

Overview of materials for Nylon 66/6

Category : Polymer , Thermoplastic , Nylon , Nylon 6/66 , Nylon 66/6, Unreinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Nylon 66/6". 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-666.php

Physical Properties	Metric	English	Comments
Density	1.03 - 1.27 g/cc	0.0371 - 0.0459 lb/in ³	Average value: 1.13 g/cc Grade Count:79
Water Absorption	0.490 - 10.5 %	0.490 - 10.5 %	Average value: 3.76 % Grade Count:55
Moisture Absorption at Equilibrium	0.250 - 5.00 %	0.250 - 5.00 %	Average value: 2.62 % Grade Count:43
Water Absorption at Saturation	4.50 - 9.00 %	4.50 - 9.00 %	Average value: 8.28 % Grade Count:19
Oxygen Transmission Rate	21.0 - 198 cc/m ² /day	1.35 - 12.8 cc/100 in ² /day	Average value: 51.2 cc/m ² /day Grade Count:13
Nitrogen Transmission	7.80 cc-mm/m ² -24hr-atm	19.8 cc-mil/100 in ² -24hr-atm	Average value: 7.80 cc-mm/m ² -24hr-atm Grade Count:10
Carbon Dioxide Transmission	113 cc-mm/m ² -24hr-atm	287 cc-mil/100 in ² -24hr-atm	Average value: 113 cc-mm/m ² -24hr-atm Grade Count:10
Viscosity	3.30 - 51.0 cP	3.30 - 51.0 cP	Average value: 11.2 cP Grade Count:14
Viscosity Test	150 - 250 cm ³ /g	150 - 250 cm ³ /g	Average value: 203 cm ³ /g Grade Count:9
Maximum Moisture Content	0.00100 - 0.0800	0.00100 - 0.0800	Average value: 0.0668 Grade Count:12
Linear Mold Shrinkage	0.00300 - 0.0230 cm/cm	0.00300 - 0.0230 in/in	Average value: 0.0122 cm/cm Grade Count:38
Linear Mold Shrinkage, Transverse	0.00200 - 0.0180 cm/cm	0.00200 - 0.0180 in/in	Average value: 0.0113 cm/cm Grade Count:15
Melt Flow	1.20 - 162 g/10 min	1.20 - 162 g/10 min	Average value: 46.6 g/10 min Grade Count:15

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	110 - 119	110 - 119	Average value: 116 Grade Count:11
			Average value: 121 MPa Grade

Ball Indentation Hardness Mechanical Properties	90.0 - 170 MPa Metric	13100 - 24700 psi English	Count:7 Comments
Tensile Strength, Ultimate	5.50 - 93.1 MPa	798 - 13500 psi	Average value: 61.8 MPa Grade Count:22
	45.0 - 45.0 MPa @Temperature 60.0 - 60.0 °C	6530 - 6530 psi @Temperature 140 - 140 °F	Average value: 45.0 MPa Grade Count:1
Tensile Strength, Yield	25.0 - 90.0 MPa	3630 - 13100 psi	Average value: 63.5 MPa Grade Count:41
	40.0 - 40.0 MPa @Temperature 90.0 - 140 °C	5800 - 5800 psi @Temperature 194 - 284 °F	Average value: 40.0 MPa Grade Count:1
	40.0 - 40.0 MPa @Time 1.80e+7 - 7.20e+7 sec	5800 - 5800 psi @Time 5000 - 20000 hour	Average value: 40.0 MPa Grade Count:1
Film Elongation at Break, MD	510 - 540 %	510 - 540 %	Average value: 533 % Grade Count:4
Film Elongation at Break, TD	550 - 560 %	550 - 560 %	Average value: 555 % Grade Count:4
Elongation at Break	5.00 - 450 %	5.00 - 450 %	Average value: 96.6 % Grade Count:37
	60.0 - 60.0 % @Temperature 60.0 - 150 °C	60.0 - 60.0 % @Temperature 140 - 302 °F	Average value: 90.0 % Grade Count:1
Elongation at Yield	3.00 - 150 %	3.00 - 150 %	Average value: 26.8 % Grade Count:26
Modulus of Elasticity	0.210 - 5.00 GPa	30.5 - 725 ksi	Average value: 2.55 GPa Grade Count:39
	0.650 - 2.00 GPa @Temperature 60.0 - 150 °C	94.3 - 290 ksi @Temperature 140 - 302 °F	Average value: 1.15 GPa Grade Count:1
Flexural Yield Strength	7.00 - 140 MPa	1020 - 20300 psi	Average value: 74.9 MPa Grade Count:39
	30.0 - 30.0 MPa @Temperature 90.0 - 90.0 °C	4350 - 4350 psi @Temperature 194 - 194 °F	Average value: 30.0 MPa Grade Count:1
Flexural Modulus	0.230 - 3.50 GPa	33.4 - 508 ksi	Average value: 2.23 GPa Grade Count:44
	0.850 - 0.850 GPa @Temperature 90.0 - 90.0 °C	123 - 123 ksi @Temperature 194 - 194 °F	Average value: 0.850 GPa Grade Count:1
Poissons Ratio	0.400 - 0.410	0.400 - 0.410	Average value: 0.405 Grade Count:4

