

## Overview of materials for Polyphthalamide (PPA), Mineral Filled

Category : Polymer , Thermoplastic , Polyphthalamide (PPA) , Polyphthalamide (PPA), Mineral Filled

### Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.45 - 1.90 g/cc	0.0524 - 0.0686 lb/in <sup>3</sup>	Average value: 1.57 g/cc Grade Count:17
Filler Content	22.0 - 65.0 %	22.0 - 65.0 %	Average value: 44.4 % Grade Count:5
Water Absorption	0.100 - 0.140 %	0.100 - 0.140 %	Average value: 0.120 % Grade Count:8
Moisture Absorption at Equilibrium	0.160 - 1.40 %	0.160 - 1.40 %	Average value: 0.424 % Grade Count:5
Linear Mold Shrinkage	0.00200 - 0.0150 cm/cm	0.00200 - 0.0150 in/in	Average value: 0.00767 cm/cm Grade Count:13
Linear Mold Shrinkage, Transverse	0.00400 - 0.0110 cm/cm	0.00400 - 0.0110 in/in	Average value: 0.00788 cm/cm Grade Count:10

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	125 - 126	125 - 126	Average value: 125 Grade Count:7
Tensile Strength, Ultimate	86.2 - 138 MPa	12500 - 20000 psi	Average value: 110 MPa Grade Count:12
	24.1 - 115 MPa @Temperature 60.0 - 175 °C	3500 - 16700 psi @Temperature 140 - 347 °F	Average value: 61.3 MPa Grade Count:3
Tensile Strength, Yield	71.0 - 174 MPa	10300 - 25200 psi	Average value: 111 MPa Grade Count:5
	20.0 - 97.0 MPa @Temperature 100 - 175 °C	2900 - 14100 psi @Temperature 212 - 347 °F	Average value: 46.2 MPa Grade Count:2
Elongation at Break	1.00 - 2.00 %	1.00 - 2.00 %	Average value: 1.55 % Grade Count:15
	1.30 - 15.0 % @Temperature 60.0 - 175 °C	1.30 - 15.0 % @Temperature 140 - 347 °F	Average value: 5.64 % Grade Count:5

Mechanical Properties	Metric <sup>2.50 %</sup>	English <sup>50 %</sup>	Comments <sup>ue: 2.15 % Grade Count:4</sup>
Modulus of Elasticity	5.80 - 20.8 GPa	841 - 3020 ksi	Average value: 10.4 GPa Grade Count:16
	0.600 - 15.4 GPa @Temperature 60.0 - 175 °C	87.0 - 2230 ksi @Temperature 140 - 347 °F	Average value: 4.73 GPa Grade Count:5
Flexural Yield Strength	110 - 263 MPa	16000 - 38100 psi	Average value: 184 MPa Grade Count:15
	15.0 - 163 MPa @Temperature 100 - 175 °C	2180 - 23600 psi @Temperature 212 - 347 °F	Average value: 68.8 MPa Grade Count:4
Flexural Modulus	4.30 - 18.0 GPa	624 - 2610 ksi	Average value: 8.46 GPa Grade Count:15
	0.600 - 6.83 GPa @Temperature 100 - 175 °C	87.0 - 991 ksi @Temperature 212 - 347 °F	Average value: 2.98 GPa Grade Count:4
Compressive Yield Strength	152 - 189 MPa	22000 - 27400 psi	Average value: 172 MPa Grade Count:4
Poissons Ratio	0.290 - 0.410	0.290 - 0.410	Average value: 0.333 Grade Count:6
Shear Modulus	2.20 - 4.20 GPa	319 - 609 ksi	Average value: 3.23 GPa Grade Count:6
Shear Strength	49.6 - 96.0 MPa	7190 - 13900 psi	Average value: 80.6 MPa Grade Count:10
Izod Impact, Notched	0.310 - 5.30 J/cm	0.581 - 9.93 ft-lb/in	Average value: 0.762 J/cm Grade Count:14
Izod Impact, Unnotched	3.47 - 7.47 J/cm	6.50 - 14.0 ft-lb/in	Average value: 5.62 J/cm Grade Count:6
Izod Impact, Notched (ISO)	3.00 - 5.90 kJ/m <sup>2</sup>	1.43 - 2.81 ft-lb/in <sup>2</sup>	Average value: 4.42 kJ/m <sup>2</sup> Grade Count:6
	4.00 - 4.00 kJ/m <sup>2</sup> @Temperature -30.0 - -30.0 °C	1.90 - 1.90 ft-lb/in <sup>2</sup> @Temperature -22.0 - -22.0 °F	Average value: 4.00 kJ/m <sup>2</sup> Grade Count:1
Izod Impact, Unnotched (ISO)	31.0 - 53.0 kJ/m <sup>2</sup>	14.8 - 25.2 ft-lb/in <sup>2</sup>	Average value: 38.7 kJ/m <sup>2</sup> Grade Count:3
	23.0 - 23.0 kJ/m <sup>2</sup> @Temperature -5.00 - -5.00 °C	10.9 - 10.9 ft-lb/in <sup>2</sup> @Temperature 23.0 - 23.0 °F	Average value: 23.0 kJ/m <sup>2</sup> Grade Count:1
Charpy Impact Unnotched	1.00 - 4.90 J/cm <sup>2</sup>	4.76 - 23.3 ft-lb/in <sup>2</sup>	Average value: 3.37 J/cm <sup>2</sup> Grade Count:6
Charpy Impact, Notched	0.200 - 0.460 J/cm <sup>2</sup>	0.952 - 2.19 ft-lb/in <sup>2</sup>	Average value: 0.323 J/cm <sup>2</sup> Grade

