

Overview of materials for Polypropylene, Film Grade

Category : 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.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polypropylene-Film-Grade.php

Physical Properties	Metric	English	Comments
Density	0.886 - 1.46 g/cc	0.0320 - 0.0527 lb/in ³	Average value: 0.906 g/cc Grade Count:153
Water Vapor Transmission	0.0497 - 10.9 g/m ² /day	0.00320 - 0.702 g/100 in ² /day	Average value: 2.99 g/m ² /day Grade Count:133
	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: 5.22 g/m ² /day Grade Count:113
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: 9.85 g/10 min Grade Count:193
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: 93.8 Grade Count:81
Hardness, Shore D	65.0 - 71.0	65.0 - 71.0	Average value: 68.5 Grade Count:4
Tensile Strength, Ultimate	18.8 - 152 MPa	2730 - 22000 psi	Average value: 42.9 MPa Grade Count:18
Film Tensile Strength at Yield, MD	3.00 - 31.5 MPa	435 - 4570 psi	Average value: 17.6 MPa Grade Count:15
	5.90 - 30.4 MPa	856 - 4410 psi	Average value: 16.5 MPa Grade

Film Tensile Strength at Yield, TD Mechanical Properties	Metric	English	Count:18 Comments
Tensile Strength, Yield	3.38 - 42.1 MPa	490 - 6110 psi	Average value: 32.7 MPa Grade Count:130
Film Elongation at Break, MD	80.0 - 850 %	80.0 - 850 %	Average value: 204 % Grade Count:299
Film Elongation at Break, TD	6.00 - 850 %	6.00 - 850 %	Average value: 86.4 % Grade Count:284
Elongation at Break	8.00 - 800 %	8.00 - 800 %	Average value: 444 % Grade Count:20
Elongation at Yield	7.00 - 20.0 %	7.00 - 20.0 %	Average value: 11.3 % Grade Count:106
Modulus of Elasticity	1.05 - 7.51 GPa	152 - 1090 ksi	Average value: 2.44 GPa Grade Count:112
Flexural Modulus	0.550 - 2.28 GPa	79.8 - 331 ksi	Average value: 1.38 GPa Grade Count:141
Secant Modulus	0.480 - 0.793 GPa	69.6 - 115 ksi	Average value: 0.625 GPa Grade Count:17
Secant Modulus, MD	0.400 - 2.90 GPa	58.0 - 420 ksi	Average value: 1.69 GPa Grade Count:25
Secant Modulus, TD	0.500 - 4.83 GPa	72.5 - 700 ksi	Average value: 2.65 GPa Grade Count:25
Izod Impact, Notched	0.196 - 5340 J/cm	0.367 - 10000 ft-lb/in	Average value: 0.436 J/cm Grade Count:107
	0.180 - 0.267 J/cm @Temperature -20.0 - 0.000 °C	0.337 - 0.500 ft-lb/in @Temperature -4.00 - 32.0 °F	Average value: 0.215 J/cm Grade Count:4
Izod Impact, Unnotched	0.490 J/cm - NB	0.919 ft-lb/in - NB	Average value: 0.696 J/cm Grade Count:12
	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)	4.00 - 6.50 kJ/m ²	1.90 - 3.09 ft-lb/in ²	Average value: 5.15 kJ/m ² Grade Count:13
Charpy Impact, Notched	0.500 - 55.0 J/cm ²	2.38 - 262 ft-lb/in ²	Average value: 6.07 J/cm ² Grade Count:10
	0.350 - 12.0 J/cm ² @Temperature -23.0 - 0.000 °C	1.67 - 57.1 ft-lb/in ² @Temperature -9.40 - 32.0 °F	Average value: 5.20 J/cm ² Grade Count:3
Gardner Impact	1.40 - 36.2 J	1.03 - 26.7 ft-lb	Average value: 20.6 J Grade Count:6
	28.4722 - 28.4722 J	21.0000 - 21.0000 ft-lb	Average value: 32.3 J Grade Count:2

Mechanical Properties	@Temperature -30.0 - - Metric 29.0 °C	@Temperature -22.0 - - English 20.2 °F	Comments
Coefficient of Friction	0.170 - 0.900	0.170 - 0.900	Average value: 0.353 Grade Count:287
Elmendorf Tear Strength MD	12.0 - 64.0 g	12.0 - 64.0 g	Average value: 43.7 g Grade Count:3
Elmendorf Tear Strength TD	88.0 - 300 g	88.0 - 300 g	Average value: 176 g Grade Count:3
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: 200 g Grade Count:8
Seal Strength	200 - 410 g/25 mm	200 - 410 g/in	Average value: 231 g/25 mm Grade Count:10
	200 - 810 g/25 mm	200 - 810 g/in	Average value: 419 g/25 mm Grade Count:65
	@Temperature 80.0 - 140 °C	@Temperature 176 - 284 °F	
	200 - 810 g/25 mm	200 - 810 g/in	Average value: 419 g/25 mm Grade Count:65
	@Pressure 0.00345 - 0.276 MPa	@Pressure 0.500 - 40.0 psi	
Film Tensile Strength at Break, MD	15.0 - 193 MPa	2180 - 28000 psi	Average value: 121 MPa Grade Count:382
Film Tensile Strength at Break, TD	8.00 - 310 MPa	1160 - 45000 psi	Average value: 231 MPa Grade Count:371
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

Thermal Properties	Metric	English	Comments
Melting Point	119 - 170 °C	246 - 338 °F	Average value: 154 °C Grade Count:73
Deflection Temperature at 0.46 MPa (66 psi)	48.0 - 129 °C	118 - 264 °F	Average value: 95.3 °C Grade Count:109
Deflection Temperature at 1.8 MPa (264 psi)	50.0 - 104 °C	122 - 219 °F	Average value: 61.7 °C Grade Count:25

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

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