

Overview of materials for Polyphthalamide (PPA), Glass Fiber 40%

Category : Polymer , Thermoplastic , Polyphthalamide (PPA) , Polyphthalamide (PPA), 40% Glass Fiber Reinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polyphthalamide, Glass Fiber 40%". Specific grades with glass content between 35% and 44% are included. Each property range of values reported is minimum and maximum values of appropriate MatWeb entries. The comments report the average value, and number of data points used to calculate the average. The values are not necessarily typical of any specific grade, especially less common values and those that can be most affected by additives or processing methods.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polyphthalamide-PPA-Glass-Fiber-40.php

Physical Properties	Metric	English	Comments
Density	1.38 - 1.81 g/cc	0.0499 - 0.0654 lb/in ³	Average value: 1.50 g/cc Grade Count:53
	1.10 - 1.10 g/cc @Temperature 325 - 325 °C	0.0397 - 0.0397 lb/in ³ @Temperature 617 - 617 °F	Average value: 1.10 g/cc Grade Count:1
Filler Content	35.0 - 40.0 %	35.0 - 40.0 %	Average value: 38.9 % Grade Count:28
Water Absorption	0.0200 - 5.00 %	0.0200 - 5.00 %	Average value: 0.826 % Grade Count:14
	1.10 - 1.15 % @Temperature 70.0 - 70.0 °C	1.10 - 1.15 % @Temperature 158 - 158 °F	Average value: 1.12 % Grade Count:6
Linear Mold Shrinkage	0.00100 - 0.0100 cm/cm	0.00100 - 0.0100 in/in	Average value: 0.00374 cm/cm Grade Count:45
Linear Mold Shrinkage, Transverse	0.00450 - 0.105 cm/cm	0.00450 - 0.105 in/in	Average value: 0.00982 cm/cm Grade Count:19

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	124 - 125	124 - 125	Average value: 125 Grade Count:8
Ball Indentation Hardness	310 - 330 MPa	45000 - 47900 psi	Average value: 322 MPa Grade Count:5
Tensile Strength, Ultimate	6.13 - 260 MPa	889 - 37700 psi	Average value: 180 MPa Grade Count:54
	65.0 - 230 MPa @Temperature -40.0 - 200 °C	9430 - 33400 psi @Temperature -40.0 - 392 °F	Average value: 98.0 MPa Grade Count:4
	120 - 130 MPa	17400 - 18900 psi	Average value: 98.0 MPa Grade

Mechanical Properties	@Temperature 130 - 180 °C Metric	@Temperature 266 - 339 °F English	Count:5 Comments
	120 - 130 MPa @Time 1.80e+7 - 7.20e+7 sec	17400 - 18900 psi @Time 5000 - 20000 hour	Average value: 98.0 MPa Grade Count:5
	3.94 - 237.87 MPa @Strain 0.0400 - 5.10 %	571 - 34500 psi @Strain 0.0400 - 5.10 %	Average value: 98.0 MPa Grade Count:2
	3.94 - 237.87 MPa @Temperature -20.0 - 180 °C	571 - 34500 psi @Temperature -4.00 - 356 °F	Average value: 98.0 MPa Grade Count:2
Elongation at Break	1.00 - 4.50 %	1.00 - 4.50 %	Average value: 2.34 % Grade Count:55
	2.10 - 8.60 % @Temperature -40.0 - 200 °C	2.10 - 8.60 % @Temperature -40.0 - 392 °F	Average value: 4.42 % Grade Count:4
Modulus of Elasticity	10.0 - 17.2 GPa	1450 - 2500 ksi	Average value: 12.8 GPa Grade Count:52
	2.333 - 13.0 GPa @Temperature -40.0 - 230 °C	338.4 - 1890 ksi @Temperature -40.0 - 446 °F	Average value: 7.20 GPa Grade Count:8
Flexural Yield Strength	231 - 360 MPa	33500 - 52200 psi	Average value: 299 MPa Grade Count:33
	261 - 352 MPa @Temperature -40.0 - 60.0 °C	37900 - 51100 psi @Temperature -40.0 - 140 °F	Average value: 154 MPa Grade Count:1
	96.0 - 181 MPa @Temperature 100 - 200 °C	13900 - 26300 psi @Temperature 212 - 392 °F	Average value: 154 MPa Grade Count:2
	96.0 - 181 MPa @Strain 3.50 - 5.00 %	13900 - 26300 psi @Strain 3.50 - 5.00 %	Average value: 154 MPa Grade Count:2
Flexural Modulus	8.30 - 15.9 GPa	1200 - 2300 ksi	Average value: 12.2 GPa Grade Count:38
	3.46 - 10.62 GPa @Temperature -40.0 - 200 °C	502 - 1540 ksi @Temperature -40.0 - 392 °F	Average value: 5.77 GPa Grade Count:2
Compressive Yield Strength	71.0 - 355 MPa @Temperature -40.0 - 200 °C	10300 - 51500 psi @Temperature -40.0 - 392 °F	Average value: 171 MPa Grade Count:1

