

Overview of materials for Nylon 6, Extruded

Category : Polymer , Thermoplastic , Nylon , Nylon 6 , Nylon 6, Extruded

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.03 - 1.29 g/cc	0.0372 - 0.0466 lb/in ³	Average value: 1.13 g/cc Grade Count:91
Water Absorption	0.0200 - 10.0 %	0.0200 - 10.0 %	Average value: 1.94 % Grade Count:45
Moisture Absorption at Equilibrium	1.30 - 3.00 %	1.30 - 3.00 %	Average value: 2.63 % Grade Count:33
Water Absorption at Saturation	8.50 - 10.0 %	8.50 - 10.0 %	Average value: 9.45 % Grade Count:31
Water Vapor Transmission	35.0 g/m ² /day	2.25 g/100 in ² /day	Average value: 35.0 g/m ² /day Grade Count:16
	992 - 992 g/m ² /day @Temperature 38.0 - 38.0 °C	63.9 - 63.9 g/100 in ² /day @Temperature 100 - 100 °F	Average value: 992 g/m ² /day Grade Count:1
Oxygen Transmission	1.00 - 1.95 cc-mm/m ² -24hr-atm	2.54 - 4.95 cc-mil/100 in ² -24hr-atm	Average value: 1.50 cc-mm/m ² -24hr-atm Grade Count:16
Oxygen Transmission Rate	40.3 cc/m ² /day	2.60 cc/100 in ² /day	Average value: 40.3 cc/m ² /day Grade Count:17
Nitrogen Transmission	14.0 cc-mm/m ² -24hr-atm	35.6 cc-mil/100 in ² -24hr-atm	Average value: 14.0 cc-mm/m ² -24hr-atm Grade Count:17
Carbon Dioxide Transmission	72.8 cc-mm/m ² -24hr-atm	185 cc-mil/100 in ² -24hr-atm	Average value: 72.8 cc-mm/m ² -24hr-atm Grade Count:17
Viscosity	410000 - 2.25e+6 cP @Temperature 260 - 260 °C	410000 - 2.25e+6 cP @Temperature 500 - 500 °F	Average value: 888000 cP Grade Count:16
	220 - 3.50e+6 cP @Temperature 240 - 280 °C	220 - 3.50e+6 cP @Temperature 464 - 536 °F	Average value: 888000 cP Grade Count:19
	220 - 3.50e+6 cP @Shear Rate 0.100 -	220 - 3.50e+6 cP @Shear Rate 0.100 -	Average value: 888000 cP Grade Count:19

Physical Properties	1000 l/s Metric	1000 l/s English	Comments
Viscosity Test	75.0 - 245 cm ³ /g	75.0 - 245 cm ³ /g	Average value: 205 cm ³ /g Grade Count:20
Maximum Moisture Content	0.0800	0.0800	Average value: 0.0800 Grade Count:17
Thickness	50.0 microns	1.97 mil	Average value: 50.0 microns Grade Count:16
Linear Mold Shrinkage	0.00127 - 0.0206 cm/cm	0.00127 - 0.0206 in/in	Average value: 0.0106 cm/cm Grade Count:18
Linear Mold Shrinkage, Transverse	0.00110 - 0.0207 cm/cm	0.00110 - 0.0207 in/in	Average value: 0.00514 cm/cm Grade Count:5
Melt Flow	1.10 - 22.7 g/10 min	1.10 - 22.7 g/10 min	Average value: 3.63 g/10 min Grade Count:24

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	85.0	85.0	Average value: 85.0 Grade Count:3
Hardness, Rockwell R	97.0 - 121	97.0 - 121	Average value: 112 Grade Count:9
Ball Indentation Hardness	50.0 - 160 MPa	7250 - 23200 psi	Average value: 132 MPa Grade Count:5
Tensile Strength, Ultimate	42.0 - 80.0 MPa	6090 - 11600 psi	Average value: 71.4 MPa Grade Count:12
Film Tensile Strength at Yield, MD	30.0 - 40.0 MPa	4350 - 5800 psi	Average value: 32.2 MPa Grade Count:22
Film Tensile Strength at Yield, TD	30.0 MPa	4350 psi	Average value: 30.0 MPa Grade Count:6
Tensile Strength, Yield	29.0 - 186 MPa	4210 - 27000 psi	Average value: 68.8 MPa Grade Count:40
Film Elongation at Break, MD	310 - 359 %	310 - 359 %	Average value: 346 % Grade Count:22
Film Elongation at Break, TD	280 - 360 %	280 - 360 %	Average value: 320 % Grade Count:5
Elongation at Break	1.50 - 315 %	1.50 - 315 %	Average value: 99.3 % Grade Count:40
Elongation at Yield	2.50 - 92.0 %	2.50 - 92.0 %	Average value: 11.7 % Grade Count:14
Modulus of Elasticity	0.350 - 3.50 GPa	50.8 - 508 ksi	Average value: 1.45 GPa Grade Count:44
Flexural Yield Strength	28.0 - 276 MPa	4060 - 40000 psi	Average value: 92.9 MPa Grade Count:32
Flexural Modulus	0.520 - 13.8 GPa	75.4 - 2000 ksi	Average value: 2.82 GPa Grade Count:27
Izod Impact, Notched	0.300 - 5.30 J/cm	0.562 - 9.93 ft-lb/in	Average value: 1.17 J/cm Grade Count:27

