

Overview of materials for Nylon 6, Unreinforced, Flame Retardant

Category : Polymer , Thermoplastic , Nylon , Nylon 6 , Nylon 6, Unreinforced, Flame Retardant

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Nylon 6, Unreinforced, Flame Retardant". 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-6-Unreinforced-Flame-Retardant.php

Physical Properties	Metric	English	Comments
Density	0.932 - 1.64 g/cc	0.0337 - 0.0592 lb/in ³	Average value: 1.19 g/cc Grade Count:114
Water Absorption	0.0600 - 9.50 %	0.0600 - 9.50 %	Average value: 3.53 % Grade Count:55
Moisture Absorption at Equilibrium	0.170 - 3.50 %	0.170 - 3.50 %	Average value: 2.28 % Grade Count:40
Viscosity	2.60 cP	2.60 cP	Average value: 2.60 cP Grade Count:12
Linear Mold Shrinkage	0.000400 - 0.0190 cm/cm	0.000400 - 0.0190 in/in	Average value: 0.0116 cm/cm Grade Count:93
Linear Mold Shrinkage, Transverse	0.000400 - 0.0160 cm/cm	0.000400 - 0.0160 in/in	Average value: 0.0103 cm/cm Grade Count:35
Melt Flow	8.00 - 160 g/10 min	8.00 - 160 g/10 min	Average value: 39.9 g/10 min Grade Count:22

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	97.0 - 122	97.0 - 122	Average value: 114 Grade Count:39
Hardness, Shore D	71.0 - 83.0	71.0 - 83.0	Average value: 76.8 Grade Count:6
Ball Indentation Hardness	70.0 - 150 MPa	10200 - 21800 psi	Average value: 112 MPa Grade Count:3
Tensile Strength, Ultimate	17.0 - 148 MPa	2470 - 21500 psi	Average value: 70.8 MPa Grade Count:72
	20.0 - 130 MPa @Temperature -40.0 - 120 °C	2900 - 18900 psi @Temperature -40.0 - 248 °F	Average value: 58.7 MPa Grade Count:11
Tensile Strength, Yield	35.0 - 90.0 MPa	5080 - 13100 psi	Average value: 65.7 MPa Grade Count:54
	20.0 - 142 MPa @Temperature -40.0 -	2900 - 20600 psi @Temperature -40.0 -	Average value: 62.5 MPa Grade Count:8

Mechanical Properties	120 °C Metric	248 °F English	Comments
Elongation at Break	2.00 - 200 %	2.00 - 200 %	Average value: 33.8 % Grade Count:102
	2.50 - 70.0 % @Temperature -40.0 - 150 °C	2.50 - 70.0 % @Temperature -40.0 - 302 °F	Average value: 61.2 % Grade Count:8
Elongation at Yield	3.00 - 30.0 %	3.00 - 30.0 %	Average value: 9.18 % Grade Count:38
	3.00 - 42.0 % @Temperature -40.0 - 120 °C	3.00 - 42.0 % @Temperature -40.0 - 248 °F	Average value: 26.6 % Grade Count:8
Modulus of Elasticity	0.970 - 10.8 GPa	141 - 1570 ksi	Average value: 3.09 GPa Grade Count:72
	0.320 - 4.09 GPa @Temperature -40.0 - 150 °C	46.4 - 593 ksi @Temperature -40.0 - 302 °F	Average value: 1.17 GPa Grade Count:8
Flexural Yield Strength	25.0 - 360 MPa	3630 - 52200 psi	Average value: 94.7 MPa Grade Count:85
	17.0 - 183 MPa @Temperature -40.0 - 120 °C	2470 - 26500 psi @Temperature -40.0 - 248 °F	Average value: 85.1 MPa Grade Count:12
Flexural Modulus	0.600 - 9.20 GPa	87.0 - 1330 ksi	Average value: 2.60 GPa Grade Count:88
	0.305 - 5.50 GPa @Temperature -40.0 - 120 °C	44.2 - 798 ksi @Temperature -40.0 - 248 °F	Average value: 1.40 GPa Grade Count:8
Compressive Yield Strength	62.0 - 85.0 MPa	8990 - 12300 psi	Average value: 74.2 MPa Grade Count:5
Izod Impact, Notched	0.300 J/cm - NB	0.562 ft-lb/in - NB	Average value: 1.04 J/cm Grade Count:46
	0.210 - 0.500 J/cm @Temperature -40.0 - - 40.0 °C	0.393 - 0.937 ft-lb/in @Temperature -40.0 - - 40.0 °F	Average value: 0.374 J/cm Grade Count:11
Izod Impact, Unnotched	4.81 - 5340 J/cm	9.00 - 10000 ft-lb/in	Average value: 7.74 J/cm Grade Count:6
Izod Impact, Notched (ISO)	3.00 - 10.0 kJ/m ²	1.43 - 4.76 ft-lb/in ²	Average value: 5.65 kJ/m ² Grade Count:21
	3.00 - 10.0 kJ/m ² @Temperature -40.0 - - 20.0 °C	1.43 - 4.76 ft-lb/in ² @Temperature -40.0 - - 4.00 °F	Average value: 5.09 kJ/m ² Grade Count:9

