400 sec	0.21 % @Time 24.0 hour	ASTM D570
Linear Mold Shrinkage, Flow	0.00 cm/cm	0.00 in/in	Conditioned; ASTM D955
	0.0040 cm/cm	0.0040 in/in	ASTM D955
Linear Mold Shrinkage, Transverse	0.0020 cm/cm	0.0020 in/in	Conditioned; ASTM D955
	0.0080 cm/cm	0.0080 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	125	125	R-Scale; ASTM D785
Tensile Strength at Break	193 MPa	28000 psi	Conditioned; ASTM D638
	221 MPa	32100 psi	ASTM D638
Tensile Strength, Yield	225 MPa	32600 psi	ISO 527-2
Elongation at Break	2.1 %	2.1 %	Conditioned; ASTM D638
	2.5 %	2.5 %	ASTM D638
	3.0 %	3.0 %	ISO 527-2
Tensile Modulus	12.2 GPa	1770 ksi	ISO 527-2
	13.1 GPa	1900 ksi	Conditioned; ASTM D638

Mechanical Properties	Metric ^{Pa}	English ^l	Comments ⁱ
Flexural Strength	326 MPa	47300 psi	ISO 178
Flexural Yield Strength	254 MPa	36800 psi	Conditioned; ASTM D790
	317 MPa	46000 psi	ASTM D790
Flexural Modulus	10.3 GPa	1490 ksi	Conditioned; ASTM D790
	10.3 GPa	1490 ksi	ASTM D790
	10.3 GPa	1490 ksi	ISO 178
Compressive Strength	247 MPa	35800 psi	Conditioned; ASTM D695
	276 MPa	40000 psi	ASTM D695
Poissons Ratio	0.41	0.41	ASTM E132
Shear Modulus	4.33 - 4.65 GPa	628 - 674 ksi	Calculated
Shear Strength	88.9 MPa	12900 psi	Conditioned; ASTM D732
	101 MPa	14600 psi	ASTM D732
Izod Impact, Notched	0.750 J/cm	1.41 ft-lb/in	Conditioned; ASTM D256
	0.850 J/cm	1.59 ft-lb/in	ASTM D256
	10.0 J/cm	18.7 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	11.0 kJ/m ²	5.23 ft-lb/in ²	ISO 180/1A
Charpy Impact Unnotched	8.20 J/cm ²	39.0 ft-lb/in ²	ISO 179/1eU
Charpy Impact, Notched	1.10 J/cm ²	5.23 ft-lb/in ²	ISO 179/1eA

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	14.0 µm/m-°C @Temperature 160 - 249 °C	7.78 µin/in-°F @Temperature 320 - 480 °F	TMA; ASTM E831
	23.0 µm/m-°C @Temperature 0.000 - 100 °C	12.8 µin/in-°F @Temperature 32.0 - 212 °F	TMA; ASTM E831
CTE, linear, Transverse to Flow	59.0 µm/m-°C @Temperature 0.000 - 100 °C	32.8 µin/in-°F @Temperature 32.0 - 212 °F	ASTM E831
	130 µm/m-°C	72.2 µin/in-°F	

Thermal Properties	Metric	English	Comments
	@ Temperature 160 - 249 °C	@ Temperature 320 - 480 °F	ASTM E831
Melting Point	310 °C	590 °F	Peak; ASTM D3418
	310 °C	590 °F	ISO 11357-3
Maximum Service Temperature, Air	164 °C	327 °F	Continuous; ASTM D3045
	@Time 7.20e+7 sec	@Time 20000 hour	
	185 °C	365 °F	Continuous; ASTM D3045
	@Time 1.80e+7 sec	@Time 5000 hour	
Deflection Temperature at 0.46 MPa (66 psi)	297 °C	567 °F	Annealed; ASTM D648
	@Thickness 3.18 mm	@Thickness 0.125 in	
Deflection Temperature at 1.8 MPa (264 psi)	277 °C	531 °F	Annealed; ISO 75-2/Af
	285 °C	545 °F	Annealed; ASTM D648
	@Thickness 3.18 mm	@Thickness 0.125 in	
Flammability, UL94	HB	HB	UL 94
	@Thickness 3.18 mm	@Thickness 0.125 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	2.00e+15 ohm-cm	2.00e+15 ohm-cm	Conditioned; ASTM D257
	1.00e+16 ohm-cm	1.00e+16 ohm-cm	ASTM D257
Dielectric Constant	4.2	4.2	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.3	4.3	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.4	4.4	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	4.7	4.7	Conditioned; ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
Dielectric Strength	21.0 kV/mm	533 kV/in	Conditioned; ASTM D149
	@Thickness 3.18 mm	@Thickness 0.125 in	
	21.0 kV/mm	533 kV/in	

Electrical Properties	Metric @ Thickness 3.18 mm	English @ Thickness 0.125 in	ASTM D149 Comments
Dissipation Factor	0.0050	0.0050	ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.0090	0.0090	Conditioned; ASTM D150
	@Frequency 60.0 Hz	@Frequency 60.0 Hz	
	0.017	0.017	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.022	0.022	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Arc Resistance	120 sec	120 sec	Conditioned; ASTM D495
	140 sec	140 sec	
Comparative Tracking Index	550 V	550 V	UL 746
	550 V	550 V	Conditioned; UL 746

Processing Properties	Metric	English	Comments
Feed Temperature	79.4 °C	175 °F	Hopper Temperature
Rear Barrel Temperature	304 - 318 °C	579 - 604 °F	
Front Barrel Temperature	316 - 329 °C	601 - 624 °F	
Melt Temperature	321 - 343 °C	610 - 649 °F	
Mold Temperature	135 °C	275 °F	
Drying Temperature	120 °C	248 °F	
Dry Time	4.00 hour	4.00 hour	
Moisture Content	0.045 %	0.045 %	

Descriptive Properties	Value	Comments
Additive	Heat Stabilizer	
Appearance	Black	
	Natural Color	
Automotive Specifications	ASTM D4000 PA121 G35 Color: BK324 Black	

Descriptive Properties	Value	Comments
	D4000 PA121 G35 Color: NT Natural	
	ASTM D4000 PPA0111 G33 GB145 KD200 KN090 PN080 YI265 Color: BK324 Black	
	ASTM D4000 PPA0111 G33 GB145 KD200 KN090 PN080 YI265 Color: NT Natural	

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