

Overview of materials for Nylon 612, Unreinforced

Category : Polymer , Thermoplastic , Nylon , Nylon 612 , Nylon 612, Unreinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Nylon 612, Unreinforced". 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-Nylon-612-Unreinforced.php

Physical Properties	Metric	English	Comments
Density	1.01 - 1.35 g/cc	0.0365 - 0.0488 lb/in ³	Average value: 1.09 g/cc Grade Count:33
Apparent Bulk Density	0.265 - 0.450 g/cc	0.00957 - 0.0163 lb/in ³	Average value: 0.363 g/cc Grade Count:3
Water Absorption	0.200 - 2.00 %	0.200 - 2.00 %	Average value: 0.549 % Grade Count:11
	14.75 - 14.75 %	14.75 - 14.75 %	Average value: 14.8 % Grade Count:1
	@Temperature 100 - 100 °C	@Temperature 212 - 212 °F	
Moisture Absorption at Equilibrium	0.500 - 3.00 %	0.500 - 3.00 %	Average value: 1.29 % Grade Count:9
Water Absorption at Saturation	2.20 - 7.00 %	2.20 - 7.00 %	Average value: 3.44 % Grade Count:14
Particle Size	7.00 - 23.0 µm	7.00 - 23.0 µm	Average value: 16.7 µm Grade Count:3
pH	4.00	4.00	Average value: 4.00 Grade Count:3
Specific Surface Area	1.50 - 20.0 m ² /g	1.50 - 20.0 m ² /g	Average value: 9.17 m ² /g Grade Count:3
Linear Mold Shrinkage	0.00100 - 0.0250 cm/cm	0.00100 - 0.0250 in/in	Average value: 0.0131 cm/cm Grade Count:17
Linear Mold Shrinkage, Transverse	0.0100 - 0.0150 cm/cm	0.0100 - 0.0150 in/in	Average value: 0.0122 cm/cm Grade Count:6

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	114 - 115	114 - 115	Average value: 114 Grade Count:5
Hardness, Shore D	75.0 - 82.0	75.0 - 82.0	Average value: 78.3 Grade Count:4
Tensile Strength, Ultimate	44.0 - 130 MPa	6380 - 18900 psi	Average value: 66.4 MPa Grade Count:15
	29.0 - 79.3 MPa	4210 - 11500 psi	Average value: 53.2 MPa Grade

Tensile Strength, Yield Mechanical Properties	Metric	English	Count:19 Comments
Elongation at Break	2.10 - 370 %	2.10 - 370 %	Average value: 64.8 % Grade Count:30
Elongation at Yield	2.10 - 30.0 %	2.10 - 30.0 %	Average value: 11.8 % Grade Count:15
Modulus of Elasticity	0.750 - 9.98 GPa	109 - 1450 ksi	Average value: 2.43 GPa Grade Count:25
	0.0860 - 2.228 GPa @Temperature -40.0 - 150 °C	12.5 - 323.1 ksi @Temperature -40.0 - 302 °F	Average value: 0.864 GPa Grade Count:3
Flexural Yield Strength	30.0 - 145 MPa	4350 - 21000 psi	Average value: 81.9 MPa Grade Count:10
Flexural Modulus	0.800 - 9.26 GPa	116 - 1340 ksi	Average value: 2.56 GPa Grade Count:16
Izod Impact, Notched	0.320 - 1.07 J/cm	0.599 - 2.00 ft-lb/in	Average value: 0.505 J/cm Grade Count:13
	0.500 - 0.500 J/cm @Temperature -40.0 - - 40.0 °C	0.937 - 0.937 ft-lb/in @Temperature -40.0 - - 40.0 °F	Average value: 0.500 J/cm Grade Count:1
Izod Impact, Unnotched	2.14 - 5340 J/cm	4.00 - 10000 ft-lb/in	Average value: 3.99 J/cm Grade Count:6
Charpy Impact Unnotched	3.00 J/cm ² - NB	14.3 ft-lb/in ² - NB	Average value: 5.50 J/cm ² Grade Count:15
	2.00 J/cm ² - NB @Temperature -40.0 - - 30.0 °C	9.52 ft-lb/in ² - NB @Temperature -40.0 - - 22.0 °F	Average value: 2.25 J/cm ² Grade Count:14
Charpy Impact, Notched	0.500 - 12.0 J/cm ²	2.38 - 57.1 ft-lb/in ²	Average value: 2.36 J/cm ² Grade Count:18
	0.350 - 1.90 J/cm ² @Temperature -40.0 - - 30.0 °C	1.67 - 9.04 ft-lb/in ² @Temperature -40.0 - - 22.0 °F	Average value: 0.784 J/cm ² Grade Count:15

