

Overview of materials for Polyphthalamide (PPA)

Category : Polymer , Thermoplastic , Polyphthalamide (PPA)

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polyphthalamide". 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.php

Physical Properties	Metric	English	Comments
Density	1.10 - 3.80 g/cc	0.0397 - 0.137 lb/in ³	Average value: 1.49 g/cc Grade Count:605
	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	3.00 - 65.0 %	3.00 - 65.0 %	Average value: 33.1 % Grade Count:234
Water Absorption	0.0200 - 10.0 %	0.0200 - 10.0 %	Average value: 0.410 % Grade Count:239
	0.850 - 1.35 % @Temperature 70.0 - 70.0 °C	0.850 - 1.35 % @Temperature 158 - 158 °F	Average value: 1.09 % Grade Count:16
Moisture Absorption at Equilibrium	0.100 - 2.40 %	0.100 - 2.40 %	Average value: 0.507 % Grade Count:80
Additive Loading	4.00 - 50.0 %	4.00 - 50.0 %	Average value: 32.1 % Grade Count:16
Linear Mold Shrinkage	0.000 - 0.0250 cm/cm	0.000 - 0.0250 in/in	Average value: 0.00452 cm/cm Grade Count:531
Linear Mold Shrinkage, Transverse	0.000800 - 0.105 cm/cm	0.000800 - 0.105 in/in	Average value: 0.00839 cm/cm Grade Count:221
Melt Flow	5.00 - 50.0 g/10 min	5.00 - 50.0 g/10 min	Average value: 20.0 g/10 min Grade Count:6
Spiral Flow	30.0 - 70.0 cm	11.8 - 27.6 in	Average value: 47.7 cm Grade Count:6

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	105 - 109	105 - 109	Average value: 107 Grade Count:3
Hardness, Rockwell R	110 - 127	110 - 127	Average value: 124 Grade Count:87
Ball Indentation Hardness			Average value: 320 MPa Grade

Mechanical Properties	270 - 360 MPa Metric	39200 - 52200 psi English	Count:11 Comments
Tensile Strength, Ultimate	6.13 - 385 MPa	889 - 55800 psi	Average value: 171 MPa Grade Count:557
	24.1 - 265 MPa	3500 - 38400 psi	Average value: 84.7 MPa Grade Count:31
	@Temperature -40.0 - 230 °C	@Temperature -40.0 - 446 °F	
	100 - 145 MPa	14500 - 21000 psi	Average value: 84.7 MPa Grade Count:13
	@Temperature 130 - 180 °C	@Temperature 266 - 356 °F	
	100 - 145 MPa	14500 - 21000 psi	Average value: 84.7 MPa Grade Count:13
	@Time 1.80e+7 - 7.20e+7 sec	@Time 5000 - 20000 hour	
	3.94 - 321.27 MPa	571 - 46596 psi	Average value: 84.7 MPa Grade Count:6
	@Strain 0.0400 - 5.10 %	@Strain 0.0400 - 5.10 %	
	3.94 - 321.27 MPa	571 - 46596 psi	Average value: 84.7 MPa Grade Count:6
	@Temperature -40.0 - 180 °C	@Temperature -40.0 - 356 °F	
Tensile Strength, Yield	12.0 - 307 MPa	1740 - 44500 psi	Average value: 154 MPa Grade Count:81
	20.0 - 119 MPa	2900 - 17300 psi	Average value: 64.8 MPa Grade Count:8
	@Temperature 100 - 175 °C	@Temperature 212 - 347 °F	
Elongation at Break	0.563 - 100 %	0.563 - 100 %	Average value: 2.83 % Grade Count:548
	1.00 - 95.0 %	1.00 - 95.0 %	Average value: 6.00 % Grade Count:36
	@Temperature -40.0 - 230 °C	@Temperature -40.0 - 446 °F	
Elongation at Yield	0.700 - 50.0 %	0.700 - 50.0 %	Average value: 3.09 % Grade Count:86
	3.10 - 10.0 %	3.10 - 10.0 %	Average value: 4.92 % Grade Count:4
	@Temperature 100 - 150 °C	@Temperature 212 - 302 °F	
Modulus of Elasticity	1.70 - 48.3 GPa	247 - 7000 ksi	Average value: 13.9 GPa Grade Count:561
	0.500 - 32.0 GPa	72.5 - 4640 ksi	Average value: 8.06 GPa Grade Count:40
	@Temperature -40.0 - 230 °C	@Temperature -40.0 - 446 °F	
Flexural Yield Strength	58.8 - 530 MPa	8530 - 76900 psi	Average value: 261 MPa Grade Count:531

