

## Overview of materials for Polyphthalamide (PPA), 50% Glass Fiber Reinforced

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

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polyphthalamide, 50% Glass Fiber Reinforced". 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-50-Glass-Fiber-Reinforced.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polyphthalamide-PPA-50-Glass-Fiber-Reinforced.php)

Physical Properties	Metric	English	Comments
Density	1.55 - 1.99 g/cc	0.0560 - 0.0719 lb/in <sup>3</sup>	Average value: 1.64 g/cc Grade Count:63
Filler Content	45.0 - 50.0 %	45.0 - 50.0 %	Average value: 47.8 % Grade Count:41
Water Absorption	0.0200 - 3.60 %	0.0200 - 3.60 %	Average value: 0.513 % Grade Count:21
	0.850 - 0.950 %	0.850 - 0.950 %	Average value: 0.917 % Grade Count:6
	@Temperature 70.0 - 70.0 °C	@Temperature 158 - 158 °F	
Moisture Absorption at Equilibrium	1.00 - 1.20 %	1.00 - 1.20 %	Average value: 1.13 % Grade Count:3
Linear Mold Shrinkage	0.000100 - 0.00600 cm/cm	0.000100 - 0.00600 in/in	Average value: 0.00250 cm/cm Grade Count:54
Linear Mold Shrinkage, Transverse	0.00100 - 0.0100 cm/cm	0.00100 - 0.0100 in/in	Average value: 0.00566 cm/cm Grade Count:33

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	124 - 126	124 - 126	Average value: 125 Grade Count:10
Ball Indentation Hardness	340 - 360 MPa	49300 - 52200 psi	Average value: 353 MPa Grade Count:3
Tensile Strength, Ultimate	13.9 - 290 MPa	2010 - 42100 psi	Average value: 199 MPa Grade Count:56
	60.0 - 225 MPa	8700 - 32600 psi	Average value: 107 MPa Grade Count:5
	@Temperature 60.0 - 230 °C	@Temperature 140 - 446 °F	
	135 - 145 MPa	19600 - 21000 psi	Average value: 107 MPa Grade Count:4
	@Temperature 130 - 180 °C	@Temperature 266 - 356 °F	
	135 - 145 MPa	19600 - 21000 psi	

Mechanical Properties	Metric	English	Comments
	@ Time 1.80e+7 - 7.20e+7 sec	@ Time 5000 - 20000 hour	Average value: 107 MPa Grade Count:4
	8.38 - 321.27 MPa	1220 - 46596 psi	Average value: 107 MPa Grade Count:3
	@Strain 0.100 - 4.30 %	@Strain 0.100 - 4.30 %	
	8.38 - 321.27 MPa	1220 - 46596 psi	Average value: 107 MPa Grade Count:3
	@Temperature -40.0 - 150 °C	@Temperature -40.0 - 302 °F	
Tensile Strength, Yield	24.8 - 260 MPa	3600 - 37700 psi	Average value: 211 MPa Grade Count:7
Elongation at Break	0.600 - 3.10 %	0.600 - 3.10 %	Average value: 2.08 % Grade Count:61
	2.00 - 7.20 %	2.00 - 7.20 %	Average value: 4.29 % Grade Count:5
	@Temperature 60.0 - 230 °C	@Temperature 140 - 446 °F	
Modulus of Elasticity	11.0 - 22.1 GPa	1600 - 3200 ksi	Average value: 17.2 GPa Grade Count:59
	1.10 - 17.0 GPa	160 - 2470 ksi	Average value: 10.4 GPa Grade Count:5
	@Temperature 60.0 - 175 °C	@Temperature 140 - 347 °F	
Flexural Yield Strength	177 - 420 MPa	25700 - 60900 psi	Average value: 331 MPa Grade Count:45
	94.5 - 267 MPa	13700 - 38700 psi	Average value: 158 MPa Grade Count:1
	@Temperature 100 - 175 °C	@Temperature 212 - 347 °F	
Flexural Modulus	12.5 - 18.6 GPa	1810 - 2700 ksi	Average value: 15.6 GPa Grade Count:51
	4.90 - 13.0 GPa	711 - 1890 ksi	Average value: 7.76 GPa Grade Count:1
	@Temperature 100 - 175 °C	@Temperature 212 - 347 °F	
Compressive Yield Strength	159 - 314 MPa	23100 - 45500 psi	Average value: 213 MPa Grade Count:7
Poissons Ratio	0.380 - 0.410	0.380 - 0.410	Average value: 0.398 Grade Count:6
Shear Modulus	0.350 - 4.00 GPa	50.8 - 580 ksi	Average value: 1.75 GPa Grade Count:3
	@Temperature 0.000 - 350 °C	@Temperature 32.0 - 662 °F	
Shear Strength	75.8 - 108 MPa	11000 - 15700 psi	Average value: 91.3 MPa Grade Count:8
Izod Impact, Notched	0.590 - 4.97 J/cm	1.11 - 9.30 ft-lb/in	Average value: 1.33 J/cm Grade Count:27

