

Overview of Low Density Polyethylene (LDPE), Extrusion Grade

Physical Properties	Metric	English	Comments
Density	0.915 - 1.13 g/cc	0.0331 - 0.0408 lb/in ³	Average value: 0.923 g/cc Grade Count:68
Moisture Vapor Transmission	0.410 - 2.00 cc-mm/m ² -24hr-atm	1.04 - 5.08 cc-mil/100 in ² -24hr-atm	Average value: 0.987 cc-mm/m ² -24hr-atm Grade Count:3
Water Vapor Transmission	0.260 - 18.5 g/m ² /day	0.0167 - 1.19 g/100 in ² /day	Average value: 13.9 g/m ² /day Grade Count:7
Environmental Stress Crack Resistance	18.0 - 1000 hour	18.0 - 1000 hour	Average value: 396 hour Grade Count:6
Thickness	30.0 - 150 microns	1.18 - 5.91 mil	Average value: 55.6 microns Grade Count:23
Melt Flow	0.200 - 8.00 g/10 min @Temperature 190 - 190 °C	0.200 - 8.00 g/10 min @Temperature 374 - 374 °F	Average value: 1.99 g/10 min Grade Count:12
	0.200 - 8.00 g/10 min @Load 2.16 - 2.16 kg	0.200 - 8.00 g/10 min @Load 4.76 - 4.76 lb	Average value: 1.99 g/10 min Grade Count:12
Base Resin Melt Index	0.250 - 14.0 g/10 min 0.330 - 7.00 g/10 min	0.250 - 14.0 g/10 min 0.330 - 7.00 g/10 min	Average value: 6.07 g/10 min Grade Count:43 Average value: 2.98 g/10 min Grade Count:14
Neck In	4.10 - 9.00 cm	1.61 - 3.54 in	Average value: 5.74 cm Grade Count:9
Drawdown	1.07 - 9.10 m/s	210 - 1790 ft/min	Average value: 5.19 m/s Grade Count:4
Coating Weight	2.40 - 9.60 g/m ²	1.50 - 6.00 lb/ream	Average value: 5.81 g/m ² Grade Count:6
Mechanical Properties	Metric	English	Comments
Hardness, Shore D	42.0 - 57.0	42.0 - 57.0	Average value: 49.6 Grade Count:19
Tensile Strength, Ultimate	9.00 - 17.9 MPa	1310 - 2600 psi	Average value: 11.8 MPa Grade Count:25
Film Elongation at Break, MD	190 - 490 %	190 - 490 %	Average value: 299 % Grade Count:29
Film Elongation at Break, TD	220 - 650 %	220 - 650 %	Average value: 492 % Grade Count:29

Tensile Strength, Yield	7.60 - 12.0 MPa	1100 - 1740 psi	Average value: 10.0 MPa Grade Count:18
Elongation at Break	226 - 750 %	226 - 750 %	Average value: 544 % Grade Count:26
Modulus of Elasticity	0.152 - 0.290 GPa	22.0 - 42.1 ksi	Average value: 0.202 GPa Grade Count:7
Flexural Modulus	0.145 - 0.276 GPa	21.0 - 40.0 ksi	Average value: 0.235 GPa Grade Count:8
Secant Modulus, MD	0.0830 - 0.245 GPa	12.0 - 35.6 ksi	Average value: 0.174 GPa Grade Count:19
Secant Modulus, TD	0.124 - 0.284 GPa	18.0 - 41.2 ksi	Average value: 0.202 GPa Grade Count:19
Elmendorf Tear Strength MD	250 - 600 g	250 - 600 g	Average value: 465 g Grade Count:10
Elmendorf Tear Strength TD	250 - 500 g	250 - 500 g	Average value: 330 g Grade Count:10
Elmendorf Tear Strength, MD	2.50 - 12.0 g/micron	63.5 - 305 g/mil	Average value: 8.19 g/micron Grade Count:21
Elmendorf Tear Strength, TD	3.90 - 7.00 g/micron	99.1 - 178 g/mil	Average value: 4.83 g/micron Grade Count:21
Dart Drop	2.00 - 6.50 g/micron	50.8 - 165 g/mil	Average value: 3.17 g/micron Grade Count:23
Dart Drop Test	125 - 650 g	0.276 - 1.43 lb	Average value: 237 g Grade Count:11
Hot Tack Strength	225 g/25 mm	225 g/in	Average value: 225 g/25 mm Grade Count:3
Film Tensile Strength at Break, MD	11.0 - 27.5 MPa	1600 - 3990 psi	Average value: 21.5 MPa Grade Count:29
Film Tensile Strength at Break, TD	10.0 - 24.5 MPa	1450 - 3550 psi	Average value: 17.6 MPa Grade Count:29
Heat Seal Strength	1270 - 1500 g/25 mm	2.80 - 3.30 lb/in	Average value: 1390 g/25 mm Grade Count:6
Electrical Properties	Metric	English	Comments
Dielectric Constant	2.27 - 2.29	2.27 - 2.29	Average value: 2.28 Grade Count:7
Dissipation Factor	0.0000400 - 0.000100	0.0000400 - 0.000100	Average value: 0.0000650 Grade Count:7
Thermal Properties	Metric	English	Comments

Melting Point	104 - 113 °C	219 - 235 °F	Average value: 108 °C Grade Count:5
Vicat Softening Point	84.0 - 128 °C	183 - 262 °F	Average value: 92.6 °C Grade Count:38
Brittleness Temperature	-76.0 - -75.0 °C	-105 - -103 °F	Average value: -75.9 °C Grade Count:8

Optical Properties	Metric	English	Comments
Haze	5.00 - 17.0 %	5.00 - 17.0 %	Average value: 7.68 % Grade Count:19
Gloss	10.0 - 70.0 %	10.0 - 70.0 %	Average value: 55.9 % Grade Count:11

Processing Properties	Metric	English	Comments
Processing Temperature	108 - 340 °C	226 - 644 °F	Average value: 214 °C Grade Count:43
Feed Temperature	138 - 163 °C	280 - 325 °F	Average value: 151 °C Grade Count:6
Rear Barrel Temperature	149 - 193 °C	300 - 380 °F	Average value: 168 °C Grade Count:6
Middle Barrel Temperature	177 - 210 °C	350 - 410 °F	Average value: 197 °C Grade Count:6
Front Barrel Temperature	204 - 221 °C	400 - 430 °F	Average value: 213 °C Grade Count:6
Adapter Temperature	204 - 221 °C	400 - 430 °F	Average value: 213 °C Grade Count:6
Die Temperature	204 - 221 °C	400 - 430 °F	Average value: 213 °C Grade Count:6
Blow-up Ratio (BUR)	1.50 - 3.00	1.50 - 3.00	Average value: 2.16 Grade Count:22