Mechanical Properties	Metric	English	Comments
	352 MPa	51100 psi	Average value: 119 MPa Grade Count:22
	@Temperature -40.0 - 200 °C	@Temperature -40.0 - 392 °F	
	96.0 - 181 MPa	13900 - 26300 psi	Average value: 119 MPa Grade Count:2
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
	96.0 - 181 MPa	13900 - 26300 psi	Average value: 119 MPa Grade Count:2
	@Strain 3.50 - 5.00 %	@Strain 3.50 - 5.00 %	
Flexural Modulus	1.79 - 41.4 GPa	260 - 6000 ksi	Average value: 12.3 GPa Grade Count:549
	0.400 - 16.8 GPa	58.0 - 2440 ksi	Average value: 5.22 GPa Grade Count:23
	@Temperature -40.0 - 200 °C	@Temperature -40.0 - 392 °F	
Compressive Yield Strength	100 - 314 MPa	14500 - 45500 psi	Average value: 186 MPa Grade Count:33
	71.0 - 355 MPa	10300 - 51500 psi	Average value: 171 MPa Grade Count:1
	@Temperature -40.0 - 200 °C	@Temperature -40.0 - 392 °F	
Poissons Ratio	0.290 - 0.410	0.290 - 0.410	Average value: 0.383 Grade Count:32
Shear Modulus	0.852 - 6.74 GPa	124 - 978 ksi	Average value: 3.53 GPa Grade Count:15
	0.0768 - 4.00 GPa	11.1 - 580 ksi	Average value: 2.35 GPa Grade Count:5
	@Temperature -50.0 - 350 °C	@Temperature -58.0 - 662 °F	
Shear Strength	44.1 - 108 MPa	6400 - 15700 psi	Average value: 79.2 MPa Grade Count:53
Secant Modulus	1.70799 - 14.8867 GPa	247.727 - 2159.17 ksi	Average value: 10.1 GPa Grade Count:1
	@Temperature 0.000 - 200 °C	@Temperature 32.0 - 392 °F	
	1.70799 - 14.8867 GPa	247.727 - 2159.17 ksi	Average value: 10.1 GPa Grade Count:1
	@Strain 0.0500 - 4.13 %	@Strain 0.0500 - 4.13 %	
Izod Impact, Notched	0.147 - 11.0 J/cm	0.276 - 20.6 ft-lb/in	Average value: 1.12 J/cm Grade Count:380
	0.910 - 7.50 J/cm	1.70 - 14.1 ft-lb/in	Average value: 2.61 J/cm Grade Count:3
	@Temperature -40.0 - - 40.0 °C	@Temperature -40.0 - - 40.0 °F	
Izod Impact, Unnotched	0.801 - 5340 J/cm	1.50 - 10000 ft-lb/in	Average value: 6.47 J/cm Grade

Mechanical Properties	Metric	English	Count:296 Comments Average value: 14.7 kJ/m² Grade Count:182
Izod Impact, Notched (ISO)	2.00 - 115 kJ/m²	0.952 - 54.7 ft-lb/in²	
	3.00 - 75.0 kJ/m²	1.43 - 35.7 ft-lb/in²	Average value: 14.8 kJ/m² Grade Count:22
	@Temperature -40.0 - - 20.0 °C	@Temperature -40.0 - - 4.00 °F	
Izod Impact, Unnotched (ISO)	12.0 kJ/m² - NB	5.71 ft-lb/in² - NB	Average value: 53.1 kJ/m² Grade Count:124
	23.0 kJ/m² - NB	10.9 ft-lb/in² - NB	Average value: 45.5 kJ/m² Grade Count:5
	@Temperature -40.0 - - 5.00 °C	@Temperature -40.0 - - 23.0 °F	
Charpy Impact Unnotched	0.473 J/cm² - NB	2.25 ft-lb/in² - NB	Average value: 5.66 J/cm² Grade Count:158
	1.20 - 999.9 J/cm²	5.71 - 4759 ft-lb/in²	Average value: 4.71 J/cm² Grade Count:44
	@Temperature -40.0 - - 20.0 °C	@Temperature -40.0 - - 4.00 °F	
Charpy Impact, Notched	0.100 J/cm² - NB	0.476 ft-lb/in² - NB	Average value: 1.18 J/cm² Grade Count:147

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