

Overview of materials for Nylon 6, Impact Grade

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

Material Notes:

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

| Physical Properties | Metric | English | Comments |
|------------------------------------|---|---|---|
| Density | 0.938 - 2.56 g/cc | 0.0339 - 0.0925 lb/in ³ | Average value: 1.15 g/cc Grade Count:281 |
| | 0.960 - 0.960 g/cc @Temperature 290 - 290 °C | 0.0347 - 0.0347 lb/in ³ @Temperature 554 - 554 °F | Average value: 0.960 g/cc Grade Count:1 |
| Filler Content | 15.0 - 60.0 % | 15.0 - 60.0 % | Average value: 36.7 % Grade Count:6 |
| Water Absorption | 0.0600 - 9.50 % | 0.0600 - 9.50 % | Average value: 2.43 % Grade Count:154 |
| Moisture Absorption at Equilibrium | 0.170 - 3.40 % | 0.170 - 3.40 % | Average value: 2.26 % Grade Count:83 |
| Water Absorption at Saturation | 6.70 - 10.0 % | 6.70 - 10.0 % | Average value: 8.33 % Grade Count:25 |
| Maximum Moisture Content | 0.100 | 0.100 | Average value: 0.100 Grade Count:6 |
| Linear Mold Shrinkage | 0.000100 - 0.0350 cm/cm | 0.000100 - 0.0350 in/in | Average value: 0.0127 cm/cm Grade Count:220 |
| Linear Mold Shrinkage, Transverse | 0.00200 - 0.0253 cm/cm | 0.00200 - 0.0253 in/in | Average value: 0.0156 cm/cm Grade Count:62 |
| Melt Flow | 3.00 - 121 g/10 min | 3.00 - 121 g/10 min | Average value: 33.7 g/10 min Grade Count:25 |
| Spiral Flow | 60.0 - 85.0 cm | 23.6 - 33.5 in | Average value: 68.3 cm Grade Count:3 |

| Mechanical Properties | Metric | English | Comments |
|---------------------------|----------------|-------------------|---------------------------------------|
| Hardness, Rockwell M | 75.0 - 85.0 | 75.0 - 85.0 | Average value: 77.0 Grade Count:5 |
| Hardness, Rockwell R | 40.0 - 125 | 40.0 - 125 | Average value: 105 Grade Count:98 |
| Hardness, Shore D | 52.0 - 82.0 | 52.0 - 82.0 | Average value: 71.6 Grade Count:16 |
| Ball Indentation Hardness | 70.0 - 150 MPa | 10200 - 21800 psi | Average value: 109 MPa Grade Count:11 |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|-------------------------------|-------------------------------|--|
| | 70.0 - 100 MPa | 10200 - 14500 psi | Average value: 62.0 MPa Grade Count:104 |
| | @Temperature -40.0 - -40.0 °C | @Temperature -40.0 - -40.0 °F | Average value: 85.0 MPa Grade Count:4 |
| Tensile Strength, Yield | 25.0 - 207 MPa | 3630 - 30000 psi | Average value: 64.1 MPa Grade Count:188 |
| | 12.0 - 117 MPa | 1740 - 17000 psi | Average value: 56.9 MPa Grade Count:8 |
| | @Temperature -40.0 - 120 °C | @Temperature -40.0 - 248 °F | |
| Elongation at Break | 1.50 - 500 % | 1.50 - 500 % | Average value: 81.1 % Grade Count:241 |
| | 9.00 - 20.0 % | 9.00 - 20.0 % | Average value: 43.0 % Grade Count:5 |
| | @Temperature -40.0 - 150 °C | @Temperature -40.0 - 302 °F | |
| Elongation at Yield | 3.00 - 350 % | 3.00 - 350 % | Average value: 21.7 % Grade Count:88 |
| | 4.00 - 37.0 % | 4.00 - 37.0 % | Average value: 23.7 % Grade Count:6 |
| | @Temperature -40.0 - 120 °C | @Temperature -40.0 - 248 °F | |
| Modulus of Elasticity | 0.210 - 15.0 GPa | 30.5 - 2180 ksi | Average value: 2.32 GPa Grade Count:128 |
| | 0.145 - 3.30 GPa | 21.0 - 479 ksi | Average value: 0.997 GPa Grade Count:8 |
| | @Temperature -40.0 - 150 °C | @Temperature -40.0 - 302 °F | |
| Flexural Yield Strength | 7.00 - 310 MPa | 1020 - 45000 psi | Average value: 84.2 MPa Grade Count:206 |
| | 8.00 - 148 MPa | 1160 - 21500 psi | Average value: 55.1 MPa Grade Count:8 |
| | @Temperature -40.0 - 120 °C | @Temperature -40.0 - 248 °F | |
| Flexural Modulus | 0.0689 - 12.8 GPa | 10.0 - 1860 ksi | Average value: 2.39 GPa Grade Count:236 |
| | 0.145 - 0.415 GPa | 21.0 - 60.2 ksi | Average value: 0.262 GPa Grade Count:5 |
| | @Temperature 65.0 - 120 °C | @Temperature 149 - 248 °F | |
| Compressive Yield Strength | 24.0 - 120 MPa | 3480 - 17400 psi | Average value: 61.6 MPa Grade Count:7 |
| Poissons Ratio | 0.350 | 0.350 | Average value: 0.350 Grade Count:6 |
| Izod Impact, Notched | 0.0850 J/cm - NB | 0.159 ft-lb/in - NB | Average value: 4.49 J/cm Grade Count:155 |

