

Overview of materials for Polychlorotrifluoroethylene; Molded

Category : Polymer , Thermoplastic , Fluoropolymer , Polychlorotrifluoroethylene (PCTFE); Molded

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Polychlorotrifluoroethylene; 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-Polychlorotrifluoroethylene-Molded.php

Physical Properties	Metric	English	Comments
Density	1.20 - 2.16 g/cc	0.0434 - 0.0780 lb/in ³	Average value: 2.03 g/cc Grade Count:22
Water Absorption	0.000 %	0.000 %	Average value: 0.000 % Grade Count:4
Water Vapor Transmission	0.00470 - 0.780 g/m ² /day	0.000303 - 0.0502 g/100 in ² /day	Average value: 0.161 g/m ² /day Grade Count:15
	0.00780 - 0.0650 g/m ² /day @Temperature 30.0 - 40.0 °C	0.000502 - 0.00419 g/100 in ² /day @Temperature 86.0 - 104 °F	Average value: 0.0314 g/m ² /day Grade Count:2
Oxygen Transmission	3.00 - 9.77 cc-mm/m ² -24hr-atm	7.62 - 24.8 cc-mil/100 in ² -24hr-atm	Average value: 4.69 cc-mm/m ² -24hr-atm Grade Count:4
	27.6 - 27.6 cc-mm/m ² -24hr-atm @Temperature 40.0 - 40.0 °C	70.1 - 70.1 cc-mil/100 in ² -24hr-atm @Temperature 104 - 104 °F	Average value: 27.6 cc-mm/m ² -24hr-atm Grade Count:1
Nitrogen Transmission	0.500 cc-mm/m ² -24hr-atm	1.27 cc-mil/100 in ² -24hr-atm	Average value: 0.500 cc-mm/m ² -24hr-atm Grade Count:3
Viscosity	1.00e+11 - 1.00e+11 cP @Temperature 230 - 230 °C	1.00e+11 - 1.00e+11 cP @Temperature 446 - 446 °F	Average value: 1.00e+11 cP Grade Count:3
Thickness	15.2 - 203 microns	0.600 - 8.00 mil	Average value: 57.4 microns Grade Count:12
Linear Mold Shrinkage	0.0150 - 0.0200 cm/cm	0.0150 - 0.0200 in/in	Average value: 0.0175 cm/cm Grade Count:3
Surface Tension	42.0 dynes/cm	42.0 dynes/cm	Average value: 42.0 dynes/cm Grade Count:7

Mechanical Properties	Metric	English	Comments
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Hardness, Shore D Mechanical Properties	72.0 - 90.0 Metric	72.0 - 90.0 English	Average value: 79.6 Grade Count:7 Comments
Tensile Strength, Ultimate	31.0 - 42.1 MPa	4500 - 6100 psi	Average value: 36.9 MPa Grade Count:7
	13.0 - 16.0 MPa @Temperature 120 - 120 °C	1890 - 2320 psi @Temperature 248 - 248 °F	Average value: 14.5 MPa Grade Count:2
Tensile Strength, Yield	3.00 - 6.00 MPa @Temperature 120 - 120 °C	435 - 870 psi @Temperature 248 - 248 °F	Average value: 4.50 MPa Grade Count:2
Film Elongation at Break, MD	70.0 - 250 %	70.0 - 250 %	Average value: 149 % Grade Count:15
Film Elongation at Break, TD	150 - 325 %	150 - 325 %	Average value: 233 % Grade Count:15
Elongation at Break	37.0 - 250 %	37.0 - 250 %	Average value: 151 % Grade Count:7
Modulus of Elasticity	1.00 - 2.06 GPa	145 - 298 ksi	Average value: 1.49 GPa Grade Count:6
Flexural Modulus	1.27 - 1.76 GPa	185 - 256 ksi	Average value: 1.47 GPa Grade Count:5
Compressive Yield Strength	9.00 - 45.0 MPa	1310 - 6530 psi	Average value: 20.2 MPa Grade Count:5
Secant Modulus, MD	0.448 - 1.65 GPa	65.0 - 240 ksi	Average value: 1.21 GPa Grade Count:15
Secant Modulus, TD	0.448 - 1.55 GPa	65.0 - 225 ksi	Average value: 1.18 GPa Grade Count:15
Izod Impact, Notched	0.758 - 0.800 J/cm	1.42 - 1.50 ft-lb/in	Average value: 0.786 J/cm Grade Count:3
Izod Impact, Unnotched	1.33 - 1.44 J/cm	2.49 - 2.70 ft-lb/in	Average value: 1.38 J/cm Grade Count:3
Coefficient of Friction	0.260 - 0.600	0.260 - 0.600	Average value: 0.390 Grade Count:4
Coefficient of Friction, Static	0.0800 - 0.800	0.0800 - 0.800	Average value: 0.235 Grade Count:4
Tear Strength Test	275 - 525	275 - 525	Average value: 377 Grade Count:8
Taber Abrasion, mg/1000 Cycles	40.0 - 48.0	40.0 - 48.0	Average value: 42.7 Grade Count:3
Film Tensile Strength at Break, MD	26.2 - 141 MPa	3800 - 20500 psi	Average value: 62.3 MPa Grade Count:15
Film Tensile Strength at Break, TD	17.9 - 62.1 MPa	2600 - 9000 psi	Average value: 39.2 MPa Grade Count:15

Thermal Properties	Metric	English	Comments
CTE, linear	45.0 - 70.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	25.0 - 38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 55.4 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:6

Thermal Properties	Metric	English	Comments
	250 - 250 $\mu\text{m}/\text{m} \cdot ^\circ\text{C}$	139 - 139 $\mu\text{in}/\text{in} \cdot ^\circ\text{F}$	Average value: 250 $\mu\text{m}/\text{m} \cdot ^\circ\text{C}$ Grade Count:2
	@Temperature 70.0 - 150 $^\circ\text{C}$	@Temperature 158 - 302 $^\circ\text{F}$	
Thermal Conductivity	0.135 - 0.220 W/m-K	0.937 - 1.53 BTU-in/hr-ft ² - $^\circ\text{F}$	Average value: 0.195 W/m-K Grade Count:12
Melting Point	210 - 212 $^\circ\text{C}$	410 - 414 $^\circ\text{F}$	Average value: 211 $^\circ\text{C}$ Grade Count:14
Maximum Service Temperature, Air	120 - 200 $^\circ\text{C}$	248 - 392 $^\circ\text{F}$	Average value: 153 $^\circ\text{C}$ Grade Count:7
Flammability, UL94	V-0	V-0	Grade Count:3
Oxygen Index	95.0 - 100 %	95.0 - 100 %	Average value: 98.6 % Grade Count:11

Optical Properties	Metric	English	Comments
Haze	1.00 - 3.00 %	1.00 - 3.00 %	Average value: 1.23 % Grade Count:15

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+16 - 1.20e+18 ohm-cm	1.00e+16 - 1.20e+18 ohm-cm	Average value: 4.86e+17 ohm-cm Grade Count:5
Dielectric Constant	2.30 - 3.00	2.30 - 3.00	Average value: 2.51 Grade Count:5
Dielectric Strength	15.0 - 200 kV/mm	381 - 5080 kV/in	Average value: 57.8 kV/mm Grade Count:6
Dissipation Factor	0.0100 - 0.0270	0.0100 - 0.0270	Average value: 0.0175 Grade Count:3

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