

Overview of materials for High Density Polyethylene (HDPE), Glass fiber Filled

Category : Polymer , Thermoplastic , Polyethylene (PE) , HDPE , High Density Polyethylene (HDPE), Glass fiber Filled

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "High Density Polyethylene (HDPE), Glass fiber Filled". 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-High-Density-Polyethylene-HDPE-Glass-fiber-Filled.php

Physical Properties	Metric	English	Comments
Density	0.940 - 1.53 g/cc	0.0340 - 0.0553 lb/in ³	Average value: 1.16 g/cc Grade Count:60
Filler Content	10.0 - 50.0 %	10.0 - 50.0 %	Average value: 25.7 % Grade Count:14
Water Absorption	0.0100 - 0.300 %	0.0100 - 0.300 %	Average value: 0.0768 % Grade Count:37
Linear Mold Shrinkage	0.00100 - 0.0350 cm/cm	0.00100 - 0.0350 in/in	Average value: 0.00705 cm/cm Grade Count:50
Linear Mold Shrinkage, Transverse	0.00800 - 0.00900 cm/cm	0.00800 - 0.00900 in/in	Average value: 0.00833 cm/cm Grade Count:3
Melt Flow	0.200 - 10.0 g/10 min	0.200 - 10.0 g/10 min	Average value: 3.72 g/10 min Grade Count:14
Ash	10.0 - 40.0 %	10.0 - 40.0 %	Average value: 24.0 % Grade Count:5

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	50.0 - 112	50.0 - 112	Average value: 74.3 Grade Count:36
Tensile Strength, Ultimate	11.0 - 113 MPa	1600 - 16400 psi	Average value: 48.7 MPa Grade Count:32
	9.00 - 161.337 MPa @Temperature -40.0 - 120 °C	1310 - 23400.0 psi @Temperature -40.0 - 248 °F	Average value: 69.4 MPa Grade Count:3
Tensile Strength, Yield	19.0 - 82.7 MPa	2760 - 12000 psi	Average value: 46.0 MPa Grade Count:35
Elongation at Break	1.00 - 290 %	1.00 - 290 %	Average value: 14.6 % Grade Count:51
Elongation at Yield	2.00 - 10.0 %	2.00 - 10.0 %	Average value: 4.23 % Grade Count:7
Modulus of Elasticity	0.700 - 13.6 GPa	102 - 1970 ksi	Average value: 4.94 GPa Grade Count:33

Mechanical Properties	Metric	English	Comments
	7.17055 - 15.2374 GPa @Temperature -40.0 - 93.3 °C	1040.02 - 2210.03 ksi @Temperature -40.0 - 200 °F	Average value: 11.2 GPa Grade Count:2
Flexural Yield Strength	17.2 - 186 MPa	2500 - 27000 psi	Average value: 71.9 MPa Grade Count:52
	61.3633 - 215.116 MPa @Temperature -40.0 - 93.3 °C	8900.02 - 31200.1 psi @Temperature -40.0 - 200 °F	Average value: 138 MPa Grade Count:2
Flexural Modulus	0.965 - 11.7 GPa	140 - 1700 ksi	Average value: 4.13 GPa Grade Count:61
	1.40 - 14.0653 GPa @Temperature -40.0 - 120 °C	203 - 2040.03 ksi @Temperature -40.0 - 248 °F	Average value: 6.70 GPa Grade Count:3
Compressive Yield Strength	9.50 - 55.2 MPa	1380 - 8000 psi	Average value: 26.8 MPa Grade Count:7
Izod Impact, Notched	0.267 - 3.74 J/cm	0.500 - 7.00 ft-lb/in	Average value: 1.14 J/cm Grade Count:57
	2.1356 - 4.59154 J/cm @Temperature -40.0 - 93.3 °C	4.0009 - 8.60184 ft-lb/in @Temperature -40.0 - 200 °F	Average value: 3.36 J/cm Grade Count:2
Izod Impact, Unnotched	1.17 - 13.3 J/cm	2.20 - 25.0 ft-lb/in	Average value: 5.86 J/cm Grade Count:31
Izod Impact, Notched (ISO)	5.00 - 11.0 kJ/m ²	2.38 - 5.23 ft-lb/in ²	Average value: 7.67 kJ/m ² Grade Count:3
Izod Impact, Unnotched (ISO)	25.0 - 35.0 kJ/m ²	11.9 - 16.7 ft-lb/in ²	Average value: 31.7 kJ/m ² Grade Count:3
Charpy Impact Unnotched	1.70 - 2.00 J/cm ²	8.09 - 9.52 ft-lb/in ²	Average value: 1.83 J/cm ² Grade Count:3
Charpy Impact, Notched	2.40 - 10.0 J/cm ²	11.4 - 47.6 ft-lb/in ²	Average value: 4.60 J/cm ² Grade Count:4

Thermal Properties	Metric	English	Comments
CTE, linear	19.8 - 180 µm/m-°C	11.0 - 100 µin/in-°F	Average value: 68.4 µm/m-°C Grade Count:29
Thermal Conductivity	0.288 - 0.400 W/m-K	2.00 - 2.78 BTU-in/hr-ft ² -°F	Average value: 0.336 W/m-K Grade Count:7
Deflection Temperature at 0.46 MPa (66 psi)	72.2 - 143 °C	162 - 290 °F	Average value: 123 °C Grade Count:42
Deflection Temperature at 1.8 MPa (264 psi)	51.7 - 127 °C	125 - 260 °F	Average value: 108 °C Grade Count:48
Vicat Softening Point	80.0 - 92.0 °C	176 - 198 °F	Average value: 86.3 °C Grade Count:4

Thermal Properties	Metric	English	Comments
Flammability, UL 94			Grade Count:35

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1000 - 1.00e+16 ohm-cm	1000 - 1.00e+16 ohm-cm	Average value: 6.64e+15 ohm-cm Grade Count:22
Surface Resistance	1e+05 - 1.00e+13 ohm	1e+05 - 1.00e+13 ohm	Average value: 3.33e+12 ohm Grade Count:3
Dielectric Constant	2.30 - 2.80	2.30 - 2.80	Average value: 2.65 Grade Count:6
Dielectric Strength	11.8 - 45.0 kV/mm	300 - 1140 kV/in	Average value: 19.3 kV/mm Grade Count:15
Dissipation Factor	0.00400 - 0.00800	0.00400 - 0.00800	Average value: 0.00667 Grade Count:6
Arc Resistance	140 - 180 sec	140 - 180 sec	Average value: 147 sec Grade Count:6
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:3

Processing Properties	Metric	English	Comments
Processing Temperature	40.0 - 227 °C	104 - 440 °F	Average value: 183 °C Grade Count:23
Die Temperature	230 - 240 °C	446 - 464 °F	Average value: 235 °C Grade Count:3
Melt Temperature	170 - 249 °C	338 - 480 °F	Average value: 217 °C Grade Count:11
Mold Temperature	21.1 - 180 °C	70.0 - 356 °F	Average value: 49.2 °C Grade Count:29
Drying Temperature	70.0 - 100 °C	158 - 212 °F	Average value: 83.4 °C Grade Count:10
Moisture Content	0.200 %	0.200 %	Average value: 0.200 % Grade Count:3
Injection Pressure	4.96 - 124 MPa	720 - 18000 psi	Average value: 80.4 MPa Grade Count:22

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