Impact Properties	Metric	English	Comments
Izod Impact Unnotched (ISO)	50.0 - 120 kJ/m ²	23.8 - 57.1 ft-lb/in ²	Average value: 89.0 kJ/m ² Grade Count:9
Mechanical Properties	100 - 100 kJ/m ²	47.6 - 47.6 ft-lb/in ²	Average value: 100 kJ/m ² Grade Count:1
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Charpy Impact Unnotched	0.400 J/cm ² - NB	1.90 ft-lb/in ² - NB	Average value: 7.75 J/cm ² Grade Count:49
	5.00 - 999.9 J/cm ²	23.8 - 4759 ft-lb/in ²	Average value: 9.26 J/cm ² Grade Count:23
	@Temperature -30.0 - -20.0 °C	@Temperature -22.0 - -4.00 °F	
Charpy Impact, Notched	0.200 - 5.50 J/cm ²	0.952 - 26.2 ft-lb/in ²	Average value: 0.635 J/cm ² Grade Count:54
	0.200 - 1.00 J/cm ²	0.952 - 4.76 ft-lb/in ²	Average value: 0.354 J/cm ² Grade Count:26
	@Temperature -30.0 - -20.0 °C	@Temperature -22.0 - -4.00 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	30.0 - 100 μm/m-°C	16.7 - 55.6 μin/in-°F	Average value: 73.7 μm/m-°C Grade Count:34
CTE, linear, Transverse to Flow	78.0 - 190 μm/m-°C	43.3 - 106 μin/in-°F	Average value: 108 μm/m-°C Grade Count:6
Specific Heat Capacity	3.73 J/g-°C	0.891 BTU/lb-°F	Average value: 3.73 J/g-°C Grade Count:4
Thermal Conductivity	0.230 - 0.290 W/m-K	1.60 - 2.01 BTU-in/hr-ft ² -°F	Average value: 0.263 W/m-K Grade Count:6
Melting Point	215 - 265 °C	419 - 509 °F	Average value: 221 °C Grade Count:67
Maximum Service Temperature, Air	90.0 - 180 °C	194 - 356 °F	Average value: 117 °C Grade Count:6
Deflection Temperature at 0.46 MPa (66 psi)	140 - 240 °C	284 - 464 °F	Average value: 184 °C Grade Count:58

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+8 - 1.00e+17 ohm-cm	1.00e+8 - 1.00e+17 ohm-cm	Average value: 1.90e+15 ohm-cm Grade Count:64
Surface Resistance	1.00e+10 - 1.00e+16 ohm	1.00e+10 - 1.00e+16 ohm	Average value: 5.72e+14 ohm Grade Count:40
Dielectric Constant	3.00 - 8.00	3.00 - 8.00	Average value: 4.13 Grade Count:22
Dielectric Strength	12.0 - 100 kV/mm	305 - 2540 kV/in	Average value: 25.1 kV/mm Grade Count:53
Dissipation Factor	0.00780 - 0.125	0.00780 - 0.125	Average value: 0.0316 Grade Count:15

Electrical Properties	Metric 79 sec	English 79 sec	Comments
Comparative Tracking Index	250 - 600 V	250 - 600 V	Average value: 556 V Grade Count:55
Hot Wire Ignition, HWI	7.00 - 60.0 sec	7.00 - 60.0 sec	Average value: 20.9 sec Grade Count:3
High Amp Arc Ignition, HAI	30.0 - 120 arcs	30.0 - 120 arcs	Average value: 105 arcs Grade Count:3

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