

Overview of materials for Nylon 12, Carbon Fiber Filled

Category : Polymer , Thermoplastic , Nylon , Nylon 12 , Nylon 12, Carbon Fiber Filled

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Nylon 12, Carbon Fiber 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-Nylon-12-Carbon-Fiber-Filled.php

Physical Properties	Metric	English	Comments
Density	1.05 - 1.29 g/cc	0.0379 - 0.0466 lb/in ³	Average value: 1.14 g/cc Grade Count:29
Filler Content	10.0 - 50.0 %	10.0 - 50.0 %	Average value: 25.9 % Grade Count:11
Water Absorption	0.100 - 1.10 %	0.100 - 1.10 %	Average value: 0.378 % Grade Count:13
Moisture Absorption at Equilibrium	0.600 - 0.700 %	0.600 - 0.700 %	Average value: 0.633 % Grade Count:3
Additive Loading	15.0 - 30.0 %	15.0 - 30.0 %	Average value: 25.0 % Grade Count:3
Linear Mold Shrinkage	0.000200 - 0.00800 cm/cm	0.000200 - 0.00800 in/in	Average value: 0.00255 cm/cm Grade Count:21
Linear Mold Shrinkage, Transverse	0.00100 - 0.00500 cm/cm	0.00100 - 0.00500 in/in	Average value: 0.00300 cm/cm Grade Count:3
Melt Flow	3.00 - 50.0 g/10 min	3.00 - 50.0 g/10 min	Average value: 9.70 g/10 min Grade Count:8

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	100 - 135 MPa	14500 - 19600 psi	Average value: 122 MPa Grade Count:3
Tensile Strength, Ultimate	60.0 - 250 MPa	8700 - 36300 psi	Average value: 131 MPa Grade Count:27
Elongation at Break	1.00 - 5.00 %	1.00 - 5.00 %	Average value: 3.10 % Grade Count:22
Elongation at Yield	2.50 - 9.00 %	2.50 - 9.00 %	Average value: 4.98 % Grade Count:6
Modulus of Elasticity	2.90 - 23.0 GPa	420 - 3340 ksi	Average value: 12.2 GPa Grade Count:27
Flexural Yield Strength	90.0 - 319 MPa	13100 - 46300 psi	Average value: 184 MPa Grade Count:20
Flexural Modulus	3.00 - 20.0 GPa	435 - 2900 ksi	Average value: 10.1 GPa Grade Count:21

Mechanical Properties	Metric 2.67 J/cm	English 5.00 ft-lb/in	Comments Average value: 1.10 J/cm Grade Count:13
Izod Impact, Unnotched	1.10 - 10.7 J/cm	2.06 - 20.0 ft-lb/in	Average value: 6.54 J/cm Grade Count:14
Charpy Impact Unnotched	3.50 - 7.00 J/cm ²	16.7 - 33.3 ft-lb/in ²	Average value: 5.62 J/cm ² Grade Count:13
	4.00 - 6.00 J/cm ² @Temperature -30.0 - 30.0 °C	19.0 - 28.6 ft-lb/in ² @Temperature -22.0 - 86.0 °F	Average value: 5.50 J/cm ² Grade Count:7
Charpy Impact, Notched	1.00 - 2.80 J/cm ²	4.76 - 13.3 ft-lb/in ²	Average value: 1.58 J/cm ² Grade Count:11
	0.500 - 1.80 J/cm ² @Temperature -30.0 - 30.0 °C	2.38 - 8.57 ft-lb/in ² @Temperature -22.0 - 86.0 °F	Average value: 0.993 J/cm ² Grade Count:7

Thermal Properties	Metric	English	Comments
CTE, linear	10.0 - 48.6 µm/m-°C	5.56 - 27.0 µin/in-°F	Average value: 29.1 µm/m-°C Grade Count:7
CTE, linear, Transverse to Flow	50.0 - 150 µm/m-°C	27.8 - 83.3 µin/in-°F	Average value: 110 µm/m-°C Grade Count:3
Melting Point	174 - 184 °C	345 - 363 °F	Average value: 177 °C Grade Count:9
Maximum Service Temperature, Air	90.0 - 150 °C	194 - 302 °F	Average value: 118 °C Grade Count:8
Deflection Temperature at 0.46 MPa (66 psi)	163 - 178 °C	325 - 352 °F	Average value: 173 °C Grade Count:4
Deflection Temperature at 1.8 MPa (264 psi)	154 - 177 °C	310 - 351 °F	Average value: 166 °C Grade Count:13
Deflection Temperature at 8.0 MPa	100 - 160 °C	212 - 320 °F	Average value: 128 °C Grade Count:3
Vicat Softening Point	170 °C	338 °F	Average value: 170 °C Grade Count:4
Flammability, UL94	HB	HB	Grade Count:18

Electrical Properties	Metric	English	Comments
Electrical Resistivity	10.0 - 7.80e+14 ohm-cm	10.0 - 7.80e+14 ohm-cm	Average value: 7.09e+13 ohm-cm Grade Count:12
Surface Resistance	50.0 - 2.90e+14 ohm	50.0 - 2.90e+14 ohm	Average value: 3.22e+13 ohm Grade Count:11
Insulation Resistance	100 - 1.00e+11 ohm	100 - 1.00e+11 ohm	Average value: 1.67e+10 ohm Grade Count:6

Processing Properties	Metric	English	Comments
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Processing Temperature Processing Properties	216 - 266 °C Metric	420 - 510 °F English	Average value: 246 °C Grade Count:11 Comments
Nozzle Temperature	250 - 260 °C	482 - 500 °F	Average value: 255 °C Grade Count:6
Melt Temperature	221 - 274 °C	430 - 525 °F	Average value: 249 °C Grade Count:13
Mold Temperature	65.6 - 110 °C	150 - 230 °F	Average value: 86.7 °C Grade Count:18
Drying Temperature	75.0 - 105 °C	167 - 221 °F	Average value: 86.1 °C Grade Count:13
Moisture Content	0.100 %	0.100 %	Average value: 0.100 % Grade Count:7
Dew Point	-40.0 °C	-40.0 °F	Average value: -40.0 °C Grade Count:7
Injection Pressure	68.9 - 103 MPa	10000 - 15000 psi	Average value: 86.2 MPa Grade Count:12

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