

## Overview of materials for Linear Low Density Polyethylene (LLDPE), Film Grade

**Categories:** [Polymer](#); [Film](#); [Thermoplastic](#); [Polyethylene \(PE\)](#); [Linear Low Density \(LLDPE\)](#); [Linear Low Density Polyethylene \(LLDPE\), Film Grade](#)

**Material Notes:** This property data is a summary of similar materials in the MatWeb database for the category "Linear Low Density Polyethylene (LLDPE), 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                                                                                                                                         | 0.900 - 1.04 g/cc                            |                                                   | 0.0325 - 0.0376 lb/in <sup>3</sup>                                | Average value: 0.920 g/cc Grade Count:746                          |
| Brightness                                                                                                                                      | 48.0 - 50.0 %                                |                                                   | 48.0 - 50.0 %                                                     | Average value: 48.7 % Grade Count:3                                |
| Moisture Vapor Transmission                                                                                                                     | 0.240 - 0.470 cc-mm/m <sup>2</sup> -24hr-atm | 0.610 - 1.19 cc-mil/100 in <sup>2</sup> -24hr-atm |                                                                   | Average value: 0.404 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:23 |
| Water Vapor Transmission                                                                                                                        | 4.70 - 14.0 g/m <sup>2</sup> /day            |                                                   | 0.303 - 0.902 g/100 in <sup>2</sup> /day                          | Average value: 9.19 g/m <sup>2</sup> /day Grade Count:22           |
|  6.00 - 30.0 g/m <sup>2</sup> /day @Temperature 38.0 - 39.0 °C |                                              |                                                   | 0.386 - 1.93 g/100 in <sup>2</sup> /day @Temperature 100 - 102 °F | Average value: 11.7 g/m <sup>2</sup> /day Grade Count:5            |
| Oxygen Transmission                                                                                                                             | 0.720 - 236 cc-mm/m <sup>2</sup> -24hr-atm   | 1.83 - 599 cc-mil/100 in <sup>2</sup> -24hr-atm   |                                                                   | Average value: 201 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:21   |
| Oxygen Transmission Rate                                                                                                                        | 3500 - 5000 cc/m <sup>2</sup> /day           |                                                   | 225 - 322 cc/100 in <sup>2</sup> /day                             | Average value: 4500 cc/m <sup>2</sup> /day Grade Count:3           |
| Environmental Stress Crack Resistance                                                                                                           | 1.00 - 1000 hour                             |                                                   | 1.00 - 1000 hour                                                  | Average value: 694 hour Grade Count:30                             |
|  >= 1000 hour @Temperature 50.0 - 50.0 °C                    |                                              |                                                   | >= 1000 hour @Temperature 122 - 122 °F                            | Average value: 1000 hour Grade Count:5                             |
| Thickness                                                                                                                                       | 8.00 - 150 microns                           |                                                   | 0.315 - 5.91 mil                                                  | Average value: 31.0 microns Grade Count:388                        |
| Melt Flow                                                                                                                                       | 0.200 - 123 g/10 min                         |                                                   | 0.200 - 123 g/10 min                                              | Average value: 2.52 g/10 min Grade Count:709                       |
| Base Resin Melt Index                                                                                                                           | 0.700 - 3.50 g/10 min                        |                                                   | 0.700 - 3.50 g/10 min                                             | Average value: 1.71 g/10 min Grade Count:16                        |
| Mechanical Properties                                                                                                                           | Metric                                       |                                                   | English                                                           | Comments                                                           |
| Hardness, Shore D                                                                                                                               | 44.0 - 67.0                                  |                                                   | 44.0 - 67.0                                                       | Average value: 56.2 Grade Count:28                                 |
| Tensile Strength, Ultimate                                                                                                                      | 7.45 - 62.1 MPa                              |                                                   | 1080 - 9000 psi                                                   | Average value: 27.1 MPa Grade Count:53                             |
| Film Tensile Strength at Yield, MD                                                                                                              | 5.00 - 50.0 MPa                              |                                                   | 725 - 7250 psi                                                    | Average value: 10.8 MPa Grade Count:378                            |
| Film Tensile Strength at Yield, TD                                                                                                              | 4.48 - 46.0 MPa                              |                                                   | 650 - 6670 psi                                                    | Average value: 10.9 MPa Grade Count:375                            |
| Tensile Strength,                                                                                                                               | 9.00 - 22.1 MPa                              |                                                   | 1310 - 3210 psi                                                   | Average value: 12.7 MPa Grade Count:44                             |

