

Overview of materials for Polypropylene, Film Grade

Categories: [Polymer](#); [Film](#); [Thermoplastic](#); [Polypropylene \(PP\)](#); [Polypropylene, Film Grade](#)

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

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

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Physical Properties	Metric	English	Comments
Density	0.886 - 1.46 g/cc	0.0320 - 0.0527 lb/in ³	Average value: 0.905 g/cc Grade Count:193
Water Vapor Transmission	0.0497 - 1.55 g/m ² /day	0.00320 - 0.0999 g/100 in ² /day	Average value: 0.968 g/m ² /day Grade Count:62
 Oxygen Transmission Rate	0.09312 - 18.624 g/m ² /day @Temperature 37.8 - 38.0 °C	0.005997 - 1.1994 g/100 in ² /day @Temperature 100 - 100 °F	Average value: 5.06 g/m ² /day Grade Count:184
Oxygen Transmission Rate	0.0931 - 2100 cc/m ² /day	0.00600 - 135 cc/100 in ² /day	Average value: 375 cc/m ² /day Grade Count:74
Thickness	12.0 - 96.5 microns	0.472 - 3.80 mil	Average value: 31.9 microns Grade Count:361
Linear Mold Shrinkage	0.0100 - 0.0400 cm/cm	0.0100 - 0.0400 in/in	Average value: 0.0346 cm/cm Grade Count:102
Linear Mold Shrinkage, Transverse	0.0100 - 0.0180 cm/cm	0.0100 - 0.0180 in/in	Average value: 0.0139 cm/cm Grade Count:101
Melt Flow	0.350 - 800 g/10 min	0.350 - 800 g/10 min	Average value: 9.25 g/10 min Grade Count:238
Ash	0.00100 - 0.00200 %	0.00100 - 0.00200 %	Average value: 0.00150 % Grade Count:7

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	65.0 - 113	65.0 - 113	Average value: 94.3 Grade Count:90
Hardness, Shore D	65.0 - 76.0	65.0 - 76.0	Average value: 71.2 Grade Count:14
Tensile Strength, Ultimate	18.8 - 152 MPa	2730 - 22000 psi	Average value: 35.4 MPa Grade Count:28
Film Tensile Strength at Yield, MD	3.00 - 38.6 MPa	435 - 5600 psi	Average value: 19.4 MPa Grade Count:22
Film Tensile Strength at Yield, TD	5.90 - 30.4 MPa	856 - 4410 psi	Average value: 17.3 MPa Grade Count:19
Tensile Strength, Yield	3.38 - 42.1 MPa	490 - 6110 psi	Average value: 32.5 MPa Grade Count:167
Film Elongation at Break, MD	80.0 - 860 %	80.0 - 860 %	Average value: 217 % Grade Count:308
Film Elongation at Break, TD	5.00 - 1190 %	5.00 - 1190 %	Average value: 92.9 % Grade Count:289
Elongation at	8.00 - 900 %	8.00 - 900 %	Average value: 424 % Grade Count:35