Thermal Properties	Metric	English	Comments
CTE, linear	50.0 - 170 μm/m-°C	27.8 - 94.4 μin/in-°F	Average value: 102 μm/m-°C Grade Count:13
	180 - 180 μm/m-°C @Temperature 50.0 - 160 °C	100 - 100 μin/in-°F @Temperature 122 - 320 °F	Average value: 180 μm/m-°C Grade Count:1
Specific Heat Capacity	1.67 - 1.88 J/g-°C	0.399 - 0.450 BTU/lb-°F	Average value: 1.74 J/g-°C Grade Count:3
Thermal Conductivity	0.280 - 1.10 W/m-K	1.94 - 7.63 BTU-in/hr-ft ² -°F	Average value: 0.553 W/m-K Grade Count:3

Thermal Properties	Metric	English	Comments
Melting Point	142 - 224 °C	288 - 435 °F	Average value: 207 °C Grade Count:25
Maximum Service Temperature, Air	100 - 160 °C	212 - 320 °F	Average value: 133 °C Grade Count:3
Deflection Temperature at 0.46 MPa (66 psi)	83.0 - 210 °C	181 - 410 °F	Average value: 160 °C Grade Count:22
Deflection Temperature at 1.8 MPa (264 psi)	47.0 - 190 °C	117 - 374 °F	Average value: 75.5 °C Grade Count:26
Vicat Softening Point	110 - 210 °C	230 - 410 °F	Average value: 176 °C Grade Count:14
Minimum Service Temperature, Air	-100 - -40.0 °C	-148 - -40.0 °F	Average value: -55.0 °C Grade Count:3
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:24

Electrical Properties	Metric	English	Comments
Electrical Resistivity	3.00e+12 - 1.00e+15 ohm-cm	3.00e+12 - 1.00e+15 ohm-cm	Average value: 4.80e+14 ohm-cm Grade Count:16
Surface Resistance	1.00e+10 - 1.00e+15 ohm	1.00e+10 - 1.00e+15 ohm	Average value: 2.21e+14 ohm Grade Count:5
Dielectric Constant	2.90 - 12.0	2.90 - 12.0	Average value: 4.11 Grade Count:16
Dielectric Strength	15.0 - 38.0 kV/mm	381 - 965 kV/in	Average value: 26.6 kV/mm Grade Count:13
Dissipation Factor	0.0200 - 0.150	0.0200 - 0.150	Average value: 0.0416 Grade Count:14
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:9

Processing Properties	Metric	English	Comments
Processing Temperature	190 - 279 °C	374 - 535 °F	Average value: 229 °C Grade Count:4
Melt Temperature	221 - 290 °C	430 - 554 °F	Average value: 255 °C Grade Count:6
Mold Temperature	50.0 - 93.3 °C	122 - 200 °F	Average value: 74.9 °C Grade Count:8
Drying Temperature	73.9 - 85.0 °C	165 - 185 °F	Average value: 79.4 °C Grade Count:6
Moisture Content	0.0200 - 2.00 %	0.0200 - 2.00 %	Average value: 0.846 % Grade Count:8
Dew Point	-17.8 °C	0.000 °F	Average value: -17.8 °C Grade Count:3
Injection Pressure	68.9 - 124 MPa	10000 - 18000 psi	Average value: 96.5 MPa Grade Count:5

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