Mechanical Properties (ISO)	Metric	English	Comments
	3.00 - 4.00 kJ/m ² @Temperature -40.0 - - 20.0 °C	1.43 - 1.90 ft-lb/in ² @Temperature -40.0 - - 4.00 °F	Average value: 18.1 kJ/m ² Grade Count:11 Average value: 3.67 kJ/m ² Grade Count:1
Izod Impact, Unnotched (ISO)	>= 100 kJ/m ² @Temperature -30.0 - - 30.0 °C	>= 47.6 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 100 kJ/m ² Grade Count:1
Charpy Impact Unnotched	12.5 J/cm ² - NB	59.5 ft-lb/in ² - NB	Average value: 18.9 J/cm ² Grade Count:15
	27.0 - 999.9 J/cm ² @Temperature -30.0 - - 30.0 °C	128 - 4759 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 27.0 J/cm ² Grade Count:3
Charpy Impact, Notched	0.300 - 1000 J/cm ²	1.43 - 4760 ft-lb/in ²	Average value: 3.31 J/cm ² Grade Count:11
	0.300 - 7.00 J/cm ² @Temperature -30.0 - - 30.0 °C	1.43 - 33.3 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 2.82 J/cm ² Grade Count:4
Coefficient of Friction	0.0400 - 1.20	0.0400 - 1.20	Average value: 0.791 Grade Count:19
Coefficient of Friction, Static	1.20 - 1.50	1.20 - 1.50	Average value: 1.34 Grade Count:15
Tear Strength Test	0.500 - 33.0	0.500 - 33.0	Average value: 28.7 Grade Count:18
Tear Strength, Total	2070 - 3530 N	465 - 794 lb (f)	Average value: 2560 N Grade Count:6
Elmendorf Tear Strength MD	60200 - 115000 g	60200 - 115000 g	Average value: 85500 g Grade Count:6
Elmendorf Tear Strength TD	54000 - 116000 g	54000 - 116000 g	Average value: 89700 g Grade Count:6
Film Tensile Strength at Break, MD	80.0 - 100 MPa	11600 - 14500 psi	Average value: 88.0 MPa Grade Count:22
Film Tensile Strength at Break, TD	60.0 - 100 MPa	8700 - 14500 psi	Average value: 80.0 MPa Grade Count:5

Thermal Properties	Metric	English	Comments
CTE, linear	19.8 - 170 µm/m-°C	11.0 - 94.4 µin/in-°F	Average value: 88.1 µm/m-°C Grade Count:36
CTE, linear, Transverse to Flow	70.0 - 190 µm/m-°C	38.9 - 106 µin/in-°F	Average value: 118 µm/m-°C Grade Count:5
Specific Heat Capacity	1.55 - 2.55 J/g-°C	0.370 - 0.609 BTU/lb-°F	Average value: 1.89 J/g-°C Grade Count:17

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+10 - 1.00e+16 ohm-cm	1.00e+10 - 1.00e+16 ohm-cm	Average value: 8.39e+14 ohm-cm Grade Count:20
Surface Resistance	1.00e+10 - 1.00e+16 ohm	1.00e+10 - 1.00e+16 ohm	Average value: 8.03e+14 ohm Grade Count:15
Dielectric Constant	2.50 - 20.0	2.50 - 20.0	Average value: 4.47 Grade Count:14
Dielectric Strength	13.0 - 100 kV/mm	330 - 2540 kV/in	Average value: 28.4 kV/mm Grade Count:20
Dissipation Factor	0.00580 - 0.120	0.00580 - 0.120	Average value: 0.0361 Grade Count:9
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:8

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