

Overview of materials for Polytetrafluoroethylene (PTFE), Molded

Category : Polymer , Thermoplastic , Fluoropolymer , PTFE , Polytetrafluoroethylene (PTFE), Molded

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polytetrafluoroethylene (PTFE), Molded". 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-Polytetrafluoroethylene-PTFE-Molded.php

Physical Properties	Metric	English	Comments
Density	0.700 - 3.35 g/cc	0.0253 - 0.121 lb/in ³	Average value: 2.07 g/cc Grade Count:103
Apparent Bulk Density	0.360 - 0.950 g/cc	0.0130 - 0.0343 lb/in ³	Average value: 0.665 g/cc Grade Count:26
Water Absorption	0.000 - 0.100 %	0.000 - 0.100 %	Average value: 0.00640 % Grade Count:55
Particle Size	15.0 - 4450 μm	15.0 - 4450 μm	Average value: 433 μm Grade Count:29
Viscosity	1.00e+13 - 1.00e+15 cP @Temperature 340 - 380 °C	1.00e+13 - 1.00e+15 cP @Temperature 644 - 716 °F	Average value: 5.05e+14 cP Grade Count:12
Linear Mold Shrinkage	0.0200 - 0.0500 cm/cm	0.0200 - 0.0500 in/in	Average value: 0.0318 cm/cm Grade Count:28

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	11.0 - 70.0	11.0 - 70.0	Average value: 57.0 Grade Count:37
Ball Indentation Hardness	23.0 - 37.0 MPa	3340 - 5370 psi	Average value: 32.0 MPa Grade Count:9
Tensile Strength, Ultimate	13.0 - 333 MPa	1890 - 48300 psi	Average value: 34.2 MPa Grade Count:53
Tensile Strength, Yield	0.862 - 41.4 MPa	125 - 6000 psi	Average value: 20.5 MPa Grade Count:49
Elongation at Break	40.0 - 650 %	40.0 - 650 %	Average value: 293 % Grade Count:103
Modulus of Elasticity	0.392 - 2.25 GPa	56.9 - 326 ksi	Average value: 0.556 GPa Grade Count:42
Flexural Yield Strength	14.0 - 27.6 MPa	2030 - 4000 psi	Average value: 19.6 MPa Grade Count:3
	0.490 - 3.34 GPa	71.1 - 485 ksi	Average value: 0.736 GPa Grade

Flexural Modulus Mechanical Properties	Metric	English	Count:15 Comments
Compressive Yield Strength	1.50 - 23.4 MPa	218 - 3400 psi	Average value: 7.20 MPa Grade Count:23
Shear Strength	9.30792 - 25.5106 MPa @Temperature 26.7 - 204 °C	1350.00 - 3700.01 psi @Temperature 80.0 - 400 °F	Average value: 15.1 MPa Grade Count:2
Izod Impact, Notched	1.30 - 1.57 J/cm	2.44 - 2.94 ft-lb/in	Average value: 1.42 J/cm Grade Count:7
Izod Impact, Unnotched	1.60 J/cm	3.00 ft-lb/in	Average value: 1.60 J/cm Grade Count:12
Charpy Impact, Notched	1.40 - 1.90 J/cm ²	6.66 - 9.04 ft-lb/in ²	Average value: 1.76 J/cm ² Grade Count:5
Coefficient of Friction	0.0200 - 0.280	0.0200 - 0.280	Average value: 0.0604 Grade Count:42
Coefficient of Friction, Static	0.0200 - 0.0800	0.0200 - 0.0800	Average value: 0.0530 Grade Count:30
K (wear) Factor	3.00 - 5040 x 10 ⁻⁸ mm ³ /N-M	1.49 - 2500 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	Average value: 1920 x 10 ⁻⁸ mm ³ /N-M Grade Count:7
Taber Abrasion, mg/1000 Cycles	5.00 - 41.8	5.00 - 41.8	Average value: 20.6 Grade Count:12

Thermal Properties	Metric	English	Comments
CTE, linear	14.0 - 250 µm/m-°C	7.78 - 139 µin/in-°F	Average value: 107 µm/m-°C Grade Count:46
	57.0 - 170 µm/m-°C @Temperature 30.0 - 300 °C	31.7 - 94.4 µin/in-°F @Temperature 86.0 - 572 °F	Average value: 95.7 µm/m-°C Grade Count:9
Specific Heat Capacity	1.00 - 1.05 J/g-°C	0.239 - 0.251 BTU/lb-°F	Average value: 1.01 J/g-°C Grade Count:6
	0.960 - 1.03 J/g-°C @Temperature 0.000 - 50.0 °C	0.229 - 0.246 BTU/lb-°F @Temperature 32.0 - 122 °F	Average value: 0.995 J/g-°C Grade Count:1
Thermal Conductivity	0.230 - 0.500 W/m-K	1.60 - 3.47 BTU-in/hr-ft ² -°F	Average value: 0.261 W/m-K Grade Count:39
	0.220 - 0.320 W/m-K @Temperature 100 - 250 °C	1.53 - 2.22 BTU-in/hr-ft ² -°F @Temperature 212 - 482 °F	Average value: 0.276 W/m-K Grade Count:7
Melting Point	135 - 340 °C	275 - 644 °F	Average value: 323 °C Grade Count:46
Maximum Service Temperature, Air	93.3 - 316 °C	200 - 600 °F	Average value: 260 °C Grade Count:69

Thermal Properties	Metric	English	Comments
Modulus at 1.8 MPa (264 psi)	30.1 - 33.3 °C	75 - 100 °F	Average value: 64.8 °C Grade Count:3
Minimum Service Temperature, Air	-268 - -200 °C	-450 - -328 °F	Average value: -215 °C Grade Count:19
Flammability, UL94	V-0	V-0	Grade Count:57
Oxygen Index	92.0 - 95.0 %	92.0 - 95.0 %	Average value: 94.9 % Grade Count:28

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+14 - 1.10e+18 ohm-cm	1.00e+14 - 1.10e+18 ohm-cm	Average value: 8.42e+17 ohm-cm Grade Count:41
Surface Resistance	1.00e+6 - 1.00e+18 ohm	1.00e+6 - 1.00e+18 ohm	Average value: 3.58e+17 ohm Grade Count:13
Dielectric Constant	2.00 - 12.0	2.00 - 12.0	Average value: 2.42 Grade Count:48
Dielectric Strength	2.50 - 165 kV/mm	63.5 - 4200 kV/in	Average value: 57.8 kV/mm Grade Count:65
Dissipation Factor	0.0000100 - 0.0360	0.0000100 - 0.0360	Average value: 0.00120 Grade Count:51
Arc Resistance	300 - 420 sec	300 - 420 sec	Average value: 400 sec Grade Count:6
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:6

Processing Properties	Metric	English	Comments
Processing Temperature	370 °C	698 °F	Average value: 370 °C Grade Count:5

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