

Solvay Specialty Polymers Amodel® A-1145 HS Polyphthalamide (PPA)
(Unverified Data)**

Category : Polymer , Thermoplastic , Polyphthalamide (PPA) , Polyphthalamide (PPA), 50% Glass Fiber Reinforced

Material Notes:

Amodel A-1145 HS is a 45% glass reinforced, heat stabilized polyphthalamide (PPA) with a high heat deflection temperature, very high flexural modulus and very high tensile strength. Excellent creep resistance and low moisture absorption are also characteristic of this resin.

- Black: A-1145 HS BK 324 - Natural: A-1145 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-1145-HS-Polyphthalamide-PPA-nbspUnverified-Data.php

Physical Properties	Metric	English	Comments
Density	1.59 g/cc	0.0574 lb/in³	ISO 1183/A
Filler Content	45 %	45 %	Glass Fiber Reinforcement
Water Absorption	0.12 %	0.12 %	ASTM D570
	@Time 86400 sec	@Time 24.0 hour	
Linear Mold Shrinkage, Flow	0.0010 cm/cm	0.0010 in/in	Conditioned; ASTM D955
	0.0020 cm/cm	0.0020 in/in	ASTM D955
Linear Mold Shrinkage, Transverse	0.0010 cm/cm	0.0010 in/in	Conditioned; ASTM D955
	0.0060 cm/cm	0.0060 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	125	125	R-Scale; ASTM D785
Tensile Strength at Break	75.8 MPa	11000 psi	ISO 527-2
	@Temperature 175 °C	@Temperature 347 °F	
	84.8 MPa	12300 psi	ISO 527-2
	@Temperature 150 °C	@Temperature 302 °F	
	173 MPa	25100 psi	ISO 527-2
	@Temperature 100 °C	@Temperature 212 °F	
	263 MPa	38100 psi	ISO 527-2
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength	228 MPa	33100 psi	Conditioned; ASTM D638

Mechanical Properties	259 MPa Metric	37600 psi English	ASTM D638 Comments
Elongation at Break	2.1 %	2.1 %	Conditioned; ASTM D638
	2.6 %	2.6 %	ASTM D638
	2.5 % @Temperature 100 °C	2.5 % @Temperature 212 °F	ISO 527-2
	2.7 % @Temperature 23.0 °C	2.7 % @Temperature 73.4 °F	ISO 527-2
	6.5 % @Temperature 175 °C	6.5 % @Temperature 347 °F	ISO 527-2
	7.2 % @Temperature 150 °C	7.2 % @Temperature 302 °F	ISO 527-2
Tensile Modulus	17.2 GPa	2490 ksi	Conditioned; ASTM D638
	17.2 GPa	2490 ksi	ASTM D638
	5.38 GPa @Temperature 175 °C	780 ksi @Temperature 347 °F	ISO 527-2
	8.00 GPa @Temperature 150 °C	1160 ksi @Temperature 302 °F	ISO 527-2
	11.2 GPa @Temperature 100 °C	1620 ksi @Temperature 212 °F	ISO 527-2
	16.8 GPa @Temperature 23.0 °C	2440 ksi @Temperature 73.4 °F	ISO 527-2
Flexural Strength	294 MPa	42600 psi	Conditioned; ASTM D790
	363 MPa	52600 psi	ASTM D790
	94.5 MPa @Temperature 175 °C	13700 psi @Temperature 347 °F	ISO 178
	111 MPa @Temperature 150 °C	16100 psi @Temperature 302 °F	ISO 178
	267 MPa @Temperature 100 °C	38700 psi @Temperature 212 °F	ISO 178
	377 MPa	54700 psi	ISO 178

Mechanical Properties	@Temperature 23.0 °C Metric	@Temperature 73.4 °F English	Comments
Flexural Modulus	13.8 GPa	2000 ksi	Conditioned; ASTM D790
	13.8 GPa	2000 ksi	ASTM D790
	4.90 GPa	711 ksi	ISO 178
	@Temperature 175 °C	@Temperature 347 °F	
	5.38 GPa	780 ksi	ISO 178
	@Temperature 150 °C	@Temperature 302 °F	
	13.0 GPa	1890 ksi	ISO 178
	@Temperature 100 °C	@Temperature 212 °F	
	15.9 GPa	2310 ksi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Compressive Strength	194 MPa	28100 psi	ASTM D695
	@Thickness 25.4 mm	@Thickness 1.00 in	
Poissons Ratio	0.41	0.41	ASTM E132
Shear Modulus	5.96 - 6.10 GPa	864 - 885 ksi	Calculated
Shear Strength	91.7 MPa	13300 psi	Conditioned; ASTM D732
	108 MPa	15700 psi	ASTM D732
Izod Impact, Notched	1.00 J/cm	1.87 ft-lb/in	Conditioned; ASTM D256
	1.10 J/cm	2.06 ft-lb/in	ASTM D256
	11.0 J/cm	20.6 ft-lb/in	ASTM D256
Izod Impact, Notched (ISO)	10.0 kJ/m ²	4.76 ft-lb/in ²	ISO 180/1A
Izod Impact, Unnotched (ISO)	61.0 kJ/m ²	29.0 ft-lb/in ²	ISO 180/1U
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact Unnotched	9.20 J/cm ²	43.8 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	14.0 µm/m-°C	7.78 µin/in-°F	TMA; ASTM E831
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	35.0 µm/m-°C	19.4 µin/in-°F	

Thermal Properties	Metric @ Temperature 100 - 200 °C	English @ Temperature 212 - 392 °F	TMA: ASTM E831 Comments
CTE, linear, Transverse to Flow	50.0 µm/m-°C	27.8 µin/in-°F	ASTM E831
	@Temperature 0.000 - 100 °C	@Temperature 32.0 - 212 °F	
	150 µm/m-°C	83.3 µin/in-°F	ASTM E831
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
Melting Point	310 °C	590 °F	Peak; ASTM D3418
	310 °C	590 °F	ISO 11357-3

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	4.4	4.4	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.5	4.5	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	4.6	4.6	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	23.0 kV/mm	584 kV/in	Conditioned; ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
	23.0 kV/mm	584 kV/in	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	
	0.016	0.016	ASTM D150

Electrical Properties	@Frequency 1.00e+6 Metric Hz	@Frequency 1.00e+6 English Hz	Comments
	0.021	0.021	Conditioned; ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Arc Resistance	125 sec	125 sec	ASTM D495
	145 sec	145 sec	ASTM D495
Comparative Tracking Index	550 V	550 V	UL 746
	550 V	550 V	UL 746

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