

Overview of materials for Polypropylene, Molded

Category : Polymer , Thermoplastic , Polypropylene (PP) , Polypropylene, Molded

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.880 - 2.40 g/cc	0.0318 - 0.0867 lb/in ³	Average value: 0.935 g/cc Grade Count:752
Water Absorption	0.000 - 1.00 %	0.000 - 1.00 %	Average value: 0.0722 % Grade Count:119
Moisture Absorption at Equilibrium	0.100 %	0.100 %	Average value: 0.100 % Grade Count:58
Water Absorption at Saturation	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:5
Particle Size	300 - 2500 µm	300 - 2500 µm	Average value: 900 µm Grade Count:9
Thickness	25.4 - 102 microns	1.00 - 4.00 mil	Average value: 88.9 microns Grade Count:6
Linear Mold Shrinkage	0.000500 - 0.0250 cm/cm	0.000500 - 0.0250 in/in	Average value: 0.0136 cm/cm Grade Count:218
	0.00800 - 0.0110 cm/cm @Temperature 121 - 121 °C	0.00800 - 0.0110 in/in @Temperature 250 - 250 °F	Average value: 0.00950 cm/cm Grade Count:1
	0.00800 - 0.0110 cm/cm @Time 1800 - 1800 sec	0.00800 - 0.0110 in/in @Time 0.500 - 0.500 hour	Average value: 0.00950 cm/cm Grade Count:1
Linear Mold Shrinkage, Transverse	0.0105 - 0.0185 cm/cm	0.0105 - 0.0185 in/in	Average value: 0.0131 cm/cm Grade Count:19
Melt Flow	0.200 - 1200 g/10 min	0.200 - 1200 g/10 min	Average value: 23.4 g/10 min Grade Count:842
Base Resin Melt Index	0.500 - 50.0 g/10 min @Temperature 230 - 230 °C	0.500 - 50.0 g/10 min @Temperature 446 - 446 °F	Average value: 15.1 g/10 min Grade Count:17
Ash	0.00800 - 26.0 %	0.00800 - 26.0 %	Average value: 1.72 % Grade Count:16

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	20.0 - 118	20.0 - 118	Average value: 95.8 Grade Count:393
Hardness, Shore D	40.0 - 83.0	40.0 - 83.0	Average value: 69.8 Grade Count:88
Ball Indentation Hardness	62.0 - 106 MPa	8990 - 15400 psi	Average value: 85.5 MPa Grade Count:15
Tensile Strength, Ultimate	9.00 - 80.0 MPa	1310 - 11600 psi	Average value: 30.1 MPa Grade Count:177
Tensile Strength, Yield	4.00 - 369 MPa	580 - 53500 psi	Average value: 32.1 MPa Grade Count:775
Film Elongation at Break, MD	93.0 - 530 %	93.0 - 530 %	Average value: 258 % Grade Count:3
Elongation at Break	3.00 - 900 %	3.00 - 900 %	Average value: 155 % Grade Count:284
Elongation at Yield	2.00 - 100 %	2.00 - 100 %	Average value: 10.9 % Grade Count:574
Modulus of Elasticity	0.00800 - 8.25 GPa	1.16 - 1200 ksi	Average value: 1.76 GPa Grade Count:224
Tenacity	0.203 - 0.441 N/tex	2.30 - 5.00 g/denier	Average value: 0.308 N/tex Grade Count:8
Flexural Yield Strength	20.0 - 180 MPa	2900 - 26100 psi	Average value: 44.5 MPa Grade Count:58
Flexural Modulus	0.0260 - 12.4 GPa	3.77 - 1800 ksi	Average value: 1.44 GPa Grade Count:725
	0.410 - 0.410 GPa @Temperature 90.0 - 90.0 °C	59.5 - 59.5 ksi @Temperature 194 - 194 °F	Average value: 0.410 GPa Grade Count:1
Compressive Yield Strength	34.5 - 55.2 MPa	5000 - 8000 psi	Average value: 39.0 MPa Grade Count:8
Compressive Modulus	1.38 GPa	200 ksi	Average value: 1.38 GPa Grade Count:6
Shear Modulus	0.680 - 0.920 GPa	98.6 - 133 ksi	Average value: 0.757 GPa Grade Count:10
Izod Impact, Notched	0.0900 J/cm - NB	0.169 ft-lb/in - NB	Average value: 0.769 J/cm Grade Count:635
	0.0400 - 1.01441 J/cm @Temperature -40.0 - 0.000 °C	0.0749 - 1.90041 ft-lb/in @Temperature -40.0 - 32.0 °F	Average value: 0.494 J/cm Grade Count:62
	1.00 - 1.35 J/cm @Temperature -20.0 - - 20.0 °C	1.87 - 2.53 ft-lb/in @Temperature -4.00 - - 4.00 °F	Average value: 0.494 J/cm Grade Count:2