Mechanical Properties	Metric	English	Count:5 Comments
CTE, linear	20.0 - 41.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	11.1 - 22.8 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 29.4 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:5
	17.0 - 95.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 50.0 - 250 $^\circ\text{C}$	9.44 - 52.8 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 122 - 482 $^\circ\text{F}$	Average value: 45.7 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:6
CTE, linear, Transverse to Flow	37.0 - 80.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	20.6 - 44.4 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 50.4 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:5
	56.0 - 150 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 50.0 - 250 $^\circ\text{C}$	31.1 - 83.3 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 122 - 482 $^\circ\text{F}$	Average value: 104 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:5
Melting Point	310 - 325 $^\circ\text{C}$	590 - 617 $^\circ\text{F}$	Average value: 313 $^\circ\text{C}$ Grade Count:10
Maximum Service Temperature, Air	130 - 150 $^\circ\text{C}$	266 - 302 $^\circ\text{F}$	Average value: 140 $^\circ\text{C}$ Grade Count:3
Deflection Temperature at 0.46 MPa (66 psi)	158 - 290 $^\circ\text{C}$	316 - 554 $^\circ\text{F}$	Average value: 262 $^\circ\text{C}$ Grade Count:9
Deflection Temperature at 1.8 MPa (264 psi)	154 - 279 $^\circ\text{C}$	309 - 534 $^\circ\text{F}$	Average value: 208 $^\circ\text{C}$ Grade Count:12
Flammability, UL94	HB	HB	Grade Count:7

Electrical Properties	Metric	English	Comments
Electrical Resistivity	4.00e+14 - 1.00e+16 ohm-cm	4.00e+14 - 1.00e+16 ohm-cm	Average value: 5.43e+15 ohm-cm Grade Count:7
Dielectric Constant	3.90 - 4.70	3.90 - 4.70	Average value: 4.22 Grade Count:6
Dissipation Factor	0.00500 - 0.0220	0.00500 - 0.0220	Average value: 0.0123 Grade Count:6
Arc Resistance	120 - 125 sec	120 - 125 sec	Average value: 124 sec Grade Count:5
Comparative Tracking Index	550 - 600 V	550 - 600 V	Average value: 556 V Grade Count:8

Processing Properties	Metric	English	Comments
Processing Temperature	79.4 - 340 $^\circ\text{C}$	175 - 644 $^\circ\text{F}$	Average value: 163 $^\circ\text{C}$ Grade Count:3
Melt Temperature	300 - 343 $^\circ\text{C}$	572 - 649 $^\circ\text{F}$	Average value: 322 $^\circ\text{C}$ Grade Count:12
Mold Temperature	135 - 180 $^\circ\text{C}$	275 - 356 $^\circ\text{F}$	Average value: 144 $^\circ\text{C}$ Grade Count:11
Drying Temperature	107 - 130 $^\circ\text{C}$	225 - 266 $^\circ\text{F}$	Average value: 117 $^\circ\text{C}$ Grade Count:10
Moisture Content	0.0450 - 0.200 %	0.0450 - 0.200 %	Average value: 0.0639 % Grade Count:9

Processing Properties	Metric	English	Comments
Dew Point	-31.7 °C	-25.0 °F	Average value: -31.7 °C Grade Count:3
Injection Pressure	68.9 - 124 MPa	10000 - 18000 psi	Average value: 96.5 MPa Grade Count:3

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