|                                       |                                 |                                    |                                                         |
|---------------------------------------|---------------------------------|------------------------------------|---------------------------------------------------------|
| Yield                                 |                                 |                                    |                                                         |
| Film<br>Elongation at<br>Break, MD    | 80.0 - 1400 %                   | 80.0 - 1400 %                      | Average value: 617 % Grade<br>Count:673                 |
| Film<br>Elongation at<br>Break, TD    | 460 - 6500 %                    | 460 - 6500 %                       | Average value: 813 % Grade<br>Count:651                 |
| Film<br>Elongation at<br>Yield, MD    | 19.0 - 550 %                    | 19.0 - 550 %                       | Average value: 193 % Grade<br>Count:14                  |
| Film<br>Elongation at<br>Yield, TD    | 12.0 - 780 %                    | 12.0 - 780 %                       | Average value: 275 % Grade<br>Count:14                  |
| Elongation at<br>Break                | 0.800 - 1300 %                  | 0.800 - 1300 %                     | Average value: 692 % Grade<br>Count:68                  |
| Modulus of<br>Elasticity              | 0.0110 - 0.530 GPa              | 1.60 - 76.9 ksi                    | Average value: 0.194 GPa Grade<br>Count:36              |
| Flexural<br>Modulus                   | 0.138 - 0.920 GPa               | 20.0 - 133 ksi                     | Average value: 0.347 GPa Grade<br>Count:36              |
| Secant<br>Modulus                     | 0.0689 - 0.625 GPa              | 10.0 - 90.6 ksi                    | Average value: 0.199 GPa Grade<br>Count:20              |
| Secant<br>Modulus, MD                 | 0.0103 - 0.717 GPa              | 1.49 - 104 ksi                     | Average value: 0.195 GPa Grade<br>Count:506             |
| Secant<br>Modulus, TD                 | 0.00145 - 0.869 GPa             | 0.210 - 126 ksi                    | Average value: 0.223 GPa Grade<br>Count:506             |
| Izod Impact,<br>Notched<br>(ISO)      | 10.0 - 100000 kJ/m <sup>2</sup> | 4.76 - 47600 ft-lb/in <sup>2</sup> | Average value: 10.0 kJ/m <sup>2</sup> Grade<br>Count:16 |
| Charpy<br>Impact,<br>Notched          | 1000 J/cm <sup>2</sup>          | 4760 ft-lb/in <sup>2</sup>         | Grade Count:7                                           |
| Puncture<br>Energy                    | 0.452 - 10.5 J                  | 0.333 - 7.74 ft-lb                 | Average value: 2.97 J Grade<br>Count:89                 |
| Coefficient of<br>Friction            | 0.100 - 2.00                    | 0.100 - 2.00                       | Average value: 0.502 Grade<br>Count:193                 |
| Coefficient of<br>Friction,<br>Static | 0.170 - 1.00                    | 0.170 - 1.00                       | Average value: 0.714 Grade<br>Count:5                   |
| Tear Strength<br>Test                 | 16.0 - 22.0                     | 16.0 - 22.0                        | Average value: 20.0 Grade Count:6                       |
| Elmendorf<br>Tear Strength<br>MD      | 10.0 - 1210 g                   | 10.0 - 1210 g                      | Average value: 238 g Grade<br>Count:343                 |
| Elmendorf<br>Tear Strength<br>TD      | 25.0 - 1470 g                   | 25.0 - 1470 g                      | Average value: 513 g Grade<br>Count:346                 |
| Elmendorf<br>Tear Strength,<br>MD     | 0.0750 - 35.0 g/micron          | 1.91 - 889 g/mil                   | Average value: 9.61 g/micron<br>Grade Count:402         |
| Elmendorf<br>Tear Strength,<br>TD     | 0.275 - 135 g/micron            | 6.99 - 3430 g/mil                  | Average value: 21.6 g/micron<br>Grade Count:401         |
| Dart Drop                             | 1.57 - 70.9 g/micron            | 40.0 - 1800 g/mil                  | Average value: 8.74 g/micron<br>Grade Count:344         |
| Dart Drop<br>Test                     | 30.0 - 1350 g                   | 0.0662 - 2.98 lb                   | Average value: 251 g Grade<br>Count:463                 |
| Seal Strength                         | 1800 - 2400 g/25 mm             | 1800 - 2400 g/in                   | Average value: 2070 g/25 mm<br>Grade Count:12           |
| Film Tensile<br>Strength at           | 9.03 - 82.7 MPa                 | 1310 - 12000 psi                   | Average value: 44.5 MPa Grade<br>Count:685              |

