

Overview of materials for High Density Polyethylene (HDPE), Film Grade

Categories: [Polymer](#); [Film](#); [Thermoplastic](#); [Polyethylene \(PE\)](#); [High Density \(HDPE\)](#); [High Density Polyethylene \(HDPE\), Film Grade](#)

Material Notes: This property data is a summary of similar materials in the MatWeb database for the category "High Density Polyethylene (HDPE), Film Grade". 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.

Vendors: No vendors are listed for this material. Please [click here](#) if you are a supplier and would like information on how to add your listing to this material.

Physical Properties	Metric	English	Comments
Density	0.917 - 0.968 g/cc	0.0331 - 0.0350 lb/in ³	Average value: 0.951 g/cc Grade Count:203
Moisture Vapor Transmission	0.100 - 0.260 cc-mm/m ² -24hr-atm	0.254 - 0.660 cc-mil/100 in ² -24hr-atm	Average value: 0.172 cc-mm/m ² -24hr-atm Grade Count:14
 0.00418 - 2.64 cc-mm/m ² -24hr-atm @Temperature 38.0 - 38.0 °C	0.0106 - 6.71 cc-mil/100 in ² -24hr-atm @Temperature 100 - 100 °F	Average value: 1.32 cc-mm/m ² -24hr-atm Grade Count:2	
Water Vapor Transmission	0.260 - 62.1 g/m ² /day	0.0167 - 4.00 g/100 in ² /day	Average value: 8.93 g/m ² /day Grade Count:13
 0.500 - 15.5 g/m ² /day @Temperature 37.8 - 38.0 °C	0.0322 - 0.998 g/100 in ² /day @Temperature 100 - 100 °F	Average value: 5.86 g/m ² /day Grade Count:17	
Oxygen Transmission	1.77 - 138 cc-mm/m ² -24hr-atm	4.49 - 351 cc-mil/100 in ² -24hr-atm	Average value: 64.4 cc-mm/m ² -24hr-atm Grade Count:4
Oxygen Transmission Rate	465 - 5580 cc/m ² /day	29.9 - 359 cc/100 in ² /day	Average value: 2030 cc/m ² /day Grade Count:13
Environmental Stress Crack Resistance	2.00 - 1500 hour	2.00 - 1500 hour	Average value: 768 hour Grade Count:11
 24.0 - 24.0 hour @Temperature 50.0 - 50.0 °C	24.0 - 24.0 hour @Temperature 122 - 122 °F	Average value: 1000 hour Grade Count:6	
Oxidative Induction Time (OIT)	40.0 - 55.0 min @Temperature 200 - 200 °C	40.0 - 55.0 min @Temperature 392 - 392 °F	Average value: 48.8 min Grade Count:4
Thickness	10.0 - 75.0 microns	0.394 - 2.95 mil	Average value: 27.1 microns Grade Count:94
Melt Flow	0.0270 - 55.0 g/10 min	0.0270 - 55.0 g/10 min	Average value: 5.08 g/10 min Grade Count:204
Base Resin Melt Index	0.0500 - 18.0 g/10 min	0.0500 - 18.0 g/10 min	Average value: 4.90 g/10 min Grade Count:4
Ash	0.0300 - 0.0600 %	0.0300 - 0.0600 %	Average value: 0.0544 % Grade Count:8

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	28.0 - 69.0	28.0 - 69.0	Average value: 61.7 Grade Count:27
Tensile Strength, Ultimate	23.0 - 89.2 MPa	3340 - 12900 psi	Average value: 36.4 MPa Grade Count:21
Film Tensile Strength at Yield, MD	11.6 - 51.7 MPa	1680 - 7500 psi	Average value: 29.2 MPa Grade Count:89