Poissons Ratio Mechanical Properties	0.380 - 0.390 Metric	0.380 - 0.390 English	Average value: 0.387 Grade Count:4 Comments
Shear Modulus	>= 0.0768 GPa @Temperature -50.0 - 290 °C	>= 11.1 ksi @Temperature -58.0 - 554 °F	Average value: 1.60 GPa Grade Count:1
Shear Strength	73.8 - 91.7 MPa	10700 - 13300 psi	Average value: 83.1 MPa Grade Count:3
Secant Modulus	1.70799 - 14.8867 GPa @Temperature 0.000 - 200 °C	247.727 - 2159.17 ksi @Temperature 32.0 - 392 °F	Average value: 10.1 GPa Grade Count:1
	1.70799 - 14.8867 GPa @Strain 0.0500 - 4.13 %	247.727 - 2159.17 ksi @Strain 0.0500 - 4.13 %	Average value: 10.1 GPa Grade Count:1
Izod Impact, Notched	0.650 - 2.94 J/cm	1.22 - 5.50 ft-lb/in	Average value: 1.21 J/cm Grade Count:19
	0.910 - 0.910 J/cm @Temperature -40.0 - - 40.0 °C	1.70 - 1.70 ft-lb/in @Temperature -40.0 - - 40.0 °F	Average value: 0.910 J/cm Grade Count:1
Izod Impact, Unnotched	5.87 - 11.2 J/cm	11.0 - 21.0 ft-lb/in	Average value: 7.62 J/cm Grade Count:14
Izod Impact, Notched (ISO)	8.50 - 12.0 kJ/m ²	4.04 - 5.71 ft-lb/in ²	Average value: 10.2 kJ/m ² Grade Count:8
	8.00 - 10.0 kJ/m ² @Temperature -30.0 - - 30.0 °C	3.81 - 4.76 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 9.33 kJ/m ² Grade Count:2
Izod Impact, Unnotched (ISO)	40.0 - 65.0 kJ/m ²	19.0 - 30.9 ft-lb/in ²	Average value: 56.0 kJ/m ² Grade Count:5
	55.0 - 67.0 kJ/m ² @Temperature -30.0 - - 30.0 °C	26.2 - 31.9 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 61.0 kJ/m ² Grade Count:2
Charpy Impact Unnotched	3.80 - 9.00 J/cm ²	18.1 - 42.8 ft-lb/in ²	Average value: 6.26 J/cm ² Grade Count:30
	3.50 - 7.50 J/cm ² @Temperature -40.0 - - 30.0 °C	16.7 - 35.7 ft-lb/in ² @Temperature -40.0 - - 22.0 °F	Average value: 5.25 J/cm ² Grade Count:10
Charpy Impact, Notched	0.800 - 1.40 J/cm ²	3.81 - 6.66 ft-lb/in ²	Average value: 1.01 J/cm ² Grade Count:30
	0.600 - 1.10 J/cm ² @Temperature -40.0 - - 30.0 °C	2.86 - 5.24 ft-lb/in ² @Temperature -40.0 - - 22.0 °F	Average value: 0.921 J/cm ² Grade Count:11

Tensile Creep Modulus, 1 hour Mechanical Properties	10000 - 11000 MPa Metric	1.45e+6 - 1.60e+6 psi English	Average value: 10500 MPa Grade Count:4
Tensile Creep Modulus, 1000 hours	8500 - 10000 MPa	1.23e+6 - 1.45e+6 psi	Average value: 9130 MPa Grade Count:4

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+15 ohm-cm	1.00e+15 ohm-cm	Average value: 1.00e+15 ohm-cm Grade Count:18
Surface Resistance	1.00e+13 - 1.00e+15 ohm	1.00e+13 - 1.00e+15 ohm	Average value: 3.85e+14 ohm Grade Count:5
Dielectric Constant	3.80 - 5.80	3.80 - 5.80	Average value: 4.30 Grade Count:8
	4.20 - 136	4.20 - 136	Average value: 30.5 Grade Count:1
	@Temperature 60.0 - 200 °C	@Temperature 140 - 392 °F	
	4.20 - 136	4.20 - 136	Average value: 30.5 Grade Count:1
	@Frequency 1000 - 1.00e+6 Hz	@Frequency 1000 - 1.00e+6 Hz	
Dielectric Strength	19.7 - 43.0 kV/mm	500 - 1090 kV/in	Average value: 33.0 kV/mm Grade Count:13

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