## Break, MD

|                                    |                |                  |                                         |
|------------------------------------|----------------|------------------|-----------------------------------------|
| Film Tensile Strength at Break, TD | 7.24 - 284 MPa | 1050 - 41100 psi | Average value: 35.0 MPa Grade Count:664 |
|------------------------------------|----------------|------------------|-----------------------------------------|

|                                           |               |              |                                      |
|-------------------------------------------|---------------|--------------|--------------------------------------|
| Heat Seal Strength Initiation Temperature | 92.0 - 180 °C | 198 - 356 °F | Average value: 102 °C Grade Count:30 |
|-------------------------------------------|---------------|--------------|--------------------------------------|

| Thermal Properties          | Metric           | English         | Comments                               |
|-----------------------------|------------------|-----------------|----------------------------------------|
| Melting Point               | 46.1 - 130 °C    | 115 - 266 °F    | Average value: 120 °C Grade Count:220  |
| Crystallization Temperature | 104 - 115 °C     | 219 - 239 °F    | Average value: 110 °C Grade Count:7    |
| Vicat Softening Point       | 65.0 - 123 °C    | 149 - 253 °F    | Average value: 103 °C Grade Count:190  |
| Brittleness Temperature     | -90.0 - -60.0 °C | -130 - -76.0 °F | Average value: -69.8 °C Grade Count:61 |

| Optical Properties    | Metric         | English        | Comments                              |
|-----------------------|----------------|----------------|---------------------------------------|
| Haze                  | 0.500 - 80.0 % | 0.500 - 80.0 % | Average value: 12.6 % Grade Count:600 |
| Gloss                 | 3.20 - 155 %   | 3.20 - 155 %   | Average value: 64.3 % Grade Count:582 |
| Transmission, Visible | 2.00 - 90.0 %  | 2.00 - 90.0 %  | Average value: 86.0 % Grade Count:22  |

| Processing Properties                                                               | Metric                                        | English                                         | Comments                               |
|-------------------------------------------------------------------------------------|-----------------------------------------------|-------------------------------------------------|----------------------------------------|
| Processing Temperature                                                              | 90.0 - 274 °C                                 | 194 - 525 °F                                    | Average value: 219 °C Grade Count:65   |
| Melt Temperature                                                                    | 123 - 310 °C                                  | 253 - 590 °F                                    | Average value: 220 °C Grade Count:206  |
| Die Opening                                                                         | 0.0640 - 0.280 cm                             | 0.0252 - 0.110 in                               | Average value: 0.165 cm Grade Count:54 |
|  | 0.180 - 0.250 cm<br>@Temperature 200 - 220 °C | 0.0709 - 0.0984 in<br>@Temperature 392 - 428 °F | Average value: 0.215 cm Grade Count:1  |

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.