

## Overview of materials for Ethylene Vinyl Alcohol (EVOH)

Category : Polymer , Thermoplastic , Ethylene Vinyl Alcohol (EVOH)

### Material Notes:

This property data is a summary of similar materials in the MatWeb database for the category "Ethylene Vinyl Alcohol". 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-Ethylene-Vinyl-Alcohol-EVOH.php](http://www.lookpolymers.com/polymer_Overview-of-materials-for-Ethylene-Vinyl-Alcohol-EVOH.php)

Physical Properties	Metric	English	Comments
Density	1.12 - 1.24 g/cc	0.0405 - 0.0448 lb/in <sup>3</sup>	Average value: 1.17 g/cc Grade Count:32
Moisture Absorption at Equilibrium	1.50 - 3.90 %	1.50 - 3.90 %	Average value: 2.29 % Grade Count:7
Water Absorption at Saturation	5.00 - 8.50 %	5.00 - 8.50 %	Average value: 7.00 % Grade Count:7
Moisture Vapor Transmission	0.360 - 3.10 cc-mm/m <sup>2</sup> -24hr-atm	0.914 - 7.87 cc-mil/100 in <sup>2</sup> -24hr-atm	Average value: 1.13 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:26
Water Vapor Transmission	14.3 - 217 g/m <sup>2</sup> /day	0.920 - 14.0 g/100 in <sup>2</sup> /day	Average value: 126 g/m <sup>2</sup> /day Grade Count:3
	275 - 275 g/m <sup>2</sup> /day @Temperature 40.0 - 40.0 °C	17.7 - 17.7 g/100 in <sup>2</sup> /day @Temperature 104 - 104 °F	Average value: 275 g/m <sup>2</sup> /day Grade Count:1
Oxygen Transmission	0.00400 - 0.600 cc-mm/m <sup>2</sup> -24hr-atm	0.0102 - 1.52 cc-mil/100 in <sup>2</sup> -24hr-atm	Average value: 0.0397 cc-mm/m <sup>2</sup> -24hr-atm Grade Count:28
Oxygen Transmission Rate	0.310 - 1.55 cc/m <sup>2</sup> /day	0.0200 - 0.0998 cc/100 in <sup>2</sup> /day	Average value: 1.08 cc/m <sup>2</sup> /day Grade Count:4
Viscosity	1.09 - 4.57 cP @Temperature 190 - 230 °C	1.09 - 4.57 cP @Temperature 374 - 446 °F	Average value: 1.29e+6 cP Grade Count:1
	170000 - 1.40e+7 cP @Temperature 200 - 230 °C	170000 - 1.40e+7 cP @Temperature 392 - 446 °F	Average value: 1.29e+6 cP Grade Count:11
	170000 - 1.40e+7 cP @Shear Rate 60.0 - 270 1/s	170000 - 1.40e+7 cP @Shear Rate 60.0 - 270 1/s	Average value: 1.29e+6 cP Grade Count:11
Thickness	15.2 - 63.5 microns	0.600 - 2.50 mil	Average value: 32.0 microns Grade Count:6

Physical Properties	Metric	English	Comments
	0.800 - 22.0 g/10 min	0.800 - 22.0 g/10 min	Average value: 5.88 g/10 min Grade Count:1
Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	84.0 - 104	84.0 - 104	Average value: 93.2 Grade Count:13
Tensile Strength, Ultimate	37.0 - 74.0 MPa	5370 - 10700 psi	Average value: 58.8 MPa Grade Count:4
Tensile Strength, Yield	43.0 - 94.0 MPa	6240 - 13600 psi	Average value: 67.3 MPa Grade Count:13
Film Elongation at Break, MD	70.0 - 390 %	70.0 - 390 %	Average value: 238 % Grade Count:16
Film Elongation at Break, TD	85.0 - 390 %	85.0 - 390 %	Average value: 237 % Grade Count:7
Elongation at Break	130 - 330 %	130 - 330 %	Average value: 220 % Grade Count:4
Elongation at Yield	1.00 - 8.00 %	1.00 - 8.00 %	Average value: 5.20 % Grade Count:8
Modulus of Elasticity	1.08 - 3.65 GPa	156 - 529 ksi	Average value: 2.26 GPa Grade Count:14
Flexural Yield Strength	108 - 150 MPa	15700 - 21800 psi	Average value: 128 MPa Grade Count:5
Flexural Modulus	3.10 - 4.70 GPa	450 - 682 ksi	Average value: 4.12 GPa Grade Count:5
Secant Modulus, MD	1.02 - 3.50 GPa	148 - 508 ksi	Average value: 1.91 GPa Grade Count:5
Secant Modulus, TD	1.00 - 3.50 GPa	145 - 508 ksi	Average value: 1.86 GPa Grade Count:5
Izod Impact, Notched	0.304 - 0.900 J/cm	0.570 - 1.69 ft-lb/in	Average value: 0.583 J/cm Grade Count:7
Coefficient of Friction	0.200 - 0.500	0.200 - 0.500	Average value: 0.365 Grade Count:3
Tear Strength Test	500 - 1300	500 - 1300	Average value: 690 Grade Count:4
Elmendorf Tear Strength MD	260 - 460 g	260 - 460 g	Average value: 367 g Grade Count:3
Elmendorf Tear Strength TD	300 - 440 g	300 - 440 g	Average value: 357 g Grade Count:3
Elmendorf Tear Strength, MD	2.02 - 30.2 g/micron	51.3 - 767 g/mil	Average value: 14.3 g/micron Grade Count:6
Elmendorf Tear Strength, TD	0.525 - 28.9 g/micron	13.3 - 733 g/mil	Average value: 14.1 g/micron Grade Count:6
Taber Abrasion, mg/1000 Cycles	1.20 - 2.20	1.20 - 2.20	Average value: 1.65 Grade Count:4
Film Tensile Strength at Break, MD	37.0 - 317 MPa	5370 - 46000 psi	Average value: 96.7 MPa Grade Count:16
Film Tensile Strength at Break, TD	44.0 - 195 MPa	6380 - 28300 psi	Average value: 102 MPa Grade Count:7

