

Overview of materials for Nylon 6, Film Grade

Category : Polymer , Film , Thermoplastic , Nylon , Nylon 6 , Nylon 6, Film Grade

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	1.04 - 1.38 g/cc	0.0376 - 0.0500 lb/in ³	Average value: 1.14 g/cc Grade Count:58
Water Absorption	1.60 - 10.0 %	1.60 - 10.0 %	Average value: 6.35 % Grade Count:15
Moisture Absorption at Equilibrium	2.70 - 3.00 %	2.70 - 3.00 %	Average value: 2.94 % Grade Count:10
Water Vapor Transmission	2.60 - 465 g/m ² /day	0.167 - 29.9 g/100 in ² /day	Average value: 143 g/m ² /day Grade Count:19
Oxygen Transmission	1.05 - 40.3 cc-mm/m ² -24hr-atm	2.67 - 102 cc-mil/100 in ² -24hr-atm	Average value: 4.49 cc-mm/m ² -24hr-atm Grade Count:7
Oxygen Transmission Rate	0.230 - 192 cc/m ² /day	0.0148 - 12.4 cc/100 in ² /day	Average value: 27.2 cc/m ² /day Grade Count:20
Viscosity	3.15 - 85.0 cP	3.15 - 85.0 cP	Average value: 10.3 cP Grade Count:5
	810000 - 2.74e+6 cP	810000 - 2.74e+6 cP	Average value: 1.26e+6 cP Grade Count:6
	@Temperature 260 - 260 °C	@Temperature 500 - 500 °F	
Viscosity	200000 - 5.00e+6 cP	200000 - 5.00e+6 cP	Average value: 1.26e+6 cP Grade Count:6
	@Temperature 240 - 280 °C	@Temperature 464 - 536 °F	
Viscosity	200000 - 5.00e+6 cP	200000 - 5.00e+6 cP	Average value: 1.26e+6 cP Grade Count:6
	@Shear Rate 0.100 - 1000 1/s	@Shear Rate 0.100 - 1000 1/s	
Viscosity Test	155 - 229 cm ³ /g	155 - 229 cm ³ /g	Average value: 200 cm ³ /g Grade Count:10
Thickness	10.2 - 59.0 microns	0.400 - 2.32 mil	Average value: 30.7 microns Grade Count:35
Linear Mold Shrinkage	0.0140 cm/cm	0.0140 in/in	Average value: 0.0140 cm/cm Grade Count:5
Linear Mold Shrinkage, Transverse	0.0140 cm/cm	0.0140 in/in	Average value: 0.0140 cm/cm Grade

Physical Properties	Metric	English	Count:4 Comments
Melt Flow	3.00 - 50.0 g/10 min	3.00 - 50.0 g/10 min	Average value: 17.4 g/10 min Grade Count:12
Surface Tension	36.0 - 56.0 dynes/cm	36.0 - 56.0 dynes/cm	Average value: 52.9 dynes/cm Grade Count:17

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	60.0 - 140 MPa	8700 - 20300 psi	Average value: 100 MPa Grade Count:4
Tensile Strength, Ultimate	48.0 - 112 MPa	6960 - 16200 psi	Average value: 86.3 MPa Grade Count:6
Film Tensile Strength at Yield, MD	31.0 - 51.0 MPa	4500 - 7400 psi	Average value: 36.8 MPa Grade Count:12
Film Tensile Strength at Yield, TD	37.2 - 82.7 MPa	5400 - 12000 psi	Average value: 65.6 MPa Grade Count:10
Tensile Strength, Yield	28.0 - 80.0 MPa	4060 - 11600 psi	Average value: 60.1 MPa Grade Count:26
Film Elongation at Break, MD	50.0 - 460 %	50.0 - 460 %	Average value: 210 % Grade Count:35
Film Elongation at Break, TD	55.0 - 480 %	55.0 - 480 %	Average value: 294 % Grade Count:21
Elongation at Break	3.50 - 400 %	3.50 - 400 %	Average value: 120 % Grade Count:27
Elongation at Yield	4.00 - 25.0 %	4.00 - 25.0 %	Average value: 13.3 % Grade Count:10
Modulus of Elasticity	0.100 - 3.30 GPa	14.5 - 479 ksi	Average value: 1.75 GPa Grade Count:25
Flexural Yield Strength	28.0 - 120 MPa	4060 - 17400 psi	Average value: 74.9 MPa Grade Count:14
Flexural Modulus	0.690 - 2.80 GPa	100 - 406 ksi	Average value: 2.22 GPa Grade Count:10
Secant Modulus	0.650 GPa	94.3 ksi	Average value: 0.650 GPa Grade Count:6
Secant Modulus, MD	0.285 - 4.69 GPa	41.3 - 680 ksi	Average value: 2.17 GPa Grade Count:22
Secant Modulus, TD	0.285 - 3.70 GPa	41.3 - 537 ksi	Average value: 2.17 GPa Grade Count:20
Izod Impact, Notched	0.450 - 10.7 J/cm	0.843 - 20.0 ft-lb/in	Average value: 3.69 J/cm Grade Count:4
Charpy Impact Unnotched	1000 J/cm ²	4760 ft-lb/in ²	Grade Count:12
	5.50 - 999.9 J/cm ² @Temperature -30.0 - - 30.0 °C	26.2 - 4759 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 5.50 J/cm ² Grade Count:8

