

Overview of materials for Thermoplastic Polyurethane (TPUR), Glass Fiber Reinforced

Category : Polymer , Thermoplastic , Polyurethane, TP , Thermoplastic Polyurethane (TPUR), Glass Fiber Reinforced

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Thermoplastic Polyurethane (TPUR), Glass Fiber Reinforced". 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-Thermoplastic-Polyurethane-TPUR-Glass-Fiber-Reinforced.php

Physical Properties	Metric	English	Comments
Density	1.22 - 1.91 g/cc	0.0441 - 0.0690 lb/in ³	Average value: 1.47 g/cc Grade Count:89
Filler Content	5.00 - 76.0 %	5.00 - 76.0 %	Average value: 32.1 % Grade Count:56
Water Absorption	0.120 - 0.400 %	0.120 - 0.400 %	Average value: 0.296 % Grade Count:18
Additive Loading	20.0 - 40.0 %	20.0 - 40.0 %	Average value: 30.0 % Grade Count:4
Linear Mold Shrinkage	0.000500 - 0.0160 cm/cm	0.000500 - 0.0160 in/in	Average value: 0.00227 cm/cm Grade Count:62
Linear Mold Shrinkage, Transverse	0.000500 - 0.00500 cm/cm	0.000500 - 0.00500 in/in	Average value: 0.00188 cm/cm Grade Count:6

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	119 - 125	119 - 125	Average value: 122 Grade Count:4
Hardness, Shore A	70.0 - 99.0	70.0 - 99.0	Average value: 85.4 Grade Count:11
Hardness, Shore D	50.0 - 75.0	50.0 - 75.0	Average value: 65.4 Grade Count:22
Tensile Strength, Ultimate	14.5 - 1000 MPa	2100 - 145000 psi	Average value: 144 MPa Grade Count:84
	24.0 - 102 MPa	3480 - 14800 psi	Average value: 54.9 MPa Grade Count:3
	@Temperature 0.000 - 60.0 °C	@Temperature 32.0 - 140 °F	
Tensile Strength, Ultimate	24.0 - 102 MPa	3480 - 14800 psi	Average value: 54.9 MPa Grade Count:3
	@Strain 2.00 - 30.0 %	@Strain 2.00 - 30.0 %	
Tensile Strength, Yield	49.0 - 227 MPa	7100 - 32900 psi	Average value: 137 MPa Grade Count:11
Elongation at Break			Average value: 15.4 % Grade Count:82

Mechanical Properties	1.00 - 430 % Metric	1.00 - 430 % English	Comments
Elongation at Yield	1.60 - 190 %	1.60 - 190 %	Average value: 33.5 % Grade Count:7
Modulus of Elasticity	0.345 - 45.0 GPa	50.0 - 6530 ksi	Average value: 9.83 GPa Grade Count:74
Flexural Yield Strength	13.8 - 1150 MPa	2000 - 167000 psi	Average value: 254 MPa Grade Count:71
Flexural Modulus	0.234 - 45.0 GPa	33.9 - 6530 ksi	Average value: 9.38 GPa Grade Count:74
Compressive Yield Strength	8.27 - 440 MPa	1200 - 63800 psi	Average value: 98.9 MPa Grade Count:5
Izod Impact, Notched	0.427 - 5340 J/cm	0.800 - 10000 ft-lb/in	Average value: 4.92 J/cm Grade Count:65
	2.00 - 4.00 J/cm	3.75 - 7.49 ft-lb/in	Average value: 3.00 J/cm Grade Count:1
	@Temperature -40.0 - - 20.0 °C	@Temperature -40.0 - - 4.00 °F	
Izod Impact, Unnotched	2.14 - 5340 J/cm	4.00 - 10000 ft-lb/in	Average value: 12.1 J/cm Grade Count:59
	3.20 - 8.54 J/cm	5.99 - 16.0 ft-lb/in	Average value: 5.00 J/cm Grade Count:4
	@Temperature -40.0 - - 40.0 °C	@Temperature -40.0 - - 40.0 °F	
	3.20 - 8.54 J/cm	5.99 - 16.0 ft-lb/in	Average value: 5.00 J/cm Grade Count:4
	@Thickness 3.20 - 81.3 mm	@Thickness 0.126 - 3.20 in	
Izod Impact, Notched (ISO)	33.5 - 33.5 kJ/m ²	15.9 - 15.9 ft-lb/in ²	Average value: 33.5 kJ/m ² Grade Count:1
	@Temperature -30.0 - - 30.0 °C	@Temperature -22.0 - - 22.0 °F	
Charpy Impact Unnotched	10.0 - 1000 J/cm ²	47.6 - 4760 ft-lb/in ²	Average value: 15.4 J/cm ² Grade Count:12
	6.50 - 16.0 J/cm ²	30.9 - 76.1 ft-lb/in ²	Average value: 9.56 J/cm ² Grade Count:11
	@Temperature -40.0 - - 20.0 °C	@Temperature -40.0 - - 4.00 °F	
Charpy Impact, Notched	3.00 - 7.00 J/cm ²	14.3 - 33.3 ft-lb/in ²	Average value: 4.84 J/cm ² Grade Count:16
	0.600 - 3.00 J/cm ²	2.86 - 14.3 ft-lb/in ²	Average value: 1.30 J/cm ² Grade Count:10
	@Temperature -30.0 - - 30.0 °C	@Temperature -22.0 - - 22.0 °F	
Dart Drop, Total Energy	17.0 - 31.0 J	12.5 - 22.9 ft-lb	Average value: 27.0 J Grade Count:4
	14.0 - 25.0 J	10.3 - 18.4 ft-lb	Average value: 18.3 J Grade Count:4
	@Temperature -29.0 - -	@Temperature -20.2 - -	

