

Overview of materials for Low Density Polyethylene (LDPE), Film Grade

Category : Polymer , Film , Thermoplastic , Polyethylene (PE) , LDPE , Low Density Polyethylene (LDPE), Film Grade

Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Low Density Polyethylene (LDPE), 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.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Overview-of-materials-for-Low-Density-Polyethylene-LDPE-Film-Grade.php

Physical Properties	Metric	English	Comments
Density	0.917 - 1.00 g/cc	0.0331 - 0.0361 lb/in ³	Average value: 0.923 g/cc Grade Count:324
Water Absorption	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:17
Moisture Absorption at Equilibrium	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:17
Water Vapor Transmission	1.03 - 14.0 g/m ² /day	0.0663 - 0.902 g/100 in ² /day	Average value: 10.9 g/m ² /day Grade Count:8
Oxygen Transmission Rate	2000 - 6300 cc/m ² /day	129 - 406 cc/100 in ² /day	Average value: 3980 cc/m ² /day Grade Count:8
Nitrogen Transmission	3500 - 7500 cc-mm/m ² -24hr-atm	8890 - 19100 cc-mil/100 in ² -24hr-atm	Average value: 4500 cc-mm/m ² -24hr-atm Grade Count:4
Environmental Stress Crack Resistance	168 - 500 hour	168 - 500 hour	Average value: 263 hour Grade Count:7
Vinyl Acetate Content	2.50 - 6.60 %	2.50 - 6.60 %	Average value: 4.60 % Grade Count:13
Thickness	12.7 - 300 microns	0.500 - 11.8 mil	Average value: 49.9 microns Grade Count:219
Melt Flow	0.120 - 60.0 g/10 min	0.120 - 60.0 g/10 min	Average value: 2.02 g/10 min Grade Count:309

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	42.0 - 60.0	42.0 - 60.0	Average value: 51.1 Grade Count:30
Tensile Strength, Ultimate	7.85 - 34.5 MPa	1140 - 5000 psi	Average value: 13.2 MPa Grade Count:75
Film Tensile Strength at Yield, MD	6.89 - 28.0 MPa	1000 - 4060 psi	Average value: 11.1 MPa Grade Count:131
Film Tensile Strength at Yield, TD	6.21 - 15.9 MPa	900 - 2300 psi	Average value: 10.9 MPa Grade Count:140

Tensile Strength, Yield Mechanical Properties	8.30 - 21.0 MPa Metric	1200 - 3050 psi English	Average value: 11.5 MPa Grade Count:31
Film Elongation at Break, MD	100 - 640 %	100 - 640 %	Average value: 323 % Grade Count:269
Film Elongation at Break, TD	249 - 1330 %	249 - 1330 %	Average value: 602 % Grade Count:268
Film Elongation at Yield, MD	5.60 - 330 %	5.60 - 330 %	Average value: 29.8 % Grade Count:14
Film Elongation at Yield, TD	5.00 - 520 %	5.00 - 520 %	Average value: 42.2 % Grade Count:14
Elongation at Break	50.0 - 1000 %	50.0 - 1000 %	Average value: 444 % Grade Count:89
Elongation at Yield	13.0 - 100 %	13.0 - 100 %	Average value: 27.9 % Grade Count:21
Modulus of Elasticity	0.160 - 0.442 GPa	23.2 - 64.1 ksi	Average value: 0.240 GPa Grade Count:71
Flexural Modulus	0.214 - 0.262 GPa	31.0 - 38.0 ksi	Average value: 0.236 GPa Grade Count:5
Secant Modulus	0.130 - 1.35 GPa	18.9 - 196 ksi	Average value: 0.737 GPa Grade Count:7
Secant Modulus, MD	0.0600 - 0.366 GPa	8.70 - 53.1 ksi	Average value: 0.191 GPa Grade Count:198
Secant Modulus, TD	0.0900 - 0.414 GPa	13.1 - 60.0 ksi	Average value: 0.219 GPa Grade Count:195
Tensile Impact	130 - 350 J/cm	244 - 656 ft-lb/in	Average value: 225 J/cm Grade Count:13
Puncture Energy	0.203 - 7.00 J	0.150 - 5.16 ft-lb	Average value: 1.70 J Grade Count:29
Coefficient of Friction	0.0900 - 1.00	0.0900 - 1.00	Average value: 0.429 Grade Count:140
Tear Strength, Total	2.00 - 4.00 N	0.450 - 0.899 lb (f)	Average value: 3.00 N Grade Count:7
Tear Strength	20.0 - 373 kN/m	114 - 2130 pli	Average value: 79.8 kN/m Grade Count:15
Elmendorf Tear Strength MD	8.83 - 1070 g	8.83 - 1070 g	Average value: 316 g Grade Count:122
Elmendorf Tear Strength TD	8.34 - 1370 g	8.34 - 1370 g	Average value: 239 g Grade Count:137
Elmendorf Tear Strength, MD	1.20 - 15.7 g/micron	30.5 - 400 g/mil	Average value: 7.69 g/micron Grade Count:136
Elmendorf Tear Strength, TD	2.10 - 100 g/micron	53.3 - 2540 g/mil	Average value: 7.49 g/micron Grade Count:149
Dart Drop	1.30 - 100 g/micron	33.0 - 2540 g/mil	Average value: 4.92 g/micron Grade Count:158
Dart Drop Test	40.0 - 1500 g	0.0882 - 3.31 lb	Average value: 178 g Grade Count:217

