

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

Category : Polymer , Thermoplastic , Polyphthalamide (PPA) , Polyphthalamide (PPA), 30% Glass Fiber Reinforced

Material Notes:

Amodel A-1133 HS is a 33% glass reinforced, heat stabilized polyphthalamide (PPA) with a high heat deflection temperature, high flexural modulus and high tensile strength. Excellent creep resistance and low moisture absorption are also characteristic of this resin. - Black: A-1133 HS BK 324 - Black: A-1133 HS BK 543 - Natural: A-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-A-1133-HS-Polyphthalamide-PPA-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Density	1.48 g/cc	0.0535 lb/in ³	ISO 1183/A
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	0.0040 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
Hardness, Rockwell R	125	125	R-Scale; ASTM D785
Tensile Strength at Break	72.0 MPa @Temperature 175 °C	10400 psi @Temperature 347 °F	ISO 527-2
	80.0 MPa @Temperature 150 °C	11600 psi @Temperature 302 °F	ISO 527-2
	148 MPa @Temperature 100 °C	21500 psi @Temperature 212 °F	ISO 527-2
	233 MPa @Temperature 23.0 °C	33800 psi @Temperature 73.4 °F	ISO 527-2
Tensile Strength	193 MPa	28000 psi	Conditioned; ASTM D638
	221 MPa	32100 psi	ASTM D638
Elongation at Break	2.1 %	2.1 %	Conditioned; ASTM D638

Mechanical Properties	2.5 % Metric	2.5 % English	ASTM D638 Comments
	2.5 % @Temperature 23.0 °C	2.5 % @Temperature 73.4 °F	ISO 527-2
	2.9 % @Temperature 100 °C	2.9 % @Temperature 212 °F	ISO 527-2
	8.5 % @Temperature 175 °C	8.5 % @Temperature 347 °F	ISO 527-2
	8.7 % @Temperature 150 °C	8.7 % @Temperature 302 °F	ISO 527-2
Tensile Modulus	13.1 GPa	1900 ksi	ASTM D638
	13.1 GPa	1900 ksi	Conditioned; ASTM D638
	4.30 GPa @Temperature 175 °C	624 ksi @Temperature 347 °F	ISO 527-2
	6.70 GPa @Temperature 150 °C	972 ksi @Temperature 302 °F	ISO 527-2
	10.8 GPa @Temperature 100 °C	1570 ksi @Temperature 212 °F	ISO 527-2
	13.4 GPa @Temperature 23.0 °C	1940 ksi @Temperature 73.4 °F	ISO 527-2
Flexural Strength	254 MPa	36800 psi	Conditioned; ASTM D790
	317 MPa	46000 psi	ASTM D790
	80.0 MPa @Temperature 175 °C	11600 psi @Temperature 347 °F	ISO 178
	93.0 MPa @Temperature 150 °C	13500 psi @Temperature 302 °F	ISO 178
	227 MPa @Temperature 100 °C	32900 psi @Temperature 212 °F	ISO 178
	319 MPa @Temperature 23.0 °C	46300 psi @Temperature 73.4 °F	ISO 178
Flexural Modulus	11.4 GPa	1650 ksi	ASTM D790

Mechanical Properties	11.4 GPa Metric	1650 ksi English	Conditioned; ASTM D790 Comments
	3.60 GPa	522 ksi	ISO 178
	@Temperature 175 °C	@Temperature 347 °F	
	4.00 GPa	580 ksi	ISO 178
	@Temperature 150 °C	@Temperature 302 °F	
	9.80 GPa	1420 ksi	ISO 178
	@Temperature 100 °C	@Temperature 212 °F	
	11.6 GPa	1680 ksi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Compressive Strength	185 MPa	26800 psi	ASTM D695
Poissons Ratio	0.41	0.41	ASTM E132
Shear Modulus	4.65 - 4.75 GPa	674 - 689 ksi	Calculated
Shear Strength	88.9 MPa	12900 psi	Conditioned; ASTM D732
	101 MPa	14600 psi	ASTM D732
Izod Impact, Notched	0.590 J/cm	1.11 ft-lb/in	Conditioned; ASTM D256
	0.800 J/cm	1.50 ft-lb/in	ASTM D256
	7.70 J/cm	14.4 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	8.80 kJ/m ²	4.19 ft-lb/in ²	ISO 180/1A
Izod Impact, Unnotched (ISO)	49.0 kJ/m ²	23.3 ft-lb/in ²	ISO 180/1U
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact Unnotched	7.30 J/cm ²	34.7 ft-lb/in ²	ISO 179/1eU
Charpy Impact, Notched	0.950 J/cm ²	4.52 ft-lb/in ²	ISO 179/1eA

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	24.0 µm/m-°C	13.3 µin/in-°F	TMA; ASTM E831
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	27.0 µm/m-°C	15.0 µin/in-°F	TMA; ASTM E831
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
CTE, linear, Transverse to Flow	55.0 µm/m-°C	30.6 µin/in-°F	ASTM E831

Thermal Properties	Metric @Temperature 0.000 - 100 °C	English @Temperature 32.0 - 212 °F	Comments
	110 µm/m-°C	61.1 µin/in-°F	ASTM E831
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
Melting Point	313 °C	595 °F	ISO 11357-3
	313 °C	595 °F	ASTM D570
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	

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	ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
	21.0 kV/mm	533 kV/in	Conditioned; ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
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	

Electrical Properties	0.017 Metric	0.017 English	Comments 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	ASTM D495
	140 sec	140 sec	ASTM D495
Comparative Tracking Index	550 V	550 V	UL 746
	550 V	550 V	Conditioned; UL 746

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