

## Overview of materials for Polytrimethylene Terephthalate (PTT)

Category : Polymer , Thermoplastic , Polyester, TP , Polytrimethylene Terephthalate (PTT)

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polytrimethylene Terephthalate (PTT)". 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-Polytrimethylene-Terephthalate-PTT.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Polytrimethylene-Terephthalate-PTT.php)

Physical Properties	Metric	English	Comments
Density	1.05 - 1.77 g/cc	0.0379 - 0.0639 lb/in <sup>3</sup>	Average value: 1.49 g/cc Grade Count:58
	1.12 - 1.51 g/cc @Temperature 250 - 260 °C	0.0405 - 0.0546 lb/in <sup>3</sup> @Temperature 482 - 500 °F	Average value: 1.27 g/cc Grade Count:6
Filler Content	10.0 - 50.0 %	10.0 - 50.0 %	Average value: 26.1 % Grade Count:27
Water Absorption	0.0800 - 0.340 %	0.0800 - 0.340 %	Average value: 0.167 % Grade Count:3
Water Absorption at Saturation	0.0800 %	0.0800 %	Average value: 0.0800 % Grade Count:3
Additive Loading	20.0 - 30.0 %	20.0 - 30.0 %	Average value: 26.7 % Grade Count:3
Viscosity	70541.6 - 351621 cP @Temperature 250 - 270 °C	70541.6 - 351621 cP @Temperature 482 - 518 °F	Average value: 195000 cP Grade Count:1
	70541.6 - 351621 cP @Shear Rate 500 - 5000 1/s	70541.6 - 351621 cP @Shear Rate 500 - 5000 1/s	Average value: 195000 cP Grade Count:1
Linear Mold Shrinkage	0.000500 - 0.0260 cm/cm	0.000500 - 0.0260 in/in	Average value: 0.00646 cm/cm Grade Count:53
Linear Mold Shrinkage, Transverse	0.00500 - 0.0170 cm/cm	0.00500 - 0.0170 in/in	Average value: 0.0113 cm/cm Grade Count:11
Melt Flow	15.0 - 16.3 g/10 min	15.0 - 16.3 g/10 min	Average value: 15.9 g/10 min Grade Count:3

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	41.1 - 180 MPa	5960 - 26100 psi	Average value: 111 MPa Grade Count:52
	11.336 - 147.73 MPa	1644.2 - 21426 psi	

Mechanical Properties	Metric	English	Comments
	@ Temperature -40.0 - 150 °C	@ Temperature -40.0 - 302 °F	Average value: 70.7 MPa Grade Count:1
	11.336 - 147.73 MPa	1644.2 - 21426 psi	Average value: 70.7 MPa Grade Count:1
	@Strain 0.200 - 1.60 %	@Strain 0.200 - 1.60 %	
Tensile Strength, Yield	35.0 - 60.0 MPa	5080 - 8700 psi	Average value: 55.8 MPa Grade Count:6
Elongation at Break	1.00 - 15.0 %	1.00 - 15.0 %	Average value: 4.12 % Grade Count:58
Elongation at Yield	5.00 - 6.00 %	5.00 - 6.00 %	Average value: 5.58 % Grade Count:6
Modulus of Elasticity	1.60 - 29.0 GPa	232 - 4200 ksi	Average value: 8.94 GPa Grade Count:55
Flexural Yield Strength	55.2 - 255 MPa	8000 - 37000 psi	Average value: 165 MPa Grade Count:51
Flexural Modulus	1.60 - 24.8 GPa	232 - 3600 ksi	Average value: 8.41 GPa Grade Count:56
Secant Modulus	3.18879 - 11.022 GPa	462.502 - 1598.6 ksi	Average value: 7.19 GPa Grade Count:1
	@Temperature -40.0 - 100 °C	@Temperature -40.0 - 212 °F	
	3.18879 - 11.022 GPa	462.502 - 1598.6 ksi	Average value: 7.19 GPa Grade Count:1
	@Strain 0.100 - 2.40 %	@Strain 0.100 - 2.40 %	
Izod Impact, Notched	0.267 - 1.87 J/cm	0.500 - 3.50 ft-lb/in	Average value: 0.622 J/cm Grade Count:42
Izod Impact, Unnotched	1.60 - 5340 J/cm	3.00 - 10000 ft-lb/in	Average value: 4.74 J/cm Grade Count:42
Izod Impact, Notched (ISO)	4.50 - 18.0 kJ/m <sup>2</sup>	2.14 - 8.57 ft-lb/in <sup>2</sup>	Average value: 6.57 kJ/m <sup>2</sup> Grade Count:7
Charpy Impact Unnotched	2.50 - 5.00 J/cm <sup>2</sup>	11.9 - 23.8 ft-lb/in <sup>2</sup>	Average value: 3.50 J/cm <sup>2</sup> Grade Count:9
	3.00 - 4.50 J/cm <sup>2</sup>	14.3 - 21.4 ft-lb/in <sup>2</sup>	Average value: 3.75 J/cm <sup>2</sup> Grade Count:4
	@Temperature -30.0 - - 30.0 °C	@Temperature -22.0 - - 22.0 °F	
Charpy Impact, Notched	0.400 - 2.20 J/cm <sup>2</sup>	1.90 - 10.5 ft-lb/in <sup>2</sup>	Average value: 0.697 J/cm <sup>2</sup> Grade Count:16
	0.600 - 0.900 J/cm <sup>2</sup>	2.86 - 4.28 ft-lb/in <sup>2</sup>	Average value: 0.750 J/cm <sup>2</sup> Grade Count:4
	@Temperature -30.0 - - 30.0 °C	@Temperature -22.0 - - 22.0 °F	
Thermal Properties	Metric	English	Comments
CTE, linear	7.00 - 138 µm/m-°C	3.89 - 76.7 µin/in-°F	Average value: 36.4 µm/m-°C Grade Count:5

