

Overview of materials for Polypropylene, Sheet/Thermoforming Grade

Category : Polymer , Thermoplastic , Polypropylene (PP) , Polypropylene, Sheet/Thermoforming Grade

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polypropylene, Sheet/Thermoforming 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-SheetThermoforming-Grade.php

Physical Properties	Metric	English	Comments
Density	0.900 - 1.13 g/cc	0.0325 - 0.0408 lb/in ³	Average value: 0.919 g/cc Grade Count:40
Oxygen Transmission	95.0 cc-mm/m ² -24hr-atm	241 cc-mil/100 in ² -24hr-atm	Average value: 95.0 cc-mm/m ² -24hr-atm Grade Count:3
Thickness	25.4 - 1000 microns	1.00 - 39.4 mil	Average value: 553 microns Grade Count:9
Melt Flow	0.450 - 8.00 g/10 min	0.450 - 8.00 g/10 min	Average value: 2.26 g/10 min Grade Count:38
Surface Tension	48.0 dynes/cm	48.0 dynes/cm	Average value: 48.0 dynes/cm Grade Count:6

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	84.0 - 110	84.0 - 110	Average value: 96.1 Grade Count:16
Tensile Strength, Ultimate	30.0 - 35.9 MPa	4350 - 5210 psi	Average value: 33.9 MPa Grade Count:3
Film Tensile Strength at Yield, MD	20.0 - 37.0 MPa	2900 - 5370 psi	Average value: 28.0 MPa Grade Count:10
Film Tensile Strength at Yield, TD	16.0 - 36.0 MPa	2320 - 5220 psi	Average value: 25.3 MPa Grade Count:10
Tensile Strength, Yield	19.3 - 45.0 MPa	2800 - 6530 psi	Average value: 34.2 MPa Grade Count:35
Film Elongation at Break, MD	50.0 - 700 %	50.0 - 700 %	Average value: 453 % Grade Count:9
Film Elongation at Break, TD	6.00 - 850 %	6.00 - 850 %	Average value: 319 % Grade Count:9
Film Elongation at Yield, MD	14.0 - 24.0 %	14.0 - 24.0 %	Average value: 18.9 % Grade Count:9
Film Elongation at Yield, TD	9.00 - 23.0 %	9.00 - 23.0 %	Average value: 15.4 % Grade Count:9
Elongation at Break	9.00 - 11.0 %	9.00 - 11.0 %	Average value: 10.0 % Grade Count:4

Elongation at Yield Mechanical Properties	4.00 - 65.0 % Metric	4.00 - 65.0 % English	Average value: 11.5 % Grade Count:29 Comments
Modulus of Elasticity	0.280 - 2.05 GPa	40.6 - 297 ksi	Average value: 0.710 GPa Grade Count:12
Flexural Modulus	0.896 - 2.30 GPa	130 - 334 ksi	Average value: 1.52 GPa Grade Count:39
Izod Impact, Notched	0.210 - 981 J/cm	0.393 - 1840 ft-lb/in	Average value: 1.83 J/cm Grade Count:39
	0.214 - 2.98984 J/cm @Temperature -20.0 - 4.00 °C	0.401 - 5.60120 ft-lb/in @Temperature -4.00 - 39.2 °F	Average value: 1.14 J/cm Grade Count:7
	0.500 - 3.00 J/cm @Temperature -20.0 - 0.000 °C	0.937 - 5.62 ft-lb/in @Temperature -4.00 - 32.0 °F	Average value: 1.14 J/cm Grade Count:4
	0.500 - 3.00 J/cm @Thickness 3.20 - 3.20 mm	0.937 - 5.62 ft-lb/in @Thickness 0.126 - 0.126 in	Average value: 1.14 J/cm Grade Count:4
Dart Drop, Total Energy	5.50 - 21.0 J	4.06 - 15.5 ft-lb	Average value: 9.50 J Grade Count:4
	2.00 - 30.7 J @Temperature -20.0 - 0.000 °C	1.48 - 22.6 ft-lb @Temperature -4.00 - 32.0 °F	Average value: 12.7 J Grade Count:2
Tear Strength	130 - 230 kN/m	742 - 1310 pli	Average value: 180 kN/m Grade Count:4
Dart Drop Total Energy	55.0 - 60.0 J/cm	0.103 - 0.112 ft-lb/mil	Average value: 56.7 J/cm Grade Count:3
	20.0 - 55.0 J/cm @Temperature -20.0 - 0.000 °C	0.0375 - 0.103 ft-lb/mil @Temperature -4.00 - 32.0 °F	Average value: 37.5 J/cm Grade Count:1

Thermal Properties	Metric	English	Comments
Melting Point	147 - 165 °C	297 - 329 °F	Average value: 160 °C Grade Count:11
Deflection Temperature at 0.46 MPa (66 psi)	76.1 - 130 °C	169 - 266 °F	Average value: 107 °C Grade Count:36
Deflection Temperature at 1.8 MPa (264 psi)	52.0 - 101 °C	126 - 214 °F	Average value: 67.8 °C Grade Count:4
Vicat Softening Point	78.0 - 159 °C	172 - 318 °F	Average value: 141 °C Grade Count:18
Heat Distortion Temperature	79.0 - 110 °C	174 - 230 °F	Average value: 88.1 °C Grade Count:8

Optical Properties	Metric	English	Comments
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Haze Optical Properties	2.60 - 46.0 % Metric	2.60 - 46.0 % English	Average value: 19.8 % Grade Count:13 Comments
Gloss	80.0 - 110 %	80.0 - 110 %	Average value: 93.7 % Grade Count:3
Transmission, Visible	90.0 - 99.5 %	90.0 - 99.5 %	Average value: 94.4 % Grade Count:4

Processing Properties	Metric	English	Comments
Melt Temperature	199 - 260 °C	390 - 500 °F	Average value: 235 °C Grade Count:4

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