



Overview of materials for Nylon 6, Unreinforced










Categories: [Polymer](#); [Thermoplastic](#); [Nylon](#); [Nylon 6](#); [Nylon 6, Unreinforced](#)

Material Notes: This property data is a summary of similar materials in the MatWeb database for the category "Nylon 6, Unreinforced". 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.

Vendors: [Click here](#) to view all available suppliers for this material.

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Physical Properties	Metric	English	Comments
Density	0.670 - 4.50 g/cc	0.0242 - 0.163 lb/in ³	Average value: 1.13 g/cc Grade Count:533
Apparent Bulk Density	0.425 - 0.800 g/cc	0.0154 - 0.0289 lb/in ³	Average value: 0.650 g/cc Grade Count:12
Water Absorption	0.300 - 11.0 %	0.300 - 11.0 %	Average value: 5.04 % Grade Count:282
Moisture Absorption at Equilibrium	0.0400 - 9.50 %	0.0400 - 9.50 %	Average value: 2.97 % Grade Count:228
	1.60 - 1.65 % @Temperature 70.0 - 70.0 °C	1.60 - 1.65 % @Temperature 158 - 158 °F	Average value: 1.63 % Grade Count:12
Water Absorption at Saturation	6.50 - 10.0 %	6.50 - 10.0 %	Average value: 9.06 % Grade Count:55
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:10
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:10
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:10
Viscosity	2.60 - 50.0 cP	2.60 - 50.0 cP	Average value: 8.83 cP Grade Count:17
	150000 - 350000 cP @Temperature 230 - 290 °C	150000 - 350000 cP @Temperature 446 - 554 °F	Average value: 213000 cP Grade Count:1
	150000 - 350000 cP @Shear Rate 0.100 - 1000 1/s	150000 - 350000 cP @Shear Rate 0.100 - 1000 1/s	Average value: 213000 cP Grade Count:1
Viscosity Test	118 - 450 cm ² /g	118 - 450 cm ² /g	Average value: 191 cm ² /g Grade Count:43
Linear Mold Shrinkage	0.00130 - 0.0508 cm/cm	0.00130 - 0.0508 in/in	Average value: 0.0134 cm/cm Grade Count:292
Linear Mold Shrinkage, Transverse	0.00110 - 0.0300 cm/cm	0.00110 - 0.0300 in/in	Average value: 0.0122 cm/cm Grade Count:92
Melt Flow	1.00 - 198 g/10 min	1.00 - 198 g/10 min	Average value: 61.4 g/10 min Grade Count:58
Spiral Flow	55.0 - 65.0 cm	21.7 - 25.6 in	Average value: 60.7 cm Grade Count:6

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	82.0 - 88.0	82.0 - 88.0	Average value: 85.0 Grade Count:5
Hardness, Rockwell R	78.0 - 120	78.0 - 120	Average value: 113 Grade Count:91
Hardness, H358/30	70.0 - 160 MPa	10200 - 23200 psi	Average value: 118 MPa Grade Count:4
Hardness, Shore D	57.0 - 87.0	57.0 - 87.0	Average value: 74.3 Grade Count:23
Ball Indentation Hardness	50.0 - 190 MPa	7250 - 27600 psi	Average value: 118 MPa Grade Count:31
Tensile Strength, Ultimate	20.0 - 110 MPa	2900 - 16000 psi	Average value: 68.6 MPa Grade Count:187
	29.0 - 80.0 MPa @Temperature -40.0 - 120 °C	4210 - 11600 psi @Temperature -40.0 - 248 °F	Average value: 45.0 MPa Grade Count:4
	10.0 - 100 MPa @Temperature -20.0 - 100 °C	1450 - 14500 psi @Temperature -4.00 - 212 °F	Average value: 45.0 MPa Grade Count:2
	10.0 - 100 MPa @Strain 1.00 - 8.00 %	1450 - 14500 psi @Strain 1.00 - 8.00 %	Average value: 45.0 MPa Grade Count:2
Tensile Strength, Yield	3.45 - 100 MPa	500 - 14500 psi	Average value: 63.4 MPa Grade Count:308
	20.0 - 142 MPa @Temperature -40.0 - 121 °C	2900 - 20600 psi @Temperature -40.0 - 250 °F	Average value: 74.0 MPa Grade Count:16
Elongation at Break	0.400 - 500 %	0.400 - 500 %	Average value: 72.7 % Grade Count:409
	2.50 - 2.50 % @Temperature -40.0 - -40.0 °C	2.50 - 2.50 % @Temperature -40.0 - -40.0 °F	Average value: 2.50 % Grade Count:1
Elongation at Yield	3.00 - 140 %	3.00 - 140 %	Average value: 14.1 % Grade Count:182
	3.00 - 42.0 % @Temperature -40.0 - 121 °C	3.00 - 42.0 % @Temperature -40.0 - 250 °F	Average value: 34.3 % Grade Count:5
Modulus of Elasticity	0.350 - 13.0 GPa	50.8 - 1890 ksi	Average value: 2.33 GPa Grade Count:272
	0.360 - 3.75 GPa @Temperature -40.0 - 120 °C	52.2 - 544 ksi @Temperature -40.0 - 248 °F	Average value: 1.69 GPa Grade Count:4
Flexural Yield Strength	16.0 - 200 MPa	2320 - 29000 psi	Average value: 82.8 MPa Grade Count:284
	8.00 - 183 MPa @Temperature -40.0 - 250 °C	1160 - 26500 psi @Temperature -40.0 - 482 °F	Average value: 86.7 MPa Grade Count:16
Flexural Modulus	0.100 - 9.50 GPa	14.5 - 1380 ksi	Average value: 2.17 GPa Grade Count:322
	0.260 - 3.90 GPa @Temperature -40.0 - 121 °C	37.7 - 566 ksi @Temperature -40.0 - 250 °F	Average value: 1.29 GPa Grade Count:14
Compressive Yield Strength	6.00 - 96.5 MPa	870 - 14000 psi	Average value: 44.5 MPa Grade Count:6
Poissons Ratio	0.350 - 0.450	0.350 - 0.450	Average value: 0.372 Grade Count:5
Izod Impact, Notched	0.370 J/cm - NB	0.693 ft-lb/in - NB	Average value: 1.42 J/cm Grade Count:193
	0.210 - 2.10 J/cm	0.393 - 3.93 ft-lb/in	Average value: 0.784 J/cm Grade Count:19