

Overview of materials for Polyethylene Terephthalate (PET), Unreinforced

Category : Polymer , Thermoplastic , Polyester, TP , Polyethylene Terephthalate (PET) , Polyethylene Terephthalate (PET), Unreinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polyethylene Terephthalate (PET), Unreinforced". 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-Polyethylene-Terephthalate-PET-Unreinforced.php

Physical Properties	Metric	English	Comments
Density	1.25 - 1.45 g/cc	0.0452 - 0.0524 lb/in ³	Average value: 1.37 g/cc Grade Count:99
	1.10 - 1.20 g/cc @Temperature 285 - 285 °C	0.0397 - 0.0434 lb/in ³ @Temperature 545 - 545 °F	Average value: 1.19 g/cc Grade Count:27
Apparent Bulk Density	0.830 - 0.950 g/cc	0.0300 - 0.0343 lb/in ³	Average value: 0.890 g/cc Grade Count:5
Water Absorption	0.0500 - 0.800 %	0.0500 - 0.800 %	Average value: 0.333 % Grade Count:22
Moisture Absorption at Equilibrium	0.200 - 0.300 %	0.200 - 0.300 %	Average value: 0.263 % Grade Count:19
Water Absorption at Saturation	0.400 - 0.500 %	0.400 - 0.500 %	Average value: 0.487 % Grade Count:12
Particle Size	2500 - 3500 µm	2500 - 3500 µm	Average value: 2800 µm Grade Count:47
Water Vapor Transmission	0.490 - 6.00 g/m ² /day	0.0316 - 0.386 g/100 in ² /day	Average value: 3.08 g/m ² /day Grade Count:6
Oxygen Transmission	5.10 - 23.0 cc-mm/m ² -24hr-atm	13.0 - 58.4 cc-mil/100 in ² -24hr-atm	Average value: 11.1 cc-mm/m ² -24hr-atm Grade Count:3
Oxygen Transmission Rate	2.00 - 20.0 cc/m ² /day	0.129 - 1.29 cc/100 in ² /day	Average value: 14.0 cc/m ² /day Grade Count:3
Viscosity Test	62.0 - 86.0 cm ³ /g	62.0 - 86.0 cm ³ /g	Average value: 79.4 cm ³ /g Grade Count:12
Maximum Moisture Content	0.350 - 0.400	0.350 - 0.400	Average value: 0.360 Grade Count:5
Thickness	200 - 1200 microns	7.87 - 47.2 mil	Average value: 404 microns Grade Count:8
Linear Mold Shrinkage	0.00100 - 0.0200 cm/cm	0.00100 - 0.0200 in/in	Average value: 0.00525 cm/cm Grade Count:12

Physical Properties	Metric	English	Comments
	0.0100 - 0.0130 cm/cm @Temperature 150 - 150 °C	0.0100 - 0.0130 in/in @Temperature 302 - 302 °F	Average value: 0.0109 cm/cm Grade Count:17
	0.0100 - 0.0130 cm/cm @Time 900 - 900 sec	0.0100 - 0.0130 in/in @Time 0.250 - 0.250 hour	Average value: 0.0109 cm/cm Grade Count:17
Linear Mold Shrinkage, Transverse	0.00200 - 0.0110 cm/cm	0.00200 - 0.0110 in/in	Average value: 0.00600 cm/cm Grade Count:3
	0.00100 - 0.0100 cm/cm @Temperature 150 - 150 °C	0.00100 - 0.0100 in/in @Temperature 302 - 302 °F	Average value: 0.00500 cm/cm Grade Count:17
	0.00100 - 0.0100 cm/cm @Time 900 - 900 sec	0.00100 - 0.0100 in/in @Time 0.250 - 0.250 hour	Average value: 0.00500 cm/cm Grade Count:17

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	80.0 - 96.0	80.0 - 96.0	Average value: 91.9 Grade Count:10
Hardness, Rockwell R	105 - 117	105 - 117	Average value: 110 Grade Count:11
Hardness, Shore D	79.0 - 81.0	79.0 - 81.0	Average value: 80.3 Grade Count:3
Ball Indentation Hardness	160 - 170 MPa	23200 - 24700 psi	Average value: 167 MPa Grade Count:6
Tensile Strength, Ultimate	22.0 - 90.0 MPa	3190 - 13100 psi	Average value: 45.3 MPa Grade Count:27
Film Tensile Strength at Yield, MD	55.0 - 260 MPa	7980 - 37700 psi	Average value: 176 MPa Grade Count:19
Film Tensile Strength at Yield, TD	53.0 - 265 MPa	7690 - 38400 psi	Average value: 206 MPa Grade Count:19
Tensile Strength, Yield	47.0 - 90.0 MPa	6820 - 13100 psi	Average value: 62.4 MPa Grade Count:26
Film Elongation at Break, MD	40.0 - 600 %	40.0 - 600 %	Average value: 192 % Grade Count:20
Film Elongation at Break, TD	100 - 600 %	100 - 600 %	Average value: 155 % Grade Count:19
Film Elongation at Yield, MD	4.00 - 6.00 %	4.00 - 6.00 %	Average value: 4.67 % Grade Count:3
Film Elongation at Yield, TD	4.00 - 6.00 %	4.00 - 6.00 %	Average value: 4.67 % Grade Count:3
Elongation at Break	4.00 - 600 %	4.00 - 600 %	Average value: 84.3 % Grade Count:36
Elongation at Yield	3.50 - 5.00 %	3.50 - 5.00 %	Average value: 4.09 % Grade Count:16
	1.83 - 5.20 GPa	265 - 754 ksi	Average value: 3.45 GPa Grade