Thermal Properties	Metric	English	Comments
CTE, linear, transverse to Flow	43.0 - 138 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	76.7 - 246.7 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 95.4 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:5
Specific Heat Capacity	2.10 J/g- $^\circ\text{C}$	0.502 BTU/lb- $^\circ\text{F}$	Average value: 2.10 J/g- $^\circ\text{C}$ Grade Count:3
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft $^2$ - $^\circ\text{F}$	Average value: 0.200 W/m-K Grade Count:3
Melting Point	227 - 229 $^\circ\text{C}$	441 - 444 $^\circ\text{F}$	Average value: 227 $^\circ\text{C}$ Grade Count:16
Deflection Temperature at 0.46 MPa (66 psi)	75.0 - 226 $^\circ\text{C}$	167 - 439 $^\circ\text{F}$	Average value: 190 $^\circ\text{C}$ Grade Count:18
Deflection Temperature at 1.8 MPa (264 psi)	53.0 - 215 $^\circ\text{C}$	127 - 419 $^\circ\text{F}$	Average value: 165 $^\circ\text{C}$ Grade Count:41
Flammability, UL94	HB - 5VA	HB - 5VA	Grade Count:47
Oxygen Index	19.0 - 21.0 %	19.0 - 21.0 %	Average value: 20.3 % Grade Count:8

Electrical Properties	Metric	English	Comments
Electrical Resistivity	10.0 - 1.00e+15 ohm-cm	10.0 - 1.00e+15 ohm-cm	Average value: 6.92e+14 ohm-cm Grade Count:14
Surface Resistance	1e+05 - 6.00e+14 ohm	1e+05 - 6.00e+14 ohm	Average value: 1.96e+14 ohm Grade Count:12
Dielectric Constant	3.40 - 4.30	3.40 - 4.30	Average value: 3.94 Grade Count:10
Dielectric Strength	17.7 - 38.0 kV/mm	450 - 965 kV/in	Average value: 33.4 kV/mm Grade Count:10
Dissipation Factor	0.00120 - 0.0205	0.00120 - 0.0205	Average value: 0.00831 Grade Count:10
Comparative Tracking Index	250 - 600 V	250 - 600 V	Average value: 420 V Grade Count:14

Processing Properties	Metric	English	Comments
Processing Temperature	221 - 252 $^\circ\text{C}$	430 - 485 $^\circ\text{F}$	Average value: 241 $^\circ\text{C}$ Grade Count:16
Melt Temperature	204 - 270 $^\circ\text{C}$	400 - 518 $^\circ\text{F}$	Average value: 253 $^\circ\text{C}$ Grade Count:36
Mold Temperature	37.8 - 121 $^\circ\text{C}$	100 - 250 $^\circ\text{F}$	Average value: 101 $^\circ\text{C}$ Grade Count:52
Drying Temperature	120 - 127 $^\circ\text{C}$	248 - 260 $^\circ\text{F}$	Average value: 125 $^\circ\text{C}$ Grade Count:36
Moisture Content	0.0100 - 0.0300 %	0.0100 - 0.0300 %	Average value: 0.0133 % Grade Count:36
Dew Point	-40.0 - -28.9 $^\circ\text{C}$	-40.0 - -20.0 $^\circ\text{F}$	Average value: -39.6 $^\circ\text{C}$ Grade Count:26
Injection Pressure	68.9 - 103 MPa	10000 - 15000 psi	Average value: 86.2 MPa Grade Count:42

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