Mechanical Properties	Metric	English	Comments
	0.208 - 0.210 GPa	29.0 - 30.5 ksi	Average value: 0.200 GPa Grade Count:4
Secant Modulus, TD	0.200 - 0.230 GPa	29.0 - 33.4 ksi	Average value: 0.208 GPa Grade Count:4
Izod Impact, Notched	0.267 - 7.47 J/cm	0.500 - 14.0 ft-lb/in	Average value: 2.11 J/cm Grade Count:18
	1.0678 - 2.1356 J/cm	2.0004 - 4.0009 ft-lb/in	Average value: 1.51 J/cm Grade Count:2
	@Temperature -40.0 - -20.0 °C	@Temperature -40.0 - -4.00 °F	
	1.0678 - 2.1356 J/cm	2.0004 - 4.0009 ft-lb/in	Average value: 1.51 J/cm Grade Count:2
	@Thickness 3.17 - 3.17 mm	@Thickness 0.125 - 0.125 in	
Izod Impact, Notched (ISO)	3.00 kJ/m² - NB	1.43 ft-lb/in² - NB	Average value: 12.4 kJ/m² Grade Count:14
	2.50 - 85.0 kJ/m²	1.19 - 40.4 ft-lb/in²	Average value: 21.0 kJ/m² Grade Count:5
	@Temperature -30.0 - -30.0 °C	@Temperature -22.0 - -22.0 °F	
Charpy Impact Unnotched	4.50 J/cm² - NB	21.4 ft-lb/in² - NB	Average value: 8.27 J/cm² Grade Count:27
	3.60 J/cm² - NB	17.1 ft-lb/in² - NB	Average value: 6.87 J/cm² Grade Count:13
	@Temperature -40.0 - -20.0 °C	@Temperature -40.0 - -4.00 °F	
Charpy Impact, Notched	0.300 J/cm² - NB	1.43 ft-lb/in² - NB	Average value: 1.01 J/cm² Grade Count:25
	0.250 J/cm² - NB	1.19 ft-lb/in² - NB	Average value: 1.31 J/cm² Grade Count:13
	@Temperature -40.0 - -20.0 °C	@Temperature -40.0 - -4.00 °F	
Coefficient of Friction	0.210 - 0.510	0.210 - 0.510	Average value: 0.357 Grade Count:6
Coefficient of Friction, Static	0.280 - 0.940	0.280 - 0.940	Average value: 0.507 Grade Count:4
Film Tensile Strength at Break, MD	40.0 - 42.0 MPa	5800 - 6090 psi	Average value: 41.0 MPa Grade Count:4
Film Tensile Strength at Break, TD	39.0 - 43.0 MPa	5660 - 6240 psi	Average value: 40.5 MPa Grade Count:4

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+9 - 1.00e+15 ohm-cm	1.00e+9 - 1.00e+15 ohm-cm	Average value: 4.88e+14 ohm-cm Grade Count:28
Surface Resistance	1.00e+10 - 1.00e+15 ohm	1.00e+10 - 1.00e+15 ohm	Average value: 2.41e+14 ohm Grade Count:12

Dielectric Constant Electrical Properties	3.60 - 8.00 Metric	3.60 - 8.00 English	Average value: 4.47 Grade Count:8 Comments
Dielectric Strength	13.0 - 120 kV/mm	330 - 3050 kV/in	Average value: 25.5 kV/mm Grade Count:20
Dissipation Factor	0.0200 - 0.300	0.0200 - 0.300	Average value: 0.0580 Grade Count:9
Comparative Tracking Index	400 - 600 V	400 - 600 V	Average value: 590 V Grade Count:22
Hot Wire Ignition, HWI	7.00 - 120 sec	7.00 - 120 sec	Average value: 40.8 sec Grade Count:4
High Amp Arc Ignition, HAI	120 arcs	120 arcs	Average value: 120 arcs Grade Count:4
High Voltage Arc-Tracking Rate, HVTR	10.1 - 25.4 mm/min	0.398 - 1.00 in/min	Average value: 17.8 mm/min Grade Count:3

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