

Overview of materials for Low Density Polyethylene (LDPE), Molded

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

Material Notes:

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

Physical Properties	Metric	English	Comments
Density	0.910 - 0.980 g/cc	0.0329 - 0.0354 lb/in ³	Average value: 0.921 g/cc Grade Count:189
Water Absorption	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:14
Moisture Absorption at Equilibrium	0.0100 %	0.0100 %	Average value: 0.0100 % Grade Count:12
Particle Size	5.00 - 50.0 µm	5.00 - 50.0 µm	Average value: 27.5 µm Grade Count:3
Water Vapor Transmission	15.5 - 18.6 g/m ² /day	0.998 - 1.20 g/100 in ² /day	Average value: 17.4 g/m ² /day Grade Count:5
Oxygen Transmission	197 - 200 cc-mm/m ² -24hr-atm	500 - 508 cc-mil/100 in ² -24hr-atm	Average value: 199 cc-mm/m ² -24hr-atm Grade Count:5
Viscosity	21000 - 305000 cP	21000 - 305000 cP	Average value: 91600 cP Grade Count:8
	@Temperature 190 - 190 °C	@Temperature 374 - 374 °F	
	21000 - 305000 cP	21000 - 305000 cP	Average value: 91600 cP Grade Count:8
	@Shear Rate 300 - 5000 1/s	@Shear Rate 300 - 5000 1/s	
Environmental Stress Crack Resistance	1.00 - 1500 hour	1.00 - 1500 hour	Average value: 338 hour Grade Count:6
	1.00 - 1.00 hour	1.00 - 1.00 hour	Average value: 1.00 hour Grade Count:1
	@Temperature 50.0 - 50.0 °C	@Temperature 122 - 122 °F	
	1.00 - 1.00 hour	1.00 - 1.00 hour	Average value: 1.00 hour Grade Count:1
	@Thickness 2.00 - 2.00 mm	@Thickness 0.0787 - 0.0787 in	
Maximum Moisture Content	0.100	0.100	Average value: 0.100 Grade Count:3
	5.00 - 300 microns	0.197 - 11.8 mil	Average value: 35.2 microns Grade

Thickness Physical Properties	Metric	English	Count:16 Comments
Linear Mold Shrinkage	0.0100 - 0.0500 cm/cm	0.0100 - 0.0500 in/in	Average value: 0.0200 cm/cm Grade Count:8
Melt Flow	0.250 - 2300 g/10 min	0.250 - 2300 g/10 min	Average value: 38.8 g/10 min Grade Count:166
Base Resin Melt Index	0.500 - 25.0 g/10 min	0.500 - 25.0 g/10 min	Average value: 6.32 g/10 min Grade Count:9

Mechanical Properties	Metric	English	Comments
Hardness, Shore A	81.0 - 97.0	81.0 - 97.0	Average value: 90.8 Grade Count:18
Hardness, Shore D	38.0 - 56.0	38.0 - 56.0	Average value: 48.4 Grade Count:108
Tensile Strength, Ultimate	2.80 - 56.5 MPa	406 - 8200 psi	Average value: 10.7 MPa Grade Count:136
Film Tensile Strength at Yield, MD	12.0 - 30.0 MPa	1740 - 4350 psi	Average value: 24.2 MPa Grade Count:5
Film Tensile Strength at Yield, TD	9.00 - 11.0 MPa	1310 - 1600 psi	Average value: 9.81 MPa Grade Count:7
Tensile Strength, Yield	7.70 - 64.8 MPa	1120 - 9400 psi	Average value: 10.8 MPa Grade Count:138
Film Elongation at Break, MD	200 - 650 %	200 - 650 %	Average value: 354 % Grade Count:14
Film Elongation at Break, TD	550 - 930 %	550 - 930 %	Average value: 741 % Grade Count:13
Elongation at Break	13.5 - 800 %	13.5 - 800 %	Average value: 320 % Grade Count:151
Elongation at Yield	13.0 - 400 %	13.0 - 400 %	Average value: 33.3 % Grade Count:27
Modulus of Elasticity	0.110 - 0.449 GPa	16.0 - 65.1 ksi	Average value: 0.231 GPa Grade Count:51
Flexural Modulus	0.0248 - 0.862 GPa	3.60 - 125 ksi	Average value: 0.217 GPa Grade Count:94
Secant Modulus	0.149 - 1.45 GPa	21.6 - 210 ksi	Average value: 0.279 GPa Grade Count:18
Secant Modulus, MD	0.138 - 0.234 GPa	20.0 - 33.9 ksi	Average value: 0.182 GPa Grade Count:12
Secant Modulus, TD	0.152 - 0.276 GPa	22.0 - 40.0 ksi	Average value: 0.218 GPa Grade Count:12
Izod Impact, Notched	3.74 - 5340 J/cm	7.00 - 10000 ft-lb/in	Average value: 4.50 J/cm Grade Count:9
	0.380 - 1.50 J/cm @Temperature -40.0 - - 20.0 °C	0.712 - 2.81 ft-lb/in @Temperature -40.0 - - 4.00 °F	Average value: 0.940 J/cm Grade Count:1

