

Overview of materials for High Density Polyethylene (HDPE), Crosslinkable

Category : Polymer , Thermoplastic , Polyethylene (PE) , HDPE , High Density Polyethylene (HDPE), Crosslinkable

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.872 - 1.47 g/cc	0.0315 - 0.0531 lb/in ³	Average value: 0.959 g/cc Grade Count:27
Environmental Stress Crack Resistance	>= 1000 hour @Temperature 50.0 - 50.0 °C	>= 1000 hour @Temperature 122 - 122 °F	Average value: 1000 hour Grade Count:3
Melt Flow	0.350 - 6.10 g/10 min	0.350 - 6.10 g/10 min	Average value: 1.50 g/10 min Grade Count:23

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	17.0 - 26.5 MPa	2470 - 3840 psi	Average value: 20.9 MPa Grade Count:19
Tensile Strength, Yield	18.0 - 26.0 MPa	2610 - 3770 psi	Average value: 20.1 MPa Grade Count:5
	6.00 - 47.0 MPa @Temperature -40.0 - 100 °C	870 - 6820 psi @Temperature -40.0 - 212 °F	Average value: 26.5 MPa Grade Count:1
Elongation at Break	110 - 540 %	110 - 540 %	Average value: 356 % Grade Count:24
	170 - 390 % @Temperature 100 - 150 °C	170 - 390 % @Temperature 212 - 302 °F	Average value: 280 % Grade Count:1
Elongation at Yield	7.00 - 16.0 % @Temperature -40.0 - 100 °C	7.00 - 16.0 % @Temperature -40.0 - 212 °F	Average value: 11.5 % Grade Count:1
Modulus of Elasticity	0.00600 - 1.30 GPa	0.870 - 189 ksi	Average value: 0.635 GPa Grade Count:11
	0.130 - 3.30 GPa @Temperature -40.0 - 100 °C	18.9 - 479 ksi @Temperature -40.0 - 212 °F	Average value: 1.72 GPa Grade Count:1

Mechanical Properties	Metric	English	Comments
Flexural Modulus	0.690 - 0.690 GPa	100 - 100 ksi	Average value: 0.690 GPa Grade Count:4
	0.167 - 2.60 GPa	24.2 - 377 ksi	Average value: 1.38 GPa Grade Count:1
	@Temperature -40.0 - 100 °C	@Temperature -40.0 - 212 °F	
Charpy Impact, Notched	1.50 - 999.9 J/cm ²	7.14 - 4759 ft-lb/in ²	Average value: 1.50 J/cm ² Grade Count:1
	@Temperature -40.0 - 100 °C	@Temperature -40.0 - 212 °F	

Thermal Properties	Metric	English	Comments
CTE, linear	140 - 190 µm/m-°C	77.8 - 106 µin/in-°F	Average value: 163 µm/m-°C Grade Count:8
	100 - 100 µm/m-°C	55.6 - 55.6 µin/in-°F	Average value: 100 µm/m-°C Grade Count:1
	@Temperature -90.0 - -30.0 °C	@Temperature -130 - -22.0 °F	
Specific Heat Capacity	1.80 - 2.03 J/g-°C	0.430 - 0.485 BTU/lb-°F	Average value: 1.91 J/g-°C Grade Count:9
Thermal Conductivity	0.450 - 0.490 W/m-K	3.12 - 3.40 BTU-in/hr-ft ² -°F	Average value: 0.468 W/m-K Grade Count:10
Vicat Softening Point	50.0 - 129 °C	122 - 264 °F	Average value: 115 °C Grade Count:14
Brittleness Temperature	-90.0 °C	-130 °F	Average value: -90.0 °C Grade Count:3

Electrical Properties	Metric	English	Comments
Electrical Resistivity	4.10e+15 ohm-cm	4.10e+15 ohm-cm	Average value: 4.10e+15 ohm-cm Grade Count:3
	1.40e+15 - 2.70e+15 ohm-cm	1.40e+15 - 2.70e+15 ohm-cm	Average value: 2.27e+15 ohm-cm Grade Count:3
	@Temperature 90.0 - 90.0 °C	@Temperature 194 - 194 °F	
Dielectric Constant	2.30 - 2.40	2.30 - 2.40	Average value: 2.33 Grade Count:3
Dielectric Strength	32.0 - 35.0 kV/mm	813 - 889 kV/in	Average value: 33.7 kV/mm Grade Count:3
Dissipation Factor	0.000500 - 0.000600	0.000500 - 0.000600	Average value: 0.000567 Grade Count:3

Processing Properties	Metric	English	Comments
Processing Temperature	246 - 326 °C	475 - 619 °F	Average value: 286 °C Grade Count:3
Die Temperature	182 - 220 °C	360 - 428 °F	Average value: 204 °C Grade Count:10

Processing Properties	Metric 200 °C	English 392 °F	Comments
Head Temperature	200 - 210 °C	392 - 410 °F	Average value: 204 °C Grade Count:9
Screw Cooling Temperature	70.0 - 90.0 °C	158 - 194 °F	Average value: 80.0 °C Grade Count:7
Die Cooling Temperature	180 - 230 °C	356 - 446 °F	Average value: 209 °C Grade Count:12

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