Mechanical Properties	Metric	English	Comments
Mechanical Strength at Break, MD	72.0 MPa	10400 psi	Average value: 26.4 MPa Grade Count:257
Film Tensile Strength at Break, TD	11.0 - 57.0 MPa	1600 - 8270 psi	Average value: 21.4 MPa Grade Count:255
Heat Seal Strength	3.00 - 10.8 g/25 mm	0.00661 - 0.0238 lb/in	Average value: 6.64 g/25 mm Grade Count:13
Heat Seal Strength Initiation Temperature	100 - 105 °C	212 - 221 °F	Average value: 104 °C Grade Count:8

Thermal Properties	Metric	English	Comments
CTE, linear	180 - 230 µm/m-°C	100 - 128 µin/in-°F	Average value: 206 µm/m-°C Grade Count:17
Melting Point	105 - 121 °C	221 - 250 °F	Average value: 112 °C Grade Count:135
Crystallization Temperature	95.0 - 104 °C	203 - 219 °F	Average value: 98.4 °C Grade Count:10
Deflection Temperature at 0.46 MPa (66 psi)	41.0 - 45.0 °C	106 - 113 °F	Average value: 42.9 °C Grade Count:17
Vicat Softening Point	85.0 - 107 °C	185 - 225 °F	Average value: 94.4 °C Grade Count:156
Brittleness Temperature	-76.0 - -38.0 °C	-105 - -36.4 °F	Average value: -73.6 °C Grade Count:40
Flammability, UL94	HB	HB	Grade Count:17
Oxygen Index	17.0 %	17.0 %	Average value: 17.0 % Grade Count:17

Optical Properties	Metric	English	Comments
Haze	1.30 - 27.5 %	1.30 - 27.5 %	Average value: 8.48 % Grade Count:271
Gloss	8.20 - 135 %	8.20 - 135 %	Average value: 69.2 % Grade Count:265
Transmission, Visible	55.0 - 90.0 %	55.0 - 90.0 %	Average value: 89.0 % Grade Count:34

Electrical Properties	Metric	English	Comments
Electrical Resistivity	500 - 1.00e+15 ohm-cm	500 - 1.00e+15 ohm-cm	Average value: 5.67e+14 ohm-cm Grade Count:31
Surface Resistance	31000 - 1.00e+14 ohm	31000 - 1.00e+14 ohm	Average value: 5.67e+13 ohm Grade Count:31
Static Decay	2.00 sec	2.00 sec	Average value: 2.00 sec Grade Count:13
Dielectric Constant	2.30	2.30	Average value: 2.30 Grade Count:17

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:17

Processing Properties	Metric	English	Comments
Processing Temperature	140 - 230 °C	284 - 446 °F	Average value: 194 °C Grade Count:32

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