Mechanical Properties	Metric	English	Comments
Impact, Notched (ISO)	24.0 - 69.4 kJ/m ²	11.4 - 33.0 ft-lb/in ²	Average value: 40.5 kJ/m ² Grade Count:18
	@Temperature -50.0 - - 50.0 °C	@Temperature -58.0 - - 58.0 °F	
Charpy Impact Unnotched	>= 30.0 J/cm ²	>= 143 ft-lb/in ²	Average value: 30.0 J/cm ² Grade Count:1
	@Temperature -40.0 - - 20.0 °C	@Temperature -40.0 - - 4.00 °F	
Tensile Impact Strength	200 - 315 kJ/m ²	95.2 - 150 ft-lb/in ²	Average value: 263 kJ/m ² Grade Count:3
Dart Drop, Total Energy	24.4048 - 24.4048 J	18.0000 - 18.0000 ft-lb	Average value: 24.4 J Grade Count:1
	@Temperature -20.0 - - 20.0 °C	@Temperature -4.00 - - 4.00 °F	
Coefficient of Friction	0.120 - 0.700	0.120 - 0.700	Average value: 0.357 Grade Count:3
Elmendorf Tear Strength, MD	8.00 - 18.2 g/micron	203 - 463 g/mil	Average value: 12.4 g/micron Grade Count:7
Elmendorf Tear Strength, TD	1.84 - 45.8 g/micron	46.7 - 1160 g/mil	Average value: 16.2 g/micron Grade Count:7
Dart Drop	2.36 - 30.0 g/micron	59.9 - 762 g/mil	Average value: 6.06 g/micron Grade Count:12
Dart Drop Test	90.0 - 126 g	0.198 - 0.278 lb	Average value: 106 g Grade Count:6
Film Tensile Strength at Break, MD	20.0 - 59.0 MPa	2900 - 8560 psi	Average value: 30.1 MPa Grade Count:13
Film Tensile Strength at Break, TD	15.2 - 45.0 MPa	2200 - 6530 psi	Average value: 22.8 MPa Grade Count:13

Thermal Properties	Metric	English	Comments
CTE, linear	180 - 230 µm/m-°C	100 - 128 µin/in-°F	Average value: 218 µm/m-°C Grade Count:12
Melting Point	95.0 - 115 °C	203 - 238 °F	Average value: 108 °C Grade Count:67
Deflection Temperature at 0.46 MPa (66 psi)	40.0 - 72.8 °C	104 - 163 °F	Average value: 44.7 °C Grade Count:18
Deflection Temperature at 1.8 MPa (264 psi)	38.0 - 101 °C	100 - 214 °F	Average value: 67.4 °C Grade Count:4
Vicat Softening Point	52.0 - 117 °C	126 - 243 °F	Average value: 89.3 °C Grade Count:151
Brittleness Temperature	-85.0 - 0.000 °C	-121 - 32.0 °F	Average value: -52.5 °C Grade Count:80

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+15 - 1.00e+16 ohm-cm	1.00e+15 - 1.00e+16 ohm-cm	Average value: 2.29e+15 ohm-cm Grade Count:14

Electrical Properties	Metric 1.00e+14 ohm	English 1.00e+14 ohm	Comments
Dielectric Constant	2.30 - 2.60	2.30 - 2.60	Average value: 2.33 Grade Count:12
Dissipation Factor	0.000200	0.000200	Average value: 0.000200 Grade Count:12
Comparative Tracking Index	600 V	600 V	Average value: 600 V Grade Count:12

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