Mechanical Properties	Metric	English	Comments
CTE, linear	40.0 - 130 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$	22.2 - 72.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$	Average value: 87.5 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:15
	110 - 130 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ @Temperature 100 - 100 $^\circ\text{C}$	61.1 - 72.2 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ @Temperature 212 - 212 $^\circ\text{F}$	Average value: 120 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ Grade Count:3
Specific Heat Capacity	2.40 J/g- $^\circ\text{C}$	0.574 BTU/lb- $^\circ\text{F}$	Average value: 2.40 J/g- $^\circ\text{C}$ Grade Count:15
Thermal Conductivity	0.340 - 0.360 W/m-K	2.36 - 2.50 BTU-in/hr-ft <sup>2</sup> - $^\circ\text{F}$	Average value: 0.341 W/m-K Grade Count:15
Melting Point	156 - 195 $^\circ\text{C}$	313 - 383 $^\circ\text{F}$	Average value: 176 $^\circ\text{C}$ Grade Count:31
Crystallization Temperature	144 - 163 $^\circ\text{C}$	291 - 325 $^\circ\text{F}$	Average value: 156 $^\circ\text{C}$ Grade Count:13
Deflection Temperature at 0.46 MPa (66 psi)	80.0 - 100 $^\circ\text{C}$	176 - 212 $^\circ\text{F}$	Average value: 92.0 $^\circ\text{C}$ Grade Count:12
Vicat Softening Point	155 - 174 $^\circ\text{C}$	311 - 345 $^\circ\text{F}$	Average value: 165 $^\circ\text{C}$ Grade Count:12
Glass Transition Temp, Tg	48.0 - 73.9 $^\circ\text{C}$	118 - 165 $^\circ\text{F}$	Average value: 61.3 $^\circ\text{C}$ Grade Count:24

Optical Properties	Metric	English	Comments
Refractive Index	1.51 - 1.54	1.51 - 1.54	Average value: 1.53 Grade Count:14
Haze	0.500 - 7.00 %	0.500 - 7.00 %	Average value: 1.88 % Grade Count:21
Gloss	70.0 - 100 %	70.0 - 100 %	Average value: 86.9 % Grade Count:18

Electrical Properties	Metric	English	Comments
Electrical Resistivity	4.70e+12 - 1.20e+13 ohm-cm	4.70e+12 - 1.20e+13 ohm-cm	Average value: 8.35e+12 ohm-cm Grade Count:6
Surface Resistance	1.90e+15 - 2.70e+15 ohm	1.90e+15 - 2.70e+15 ohm	Average value: 2.10e+15 ohm Grade Count:7
Dielectric Constant	4.80 - 5.60	4.80 - 5.60	Average value: 5.30 Grade Count:15
Dissipation Factor	0.180 - 0.220	0.180 - 0.220	Average value: 0.213 Grade Count:15

Processing Properties	Metric	English	Comments
Nozzle Temperature	190 - 220 $^\circ\text{C}$	374 - 428 $^\circ\text{F}$	Average value: 208 $^\circ\text{C}$ Grade Count:8
Melt Temperature	240 - 250 $^\circ\text{C}$	464 - 482 $^\circ\text{F}$	Average value: 243 $^\circ\text{C}$ Grade Count:10

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