Modulus of Elasticity Mechanical Properties	Metric	English	Count:43 Comments
Flexural Yield Strength	60.0 - 121 MPa	8700 - 17600 psi	Average value: 80.4 MPa Grade Count:20
Flexural Modulus	1.90 - 3.17 GPa	276 - 460 ksi	Average value: 2.41 GPa Grade Count:19
Compressive Yield Strength	20.0 - 103 MPa	2900 - 14900 psi	Average value: 59.2 MPa Grade Count:6
Izod Impact, Notched	0.139 - 100 J/cm	0.260 - 187 ft-lb/in	Average value: 0.629 J/cm Grade Count:16
	0.270 - 0.630 J/cm @Temperature -40.0 - - 40.0 °C	0.506 - 1.18 ft-lb/in @Temperature -40.0 - - 40.0 °F	Average value: 0.395 J/cm Grade Count:11
Izod Impact, Unnotched	2.67 J/cm - NB	5.00 ft-lb/in - NB	Average value: 2.67 J/cm Grade Count:12
	NB - NB @Temperature -40.0 - - 30.0 °C	NB - NB @Temperature -40.0 - - 22.0 °F	Grade Count:11
Izod Impact, Notched (ISO)	2.00 - 8.10 kJ/m ²	0.952 - 3.85 ft-lb/in ²	Average value: 4.73 kJ/m ² Grade Count:10
	3.10 - 4.20 kJ/m ² @Temperature -40.0 - - 40.0 °C	1.48 - 2.00 ft-lb/in ² @Temperature -40.0 - - 40.0 °F	Average value: 3.73 kJ/m ² Grade Count:6
Izod Impact, Unnotched (ISO)	NB	NB	Grade Count:3
	160 - 181 kJ/m ² @Temperature -40.0 - - 40.0 °C	76.1 - 86.1 ft-lb/in ² @Temperature -40.0 - - 40.0 °F	Average value: 170 kJ/m ² Grade Count:3
Charpy Impact Unnotched	3.00 J/cm ² - NB	14.3 ft-lb/in ² - NB	Average value: 5.04 J/cm ² Grade Count:15
	NB - NB @Temperature -30.0 - - 30.0 °C	NB - NB @Temperature -22.0 - - 22.0 °F	Grade Count:4
Charpy Impact, Notched	0.200 - 1.40 J/cm ²	0.952 - 6.66 ft-lb/in ²	Average value: 0.514 J/cm ² Grade Count:19
	0.270 - 0.500 J/cm ² @Temperature -30.0 - - 30.0 °C	1.28 - 2.38 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 0.345 J/cm ² Grade Count:4
Puncture Energy	12.0 - 41.0 J	8.85 - 30.2 ft-lb	Average value: 25.7 J Grade Count:8
	13.0 - 39.0 J @Temperature -40.0 - -	9.59 - 28.8 ft-lb @Temperature -40.0 - -	Average value: 7.77 J Grade Count:4

Mechanical Properties	40.0 °C Metric	40.0 °F English	Comments
	0.800 - 24.0 J	0.590 - 17.7 ft-lb	
	@Temperature -40.0 - - 40.0 °C	@Temperature -40.0 - - 40.0 °F	Average value: 7.77 J Grade Count:4
	0.800 - 24.0 J	0.590 - 17.7 ft-lb	
	@Thickness 2.50 - 3.20 mm	@Thickness 0.0984 - 0.126 in	Average value: 7.77 J Grade Count:4
Coefficient of Friction	0.180 - 0.300	0.180 - 0.300	Average value: 0.239 Grade Count:7
Coefficient of Friction, Static	0.190 - 0.400	0.190 - 0.400	Average value: 0.372 Grade Count:15

Chemical Properties	Metric	English	Comments
Acetaldehyde	0.100 - 3.00 ppm	0.100 - 3.00 ppm	Average value: 1.23 ppm Grade Count:20

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