Film Tensile Strength at Yield, TD	12.1 - 228 MPa	1750 - 33000 psi	Average value: 30.2 MPa Grade Count:90
Tensile Strength, Yield	8.80 - 35.0 MPa	1280 - 5080 psi	Average value: 20.9 MPa Grade Count:48
Film Elongation at Break, MD	160 - 1350 %	160 - 1350 %	Average value: 537 % Grade Count:146
Film Elongation at Break, TD	3.00 - 1100 %	3.00 - 1100 %	Average value: 577 % Grade Count:140
Elongation at Break	350 - 1700 %	350 - 1700 %	Average value: 699 % Grade Count:40
Elongation at Yield	8.00 - 11.0 %	8.00 - 11.0 %	Average value: 9.76 % Grade Count:8
Modulus of Elasticity	0.0200 - 1.35 GPa	2.90 - 196 ksi	Average value: 0.836 GPa Grade Count:20
Flexural Modulus	0.660 - 1.50 GPa	95.7 - 218 ksi	Average value: 1.07 GPa Grade Count:19
Secant Modulus	0.655 - 1.10 GPa	95.0 - 160 ksi	Average value: 0.848 GPa Grade Count:8
Secant Modulus, MD	0.0300 - 1.28 GPa	4.35 - 186 ksi	Average value: 0.832 GPa Grade Count:101
Secant Modulus, TD	0.0500 - 1.70 GPa	7.25 - 247 ksi	Average value: 0.998 GPa Grade Count:100
Izod Impact, Notched	1.47 - 2.94 J/cm	2.76 - 5.51 ft-lb/in	Average value: 2.45 J/cm Grade Count:3
Izod Impact, Notched (ISO)	15.0 - 24.0 kJ/m ²	7.14 - 11.4 ft-lb/in ²	Average value: 17.8 kJ/m ² Grade Count:4
Dart Drop, Total Energy	2.44 - 2.71 J	1.80 - 2.00 ft-lb	Average value: 2.53 J Grade Count:3
Puncture Energy	0.722 - 2.14 J	0.533 - 1.58 ft-lb	Average value: 1.29 J Grade Count:9
Coefficient of Friction	0.240 - 0.400	0.240 - 0.400	Average value: 0.284 Grade Count:8
Coefficient of Friction, Static	0.100 - 0.250	0.100 - 0.250	Average value: 0.175 Grade Count:6
Tear Strength Test	9.80 - 27.4	9.80 - 27.4	Average value: 15.2 Grade Count:15
Elmendorf Tear Strength MD	0.200 - 70.0 g	0.200 - 70.0 g	Average value: 23.8 g Grade Count:86
Elmendorf Tear Strength TD	0.800 - 1800 g	0.800 - 1800 g	Average value: 315 g Grade Count:84
Elmendorf Tear Strength, MD	0.250 - 70.0 g/micron	6.35 - 1780 g/mil	Average value: 1.92 g/micron Grade Count:61
Elmendorf Tear Strength, TD	0.800 - 150 g/micron	20.3 - 3810 g/mil	Average value: 12.6 g/micron Grade Count:62
Dart Drop	1.16 - 30.0 g/micron	29.5 - 762 g/mil	Average value: 7.65 g/micron Grade Count:50
Dart Drop Test	29.0 - 1000 g	0.0639 - 2.20 lb	Average value: 210 g Grade Count:84
Film Tensile Strength at	24.1 - 141 MPa	3500 - 20500 psi	Average value: 55.9 MPa Grade Count:141

Break, MD			
Film Tensile Strength at Break, TD	14.8 - 251 MPa	2150 - 36400 psi	Average value: 48.3 MPa Grade Count:140
Heat Seal Strength Initiation Temperature	125 °C	257 °F	Average value: 125 °C Grade Count:6

Electrical Properties	Metric	English	Comments
Dielectric Constant	2.33	2.33	Average value: 2.33 Grade Count:3
Dielectric Strength	20.0 kV/mm	508 kV/in	Average value: 20.0 kV/mm Grade Count:3
Dissipation Factor	0.000100	0.000100	Average value: 0.000100 Grade Count:3

Thermal Properties	Metric	English	Comments
Melting Point	72.0 - 216 °C	162 - 421 °F	Average value: 131 °C Grade Count:75
Deflection Temperature at 0.46 MPa (66 psi)	59.0 - 64.0 °C	138 - 147 °F	Average value: 62.3 °C Grade Count:3
Vicat Softening Point	41.0 - 133 °C	106 - 271 °F	Average value: 114 °C Grade Count:69
Softening Point	73.0 - 75.0 °C	163 - 167 °F	Average value: 74.2 °C Grade Count:5
Brittleness Temperature	-80.0 - -59.0 °C	-112 - -74.2 °F	Average value: -69.6 °C Grade Count:21

Optical Properties	Metric	English	Comments
Haze	4.00 - 81.0 %	4.00 - 81.0 %	Average value: 29.8 % Grade Count:31
Gloss	5.00 - 127 %	5.00 - 127 %	Average value: 58.0 % Grade Count:29

Processing Properties	Metric	English	Comments
Processing Temperature	20.0 - 260 °C	68.0 - 500 °F	Average value: 196 °C Grade Count:23
Melt Temperature	124 - 280 °C	255 - 536 °F	Average value: 207 °C Grade Count:66
Die Opening	0.0760 - 0.280 cm	0.0299 - 0.110 in	Average value: 0.162 cm Grade Count:10

Some of the values displayed above may have been converted from their original units and/or rounded in order to display the information in a consistent format. Users requiring more precise data for scientific or engineering calculations can click on the property value to see the original value as well as raw conversions to equivalent units. We advise that you only use the original value or one of its raw conversions in your calculations to minimize rounding error. We also ask that you refer to MatWeb's [terms of use](#) regarding this information. [Click here](#) to view all the property values for this datasheet as they were originally entered into MatWeb.