

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

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

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.933 - 1.27 g/cc	0.0337 - 0.0459 lb/in ³	Average value: 0.958 g/cc Grade Count:129
Apparent Bulk Density	0.580 - 0.610 g/cc	0.0210 - 0.0220 lb/in ³	Average value: 0.592 g/cc Grade Count:4
Water Absorption	0.0100 - 0.300 %	0.0100 - 0.300 %	Average value: 0.111 % Grade Count:8
Environmental Stress Crack Resistance	10.0 - 10000 hour	10.0 - 10000 hour	Average value: 1080 hour Grade Count:49
	200 - 200 hour	200 - 200 hour	Average value: 953 hour Grade Count:4
	@Temperature 50.0 - 50.0 °C	@Temperature 122 - 122 °F	
	139 - 139 hour	139 - 139 hour	Average value: 953 hour Grade Count:3
	@Temperature 50.0 - 50.0 °C	@Temperature 122 - 122 °F	
	139 - 139 hour	139 - 139 hour	Average value: 953 hour Grade Count:3
	@Thickness 2.00 - 2.00 mm	@Thickness 0.0787 - 0.0787 in	
Oxidative Induction Time (OIT)	10.0 - 200 min	10.0 - 200 min	Average value: 62.5 min Grade Count:4
Linear Mold Shrinkage	0.00500 - 0.00800 cm/cm	0.00500 - 0.00800 in/in	Average value: 0.00675 cm/cm Grade Count:4
Melt Flow	0.0400 - 63.0 g/10 min	0.0400 - 63.0 g/10 min	Average value: 4.00 g/10 min Grade Count:124
Ash	0.0400 - 0.0600 %	0.0400 - 0.0600 %	Average value: 0.0553 % Grade Count:14

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	80.0 - 112	80.0 - 112	Average value: 90.7 Grade Count:3

Hardness, Shore D Mechanical Properties	55.0 - 70.0 Metric	55.0 - 70.0 English	Average value: 63.0 Grade Count:53 Comments
Tensile Strength, Ultimate	15.2 - 45.0 MPa	2200 - 6530 psi	Average value: 26.6 MPa Grade Count:55
	11.0 - 25.0 MPa @Temperature -30.0 - 70.0 °C	1600 - 3630 psi @Temperature -22.0 - 158 °F	Average value: 20.3 MPa Grade Count:1
Tensile Strength, Yield	13.0 - 200 MPa	1890 - 29000 psi	Average value: 26.3 MPa Grade Count:86
	6.89476 - 30.0 MPa @Temperature -30.0 - 70.0 °C	1000.00 - 4350 psi @Temperature -22.0 - 158 °F	Average value: 20.6 MPa Grade Count:1
Film Elongation at Break, MD	400 - 600 %	400 - 600 %	Average value: 500 % Grade Count:4
Film Elongation at Break, TD	450 - 650 %	450 - 650 %	Average value: 550 % Grade Count:4
Elongation at Break	3.00 - 1900 %	3.00 - 1900 %	Average value: 636 % Grade Count:98
	200 - 500 % @Temperature -30.0 - 70.0 °C	200 - 500 % @Temperature -22.0 - 158 °F	Average value: 367 % Grade Count:1
Elongation at Yield	8.00 - 14.0 %	8.00 - 14.0 %	Average value: 10.4 % Grade Count:9
	4.00 - 9.00 % @Temperature -30.0 - 70.0 °C	4.00 - 9.00 % @Temperature -22.0 - 158 °F	Average value: 5.67 % Grade Count:1
Modulus of Elasticity	0.620 - 1.30 GPa	89.9 - 189 ksi	Average value: 0.883 GPa Grade Count:9
Flexural Yield Strength	28.3 - 91.0 MPa	4100 - 13200 psi	Average value: 62.5 MPa Grade Count:5
Flexural Modulus	0.500 - 4.83 GPa	72.5 - 700 ksi	Average value: 1.19 GPa Grade Count:63
Secant Modulus	0.531 - 1.24 GPa	77.0 - 180 ksi	Average value: 0.869 GPa Grade Count:6
Izod Impact, Notched	0.200 - 7.50 J/cm	0.375 - 14.1 ft-lb/in	Average value: 2.22 J/cm Grade Count:27
	0.700 - 1.10 J/cm @Temperature -40.0 - - 40.0 °C	1.31 - 2.06 ft-lb/in @Temperature -40.0 - - 40.0 °F	Average value: 0.900 J/cm Grade Count:2
Tensile Impact Strength	80.0 - 480 kJ/m ²	38.1 - 228 ft-lb/in ²	Average value: 243 kJ/m ² Grade Count:7
Tensile Impact	68.3 - 152 J/cm	128 - 285 ft-lb/in	Average value: 88.4 J/cm Grade Count:6