Charpy Impact, Notched Mechanical Properties	0.500 - 5.00 J/cm ² Metric	2.38 - 23.8 ft-lb/in ² English	Average value: 2.02 J/cm ² Grade Count:14
	0.500 - 0.500 J/cm ² @Temperature -30.0 - -30.0 °C	2.38 - 2.38 ft-lb/in ² @Temperature -22.0 - -22.0 °F	Average value: 0.500 J/cm ² Grade Count:8
Coefficient of Friction	0.150 - 2.00	0.150 - 2.00	Average value: 0.587 Grade Count:29
Coefficient of Friction, Static	0.370 - 1.40	0.370 - 1.40	Average value: 0.998 Grade Count:10
Tear Strength Test	23.0 - 14000	23.0 - 14000	Average value: 1090 Grade Count:28
Elmendorf Tear Strength MD	56.0 g	56.0 g	Average value: 56.0 g Grade Count:6
Elmendorf Tear Strength, MD	0.394 - 4.21 g/micron	10.0 - 107 g/mil	Average value: 1.86 g/micron Grade Count:4
Elmendorf Tear Strength, TD	1.57 - 7.87 g/micron	40.0 - 200 g/mil	Average value: 4.74 g/micron Grade Count:4
Film Tensile Strength at Break, MD	32.0 - 379 MPa	4640 - 55000 psi	Average value: 184 MPa Grade Count:35
Film Tensile Strength at Break, TD	29.0 - 303 MPa	4210 - 44000 psi	Average value: 128 MPa Grade Count:21

Thermal Properties	Metric	English	Comments
CTE, linear	80.0 - 100 µm/m-°C	44.4 - 55.6 µin/in-°F	Average value: 85.0 µm/m-°C Grade Count:14
CTE, linear, Transverse to Flow	80.0 µm/m-°C	44.4 µin/in-°F	Average value: 80.0 µm/m-°C Grade Count:8
Specific Heat Capacity	1.55 - 2.55 J/g-°C	0.370 - 0.609 BTU/lb-°F	Average value: 1.92 J/g-°C Grade Count:6
Melting Point	193 - 260 °C	379 - 500 °F	Average value: 220 °C Grade Count:30
Deflection Temperature at 0.46 MPa (66 psi)	51.0 - 161 °C	124 - 322 °F	Average value: 136 °C Grade Count:12
Deflection Temperature at 1.8 MPa (264 psi)	50.0 - 75.0 °C	122 - 167 °F	Average value: 54.9 °C Grade Count:17

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+12 - 1.00e+15 ohm-cm	1.00e+12 - 1.00e+15 ohm-cm	Average value: 2.00e+14 ohm-cm Grade Count:12
Surface Resistance	1.00e+13 - 1.00e+15 ohm	1.00e+13 - 1.00e+15 ohm	Average value: 2.57e+14 ohm Grade Count:12
Dielectric Constant	3.50 - 18.0	3.50 - 18.0	Average value: 7.35 Grade Count:8
Dielectric Strength	30.0 - 35.0 kV/mm	762 - 889 kV/in	Average value: 32.0 kV/mm Grade Count:12

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