

Overview of materials for PCTG Copolyester

Category : Polymer , Thermoplastic , Polyester, TP , Polycyclohexylenedimethylene Terephthalate (PCT) , Glycol-Modified PCT (PCTG) Copolyester

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "PCTG Copolyester". 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-PCTG-Copolyester.php

Physical Properties	Metric	English	Comments
Density	1.19 - 1.23 g/cc	0.0430 - 0.0444 lb/in ³	Average value: 1.21 g/cc Grade Count:19
	1.08 - 1.08 g/cc @Temperature 285 - 285 °C	0.0390 - 0.0390 lb/in ³ @Temperature 545 - 545 °F	Average value: 1.08 g/cc Grade Count:2
Water Absorption	0.150 %	0.150 %	Average value: 0.150 % Grade Count:4
Linear Mold Shrinkage	0.00200 - 0.00600 cm/cm	0.00200 - 0.00600 in/in	Average value: 0.00359 cm/cm Grade Count:17

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	103 - 107	103 - 107	Average value: 105 Grade Count:12
Tensile Strength, Ultimate	39.2 - 53.0 MPa	5690 - 7690 psi	Average value: 47.9 MPa Grade Count:13
Tensile Strength, Yield	42.0 - 50.0 MPa	6090 - 7250 psi	Average value: 46.6 MPa Grade Count:18
Elongation at Break	50.0 - 340 %	50.0 - 340 %	Average value: 211 % Grade Count:18
Elongation at Yield	4.00 - 5.00 %	4.00 - 5.00 %	Average value: 4.51 % Grade Count:17
Modulus of Elasticity	1.30 - 2.13 GPa	189 - 309 ksi	Average value: 1.77 GPa Grade Count:11
Flexural Yield Strength	49.0 - 69.0 MPa	7110 - 10000 psi	Average value: 65.8 MPa Grade Count:13
Flexural Modulus	1.67 - 2.00 GPa	242 - 290 ksi	Average value: 1.87 GPa Grade Count:13
Izod Impact, Notched	0.490 - 100 J/cm	0.919 - 187 ft-lb/in	Average value: 1.50 J/cm Grade Count:13
	0.400 - 0.750 J/cm	0.749 - 1.41 ft-lb/in	Average value: 0.493 J/cm Grade

Mechanical Properties	Metric @Temperature -40.0 - - 40.0 °C	English @Temperature -40.0 - - 40.0 °F	Count:12 Comments
Izod Impact, Unnotched	NB	NB	Grade Count:12
	NB - NB @Temperature -40.0 - - 40.0 °C	NB - NB @Temperature -40.0 - - 40.0 °F	Grade Count:12
Izod Impact, Notched (ISO)	7.80 - 29.6 kJ/m ²	3.71 - 14.1 ft-lb/in ²	Average value: 17.1 kJ/m ² Grade Count:7
	4.80 - 6.30 kJ/m ² @Temperature -40.0 - - 40.0 °C	2.28 - 3.00 ft-lb/in ² @Temperature -40.0 - - 40.0 °F	Average value: 5.44 kJ/m ² Grade Count:7
Charpy Impact Unnotched	NB	NB	Grade Count:6
	NB - NB @Temperature -30.0 - - 30.0 °C	NB - NB @Temperature -22.0 - - 22.0 °F	Grade Count:6
Charpy Impact, Notched	0.830 - 6.10 J/cm ²	3.95 - 29.0 ft-lb/in ²	Average value: 2.34 J/cm ² Grade Count:6
	0.480 - 0.640 J/cm ² @Temperature -30.0 - - 30.0 °C	2.28 - 3.05 ft-lb/in ² @Temperature -22.0 - - 22.0 °F	Average value: 0.575 J/cm ² Grade Count:6
Puncture Energy	40.0 - 71.0 J	29.5 - 52.4 ft-lb	Average value: 49.1 J Grade Count:12
	38.0 - 55.0 J @Temperature -40.0 - - 40.0 °C	28.0 - 40.6 ft-lb @Temperature -40.0 - - 40.0 °F	Average value: 47.7 J Grade Count:12

Thermal Properties	Metric	English	Comments
CTE, linear	75.0 - 97.0 µm/m-°C	41.7 - 53.9 µin/in-°F	Average value: 85.0 µm/m-°C Grade Count:7
CTE, linear, Transverse to Flow	60.0 - 78.0 µm/m-°C	33.3 - 43.3 µin/in-°F	Average value: 69.2 µm/m-°C Grade Count:6
Specific Heat Capacity	1.34 J/g-°C	0.320 BTU/lb-°F	Average value: 1.34 J/g-°C Grade Count:3
	1.09 - 2.16 J/g-°C @Temperature 10.0 - 290 °C	0.261 - 0.516 BTU/lb-°F @Temperature 50.0 - 554 °F	Average value: 1.58 J/g-°C Grade Count:2
Thermal Conductivity	0.190 - 0.220 W/m-K	1.32 - 1.53 BTU-in/hr- ft ² -°F	Average value: 0.202 W/m-K Grade Count:5
Melting Point	222 - 225 °C	432 - 437 °F	Average value: 224 °C Grade Count:3

Thermal Properties	Metric	English	Comments
Deflection Temperature at 0.46 MPa (66 psi)	70.0 - 89.0 °C	158 - 192 °F	Average value: 74.0 °C Grade Count:18
Deflection Temperature at 1.8 MPa (264 psi)	65.0 - 78.0 °C	149 - 172 °F	Average value: 66.2 °C Grade Count:19
Vicat Softening Point	77.0 - 86.0 °C	171 - 187 °F	Average value: 81.9 °C Grade Count:11
Glass Transition Temp, Tg	82.0 - 87.0 °C	180 - 189 °F	Average value: 84.0 °C Grade Count:8
Flammability, UL94	HB	HB	Grade Count:6

Optical Properties	Metric	English	Comments
Haze	0.300 - 1.00 %	0.300 - 1.00 %	Average value: 0.592 % Grade Count:12
Transmission, Visible	82.0 - 92.0 %	82.0 - 92.0 %	Average value: 90.0 % Grade Count:14

Processing Properties	Metric	English	Comments
Melt Temperature	230 - 295 °C	446 - 563 °F	Average value: 268 °C Grade Count:17
Mold Temperature	15.0 - 38.0 °C	59.0 - 100 °F	Average value: 22.9 °C Grade Count:11
Drying Temperature	70.0 - 71.0 °C	158 - 160 °F	Average value: 70.1 °C Grade Count:11

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