| Mechanical Properties | 0.350 - 2.99 J/cm Metric | 0.655 - 5.60 ft-lb/in English | Comments Average value: 1.52 J/cm Grade |
|------------------------------|-----------------------------------|-----------------------------------|--|
| | @Temperature -40.0 - - 40.0 °C | @Temperature -40.0 - - 40.0 °F | Count:12 |
| | 0.588399 - 5338.47 J/cm | 1.10231 - 10001.1 ft- lb/in | Average value: 1.52 J/cm Grade Count:22 |
| | @Temperature -40.0 - - 20.0 °C | @Temperature -40.0 - - 4.00 °F | |
| | 0.588399 - 5338.47 J/cm | 1.10231 - 10001.1 ft- lb/in | Average value: 1.52 J/cm Grade Count:22 |
| | @Thickness 3.17 - 6.40 mm | @Thickness 0.125 - 0.252 in | |
| Izod Impact, Unnotched | 13.9 J/cm - NB | 26.0 ft-lb/in - NB | Average value: 14.6 J/cm Grade Count:35 |
| Izod Impact, Notched (ISO) | 8.00 kJ/m ² - NB | 3.81 ft-lb/in ² - NB | Average value: 43.5 kJ/m ² Grade Count:57 |
| | 5.00 - 85.0 kJ/m ² | 2.38 - 40.4 ft-lb/in ² | Average value: 21.1 kJ/m ² Grade Count:31 |
| | @Temperature -40.0 - - 20.0 °C | @Temperature -40.0 - - 4.00 °F | |
| Izod Impact, Unnotched (ISO) | 75.0 kJ/m ² - NB | 35.7 ft-lb/in ² - NB | Average value: 94.5 kJ/m ² Grade Count:25 |
| | 65.0 kJ/m ² - NB | 30.9 ft-lb/in ² - NB | Average value: 76.7 kJ/m ² Grade Count:15 |
| | @Temperature -30.0 - - 30.0 °C | @Temperature -22.0 - - 22.0 °F | |
| Charpy Impact Unnotched | 2.50 J/cm ² - NB | 11.9 ft-lb/in ² - NB | Average value: 8.56 J/cm ² Grade Count:97 |
| | 4.50 J/cm ² - NB | 21.4 ft-lb/in ² - NB | Average value: 8.35 J/cm ² Grade Count:51 |
| | @Temperature -70.0 - - 20.0 °C | @Temperature -94.0 - - 4.00 °F | |
| Charpy Impact, Notched | 0.400 J/cm ² - NB | 1.90 ft-lb/in ² - NB | Average value: 4.43 J/cm ² Grade Count:103 |
| | 0.300 - 8.50 J/cm ² | 1.43 - 40.5 ft-lb/in ² | Average value: 1.86 J/cm ² Grade Count:56 |
| | @Temperature -40.0 - - 20.0 °C | @Temperature -40.0 - - 4.00 °F | |
| Gardner Impact | 36.2 J | 26.7 ft-lb | Average value: 36.2 J Grade Count:4 |
| | 45.0 - 45.0 J | 33.2 - 33.2 ft-lb | Average value: 45.0 J Grade Count:1 |
| Dart Drop, Total Energy | @Temperature -20.0 - - 20.0 °C | @Temperature -4.00 - - 4.00 °F | |
| Puncture Energy | 50.0 - 65.0 J | 36.9 - 47.9 ft-lb | Average value: 60.8 J Grade Count:4 |
| | 64.0 - 64.0 J | 47.2 - 47.2 ft-lb | |

| Mechanical Properties | @Temperature -30.0 - - 30.0 °C Metric | @Temperature -22.0 - - 22.0 °F English | Average value: 60.9 J Grade Count:1 Comments |
|--------------------------------|---|--|---|
| | 50.0 - 67.0 J | 36.9 - 49.4 ft-lb | |
| | @Temperature -30.0 - - 30.0 °C | @Temperature -22.0 - - 22.0 °F | Average value: 60.9 J Grade Count:3 |
| | 50.0 - 67.0 J | 36.9 - 49.4 ft-lb | |
| | @Load <=5810 kg | @Load <=12800 lb | Average value: 60.9 J Grade Count:3 |
| Taber Abrasion, mg/1000 Cycles | 8.00 - 19.0 | 8.00 - 19.0 | Average value: 13.5 Grade Count:4 |

| Electrical Properties | Metric | English | Comments |
|------------------------|-----------------------|-----------------------|---|
| Electrical Resistivity | 100 - 1.00e+17 ohm-cm | 100 - 1.00e+17 ohm-cm | Average value: 1.55e+15 ohm-cm Grade Count:122 |
| Surface Resistance | 100 - 1.00e+16 ohm | 100 - 1.00e+16 ohm | Average value: 2.50e+14 ohm Grade Count:58 |
| Dielectric Constant | 2.70 - 15.4 | 2.70 - 15.4 | Average value: 5.32 Grade Count:53 |
| Dielectric Strength | 11.8 - 100 kV/mm | 300 - 2540 kV/in | Average value: 26.8 kV/mm Grade Count:105 |
| Dissipation Factor | 0.00300 - 0.400 | 0.00300 - 0.400 | Average value: 0.123 Grade Count:22 |
| Dielectric Loss Index | 0.0190 - 0.300 | 0.0190 - 0.300 | Average value: 0.132 Grade Count:13 |

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