Mechanical Properties	Metric	English	Comments
Izod Impact, Notched (ISO)	7.80 - 100 kJ/m <sup>2</sup>	3.71 - 47.6 ft-lb/in <sup>2</sup>	Average value: 16.1 kJ/m <sup>2</sup> Grade Count:20
	11.0 - 13.5 kJ/m <sup>2</sup> @Temperature -40.0 - - 20.0 °C	5.23 - 6.42 ft-lb/in <sup>2</sup> @Temperature -40.0 - - 4.00 °F	Average value: 12.5 kJ/m <sup>2</sup> Grade Count:6
Izod Impact, Unnotched (ISO)	61.0 - 87.0 kJ/m <sup>2</sup>	29.0 - 41.4 ft-lb/in <sup>2</sup>	Average value: 74.0 kJ/m <sup>2</sup> Grade Count:5
Charpy Impact Unnotched	1.00 - 9.50 J/cm <sup>2</sup>	4.76 - 45.2 ft-lb/in <sup>2</sup>	Average value: 7.56 J/cm <sup>2</sup> Grade Count:25
	1.40 - 9.00 J/cm <sup>2</sup> @Temperature -30.0 - - 30.0 °C	6.66 - 42.8 ft-lb/in <sup>2</sup> @Temperature -22.0 - - 22.0 °F	Average value: 6.55 J/cm <sup>2</sup> Grade Count:8
Charpy Impact, Notched	0.200 - 9.00 J/cm <sup>2</sup>	0.952 - 42.8 ft-lb/in <sup>2</sup>	Average value: 1.63 J/cm <sup>2</sup> Grade Count:32
	1.10 - 7.00 J/cm <sup>2</sup> @Temperature -40.0 - - 30.0 °C	5.24 - 33.3 ft-lb/in <sup>2</sup> @Temperature -40.0 - - 22.0 °F	Average value: 2.14 J/cm <sup>2</sup> Grade Count:11
Tensile Creep Modulus, 1 hour	10000 - 14000 MPa	1.45e+6 - 2.03e+6 psi	Average value: 11700 MPa Grade Count:3
Tensile Creep Modulus, 1000 hours	7500 - 12000 MPa	1.09e+6 - 1.74e+6 psi	Average value: 9170 MPa Grade Count:3

Thermal Properties	Metric	English	Comments
CTE, linear	12.0 - 500 µm/m-°C	6.67 - 278 µin/in-°F	Average value: 104 µm/m-°C Grade Count:15
	8.00 - 500 µm/m-°C @Temperature 55.0 - 250 °C	4.44 - 278 µin/in-°F @Temperature 131 - 482 °F	Average value: 161 µm/m-°C Grade Count:9

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+11 - 1.00e+17 ohm-cm	1.00e+11 - 1.00e+17 ohm-cm	Average value: 6.00e+15 ohm-cm Grade Count:24
Surface Resistance	1.00e+12 - 2.00e+15 ohm	1.00e+12 - 2.00e+15 ohm	Average value: 6.40e+14 ohm Grade Count:8
Dielectric Constant	3.40 - 6.10	3.40 - 6.10	Average value: 4.30 Grade Count:17
Dielectric Strength	18.9 - 40.0 kV/mm	480 - 1020 kV/in	Average value: 25.5 kV/mm Grade Count:16
Dissipation Factor	0.00400 - 0.0500	0.00400 - 0.0500	Average value: 0.0154 Grade Count:18

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	325 - 600 V	325 - 600 V	Average value: 555 V Grade Count:22
Hot Wire Ignition, HWI	120 - 150 sec	120 - 150 sec	Average value: 140 sec Grade Count:3
High Amp Arc Ignition, HAI	60.0 - 120 arcs	60.0 - 120 arcs	Average value: 77.7 arcs Grade Count:3
High Voltage Arc-Tracking Rate, HVTR	4.00 - 18.0 mm/min	0.157 - 0.709 in/min	Average value: 13.2 mm/min Grade Count:6

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