Mechanical Properties	1.00 - 1.35 J/cm Metric	1.87 - 2.53 ft-lb/in English	Comments Average value: 0.494 J/cm Grade
	@Diameter 3.17 - 3.17 mm	@Diameter 0.125 - 0.125 in	Count:2
Izod Impact, Unnotched	0.196 J/cm - NB	0.367 ft-lb/in - NB	Average value: 8.39 J/cm Grade Count:57
	2.1356 - 2.1356 J/cm @Temperature -18.0 - -18.0 °C	4.0009 - 4.0009 ft-lb/in @Temperature -0.400 - -0.400 °F	Average value: 2.14 J/cm Grade Count:1
Izod Impact, Notched (ISO)	2.00 - 56.0 kJ/m ²	0.952 - 26.6 ft-lb/in ²	Average value: 7.61 kJ/m ² Grade Count:78
	1.10 - 8.00 kJ/m ² @Temperature -40.0 - 2.00 °C	0.523 - 3.81 ft-lb/in ² @Temperature -40.0 - 35.6 °F	Average value: 4.02 kJ/m ² Grade Count:26
Izod Impact, Unnotched (ISO)	21.0 kJ/m ² - NB	9.99 ft-lb/in ² - NB	Average value: 24.5 kJ/m ² Grade Count:8
Charpy Impact Unnotched	0.300 J/cm ² - NB	1.43 ft-lb/in ² - NB	Average value: 7.79 J/cm ² Grade Count:116
	0.800 J/cm ² - NB @Temperature -50.0 - -20.0 °C	3.81 ft-lb/in ² - NB @Temperature -58.0 - -4.00 °F	Average value: 4.26 J/cm ² Grade Count:91
Charpy Impact, Notched	0.200 - 1000 J/cm ²	0.952 - 4760 ft-lb/in ²	Average value: 1.11 J/cm ² Grade Count:124
	0.130 - 1.70 J/cm ² @Temperature -30.0 - 10.0 °C	0.619 - 8.09 ft-lb/in ² @Temperature -22.0 - 50.0 °F	Average value: 0.367 J/cm ² Grade Count:85
Gardner Impact	0.904 - 40.7 J	0.667 - 30.0 ft-lb	Average value: 11.5 J Grade Count:48
	1.99983 - 30.393 J @Temperature -30.0 - -18.0 °C	1.47500 - 22.417 ft-lb @Temperature -22.0 - -0.400 °F	Average value: 19.9 J Grade Count:24
	15.0225 - 23.9528 J @Temperature -30.0 - -30.0 °C	11.0800 - 17.6667 ft-lb @Temperature -22.0 - -22.0 °F	Average value: 19.9 J Grade Count:8
	15.0225 - 23.9528 J @Thickness 3.17 - 3.20 mm	11.0800 - 17.6667 ft-lb @Thickness 0.125 - 0.126 in	Average value: 19.9 J Grade Count:8
Falling Dart Impact	4.98 - 28.0 J	3.67 - 20.7 ft-lb	Average value: 10.8 J Grade Count:5
Coefficient of Friction	0.250	0.250	Average value: 0.250 Grade Count:6
Tensile Creep Modulus, 1 hour	550 - 700 MPa	79800 - 102000 psi	Average value: 657 MPa Grade

Mechanical Properties	Metric	English	Count: Comments
Tensile Creep Modulus, 1000 hours	220 - 440 MPa	31900 - 63800 psi	Average value: 349 MPa Grade Count:7
Tear Strength	20.2 - 226 kN/m	115 - 1290 pli	Average value: 102 kN/m Grade Count:7
Compression Set	16.0 - 65.0 %	16.0 - 65.0 %	Average value: 33.2 % Grade Count:4
Film Tensile Strength at Break, MD	3.10 - 152 MPa	450 - 22000 psi	Average value: 70.1 MPa Grade Count:3
Tangent Modulus	1290 - 3260 MPa	187000 - 472000 psi	Average value: 1920 MPa Grade Count:4

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