Coefficient of Friction Mechanical Properties	0.200 - 0.280 Metric	0.200 - 0.280 English	Average value: 0.240 Grade Count:4 Comments
Tear Strength Test	17.0 - 29.4	17.0 - 29.4	Average value: 21.6 Grade Count:11
Elmendorf Tear Strength MD	20.4 - 33.6 g	20.4 - 33.6 g	Average value: 23.9 g Grade Count:4
Elmendorf Tear Strength TD	40.8 - 204 g	40.8 - 204 g	Average value: 99.4 g Grade Count:4
Film Tensile Strength at Break, MD	45.0 - 55.0 MPa	6530 - 7980 psi	Average value: 47.8 MPa Grade Count:4
Film Tensile Strength at Break, TD	40.0 - 46.0 MPa	5800 - 6670 psi	Average value: 42.3 MPa Grade Count:4
Hydrostatic Design Basis	5.50 - 11.0 MPa	798 - 1600 psi	Average value: 8.81 MPa Grade Count:3

Thermal Properties	Metric	English	Comments
CTE, linear	34.2 - 200 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	19.0 - 111 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 123 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:11
Melting Point	124 - 135 $^\circ\text{C}$	255 - 275 $^\circ\text{F}$	Average value: 129 $^\circ\text{C}$ Grade Count:19
Deflection Temperature at 0.46 MPa (66 psi)	62.0 - 143 $^\circ\text{C}$	144 - 290 $^\circ\text{F}$	Average value: 85.9 $^\circ\text{C}$ Grade Count:19
Deflection Temperature at 1.8 MPa (264 psi)	44.0 - 127 $^\circ\text{C}$	111 - 260 $^\circ\text{F}$	Average value: 82.7 $^\circ\text{C}$ Grade Count:8
Vicat Softening Point	80.0 - 131 $^\circ\text{C}$	176 - 268 $^\circ\text{F}$	Average value: 122 $^\circ\text{C}$ Grade Count:47
Brittleness Temperature	-118 - 76.0 $^\circ\text{C}$	-180 - 169 $^\circ\text{F}$	Average value: -79.3 $^\circ\text{C}$ Grade Count:48
Flammability, UL94	HB - V-0	HB - V-0	Grade Count:4

Electrical Properties	Metric	English	Comments
Electrical Resistivity	10000 - 1.00e+20 ohm-cm	10000 - 1.00e+20 ohm-cm	Average value: 5.21e+18 ohm-cm Grade Count:20
Surface Resistance	10000 - 1.00e+17 ohm	10000 - 1.00e+17 ohm	Average value: 2.50e+16 ohm Grade Count:4
Dielectric Constant	2.05 - 2.50	2.05 - 2.50	Average value: 2.33 Grade Count:15
Dielectric Strength	11.8 - 45.0 kV/mm	300 - 1140 kV/in	Average value: 25.8 kV/mm Grade Count:12
Dissipation Factor	0.0000200 - 0.000600	0.0000200 - 0.000600	Average value: 0.000180 Grade Count:13

Processing Properties	Metric	English	Comments
Processing Temperature	180 - 240 $^\circ\text{C}$	356 - 464 $^\circ\text{F}$	Average value: 211 $^\circ\text{C}$ Grade Count:5
Adapter Temperature	210 - 260 $^\circ\text{C}$	410 - 500 $^\circ\text{F}$	Average value: 247 $^\circ\text{C}$ Grade Count:7

Processing Properties	Metric 250 °C	English 500 °F	Comments
Melt Temperature	124 - 321 °C	255 - 610 °F	Average value: 247 °C Grade Count:7
			Average value: 216 °C Grade Count:35

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China