Break			
Elongation at Yield	6.50 - 33.0 %	6.50 - 33.0 %	Average value: 11.4 % Grade Count:139
Modulus of Elasticity	0.700 - 7.51 GPa	102 - 1090 ksi	Average value: 2.39 GPa Grade Count:119
Flexural Modulus	0.450 - 2.28 GPa	65.3 - 331 ksi	Average value: 1.37 GPa Grade Count:179
Secant Modulus	0.330 - 0.793 GPa	47.9 - 115 ksi	Average value: 0.583 GPa Grade Count:19
Secant Modulus, MD	0.400 - 2.90 GPa	58.0 - 420 ksi	Average value: 1.53 GPa Grade Count:31
Secant Modulus, TD	0.500 - 4.83 GPa	72.5 - 700 ksi	Average value: 2.53 GPa Grade Count:27
Izod Impact, Notched	0.196 - 5340 J/cm	0.367 - 10000 ft-lb/in	Average value: 0.676 J/cm Grade Count:122
 Izod Impact, Notched	0.180 - 0.340 J/cm @Temperature -20.0 - 34.0 °C	0.337 - 0.637 ft-lb/in @Temperature -4.00 - 93.2 °F	Average value: 0.240 J/cm Grade Count:5
Izod Impact, Unnotched	0.342 J/cm - NB	0.640 ft-lb/in - NB	Average value: 0.637 J/cm Grade Count:13
 Izod Impact, Unnotched	0.294199 - 0.294199 J/cm @Temperature -10.0 - -10.0 °C	0.551156 - 0.551156 ft-lb/in @Temperature 14.0 - 14.0 °F	Average value: 0.294 J/cm Grade Count:1
Izod Impact, Notched (ISO)	2.58 - 45.0 kJ/m²	1.23 - 21.4 ft-lb/in²	Average value: 6.80 kJ/m² Grade Count:26
 Izod Impact, Notched (ISO)	2.80 - 7.50 kJ/m² @Temperature -20.0 - 4.00 °C	1.33 - 3.57 ft-lb/in² @Temperature -4.00 - 39.2 °F	Average value: 5.43 kJ/m² Grade Count:3
Charpy Impact, Notched	0.340 - 55.0 J/cm²	1.62 - 262 ft-lb/in²	Average value: 4.02 J/cm² Grade Count:16
 Charpy Impact, Notched	0.140 - 12.0 J/cm² @Temperature -23.0 - 0.000 °C	0.666 - 57.1 ft-lb/in² @Temperature -9.40 - 32.0 °F	Average value: 2.40 J/cm² Grade Count:8
Gardner Impact	1.40 - 36.2 J	1.03 - 26.7 ft-lb	Average value: 20.6 J Grade Count:6
 Gardner Impact	28.4722 - 28.4722 J @Temperature -30.0 - -29.0 °C	21.0000 - 21.0000 ft-lb @Temperature -22.0 - -20.2 °F	Average value: 32.3 J Grade Count:2
Coefficient of Friction	0.170 - 0.900	0.170 - 0.900	Average value: 0.352 Grade Count:289
Elmendorf Tear Strength MD	5.00 - 64.0 g	5.00 - 64.0 g	Average value: 34.0 g Grade Count:4
Elmendorf Tear Strength TD	70.0 - 300 g	70.0 - 300 g	Average value: 150 g Grade Count:4
Elmendorf Tear Strength, MD	0.600 - 1.80 g/micron	15.2 - 45.7 g/mil	Average value: 1.40 g/micron Grade Count:5
Elmendorf Tear Strength, TD	2.00 - 9.00 g/micron	50.8 - 229 g/mil	Average value: 4.10 g/micron Grade Count:5
Dart Drop	0.780 - 9.40 g/micron	19.8 - 239 g/mil	Average value: 2.99 g/micron Grade Count:16
Dart Drop Test	20.0 - 350 g	0.0441 - 0.772 lb	Average value: 199 g Grade Count:9
Seal Strength	200 - 410 g/25 mm	200 - 410 g/in	Average value: 231 g/25 mm Grade Count:10
 Seal Strength	200 - 810 g/25 mm @Temperature 80.0 - 140 °C	200 - 810 g/in @Temperature 176 - 284 °F	Average value: 419 g/25 mm Grade Count:65
	200 - 810 g/25 mm @Pressure 0.00345 - 0.276 MPa	200 - 810 g/in @Pressure 0.500 - 40.0 psi	Average value: 419 g/25 mm Grade Count:65
Film Tensile Strength at Break, MD	15.0 - 193 MPa	2180 - 28000 psi	Average value: 119 MPa Grade Count:391

Film Tensile Strength at Break, TD	7.85 - 310 MPa	1140 - 45000 psi	Average value: 228 MPa Grade Count:376
Tangent Modulus	869 - 1620 MPa	126000 - 235000 psi	Average value: 1120 MPa Grade Count:3
Heat Seal Strength	518 g/25 mm	1.14 lb/in	Average value: 518 g/25 mm Grade Count:48
Heat Seal Strength Initiation Temperature	105 - 130 °C	221 - 266 °F	Average value: 113 °C Grade Count:56

Electrical Properties	Metric	English	Comments
Dielectric Constant	2.25	2.25	Average value: 2.25 Grade Count:7

Thermal Properties	Metric	English	Comments
Melting Point	119 - 170 °C	246 - 338 °F	Average value: 154 °C Grade Count:78
Deflection Temperature at 0.46 MPa (66 psi)	48.0 - 129 °C	118 - 264 °F	Average value: 94.0 °C Grade Count:147
Deflection Temperature at 1.8 MPa (264 psi)	50.0 - 104 °C	122 - 219 °F	Average value: 61.7 °C Grade Count:25
Vicat Softening Point	67.0 - 159 °C	153 - 318 °F	Average value: 141 °C Grade Count:95
Heat Distortion Temperature	82.0 - 115 °C	180 - 239 °F	Average value: 101 °C Grade Count:3

Optical Properties	Metric	English	Comments
Optical Density	1.90 - 3.90	1.90 - 3.90	Average value: 2.49 Grade Count:27
Haze	0.100 - 90.0 %	0.100 - 90.0 %	Average value: 7.17 % Grade Count:322
Gloss	3.00 - 145 %	3.00 - 145 %	Average value: 81.0 % Grade Count:366
Transmission, Visible	0.200 - 90.0 %	0.200 - 90.0 %	Average value: 62.2 % Grade Count:197

Processing Properties	Metric	English	Comments
Processing Temperature	135 - 255 °C	275 - 491 °F	Average value: 210 °C Grade Count:5
Melt Temperature	182 - 274 °C	360 - 525 °F	Average value: 245 °C Grade Count:34

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.