Mechanical Properties	29.0 °C Metric	20.2 °F English	Comments
CTE, linear	9.00 - 162 µm/m-°C	5.00 - 90.0 µin/in-°F	Average value: 46.3 µm/m-°C Grade Count:23
Thermal Conductivity	0.231 - 0.403 W/m-K	1.60 - 2.80 BTU-in/hr-ft ² -°F	Average value: 0.323 W/m-K Grade Count:5
Melting Point	190 °C	374 °F	Average value: 190 °C Grade Count:3
Maximum Service Temperature, Air	80.0 - 90.0 °C	176 - 194 °F	Average value: 87.5 °C Grade Count:4
Deflection Temperature at 0.46 MPa (66 psi)	104 - 170 °C	220 - 338 °F	Average value: 133 °C Grade Count:22
Deflection Temperature at 1.8 MPa (264 psi)	54.4 - 185 °C	130 - 365 °F	Average value: 102 °C Grade Count:54
Vicat Softening Point	87.0 - 186 °C	189 - 367 °F	Average value: 151 °C Grade Count:9
Minimum Service Temperature, Air	-30.0 °C	-22.0 °F	Average value: -30.0 °C Grade Count:3
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:38

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+11 - 1.00e+16 ohm-cm	1.00e+11 - 1.00e+16 ohm-cm	Average value: 5.56e+14 ohm-cm Grade Count:18
Dielectric Constant	3.60 - 4.90	3.60 - 4.90	Average value: 4.33 Grade Count:7
Dielectric Strength	14.2 - 19.7 kV/mm	360 - 500 kV/in	Average value: 17.0 kV/mm Grade Count:7
Dissipation Factor	0.00300 - 0.0200	0.00300 - 0.0200	Average value: 0.0136 Grade Count:7

Processing Properties	Metric	English	Comments
Processing Temperature	70.0 - 265 °C	158 - 509 °F	Average value: 198 °C Grade Count:43
Nozzle Temperature	221 - 249 °C	430 - 480 °F	Average value: 238 °C Grade Count:8
Die Temperature	245 - 260 °C	473 - 500 °F	Average value: 253 °C Grade Count:5
Melt Temperature	70.0 - 260 °C	158 - 500 °F	Average value: 229 °C Grade Count:43
Mold Temperature	20.0 - 121 °C	68.0 - 250 °F	Average value: 68.0 °C Grade Count:72
Injection Velocity	50.8 - 76.2 mm/sec	2.00 - 3.00 in/sec	Average value: 63.5 mm/sec Grade Count:5
Drying Temperature	80.0 - 132 °C	176 - 270 °F	Average value: 100 °C Grade Count:42

Moisture Content Processing Properties	0.0100 - 0.0500 % Metric	0.0100 - 0.0500 % English	Average value: 0.0181 % Grade Count:21 Comments
Dew Point	-40.0 - -28.9 °C	-40.0 - -20.0 °F	Average value: -38.6 °C Grade Count:24
Injection Pressure	4.96 - 103 MPa	720 - 15000 psi	Average value: 83.0 MPa Grade Count:51

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