

TECHNICAL DATA SHEET

High Density Polyethylene

(HDPE)

Representing the largest portion of the polyethylene applications, HDPE offers excellent impact resistance, light weight, low moisture absorption, and high tensile strength. HDPE is also non-toxic and non-staining and meets FDA and USDA certification for food processing.

TYPICAL PROPERTIES of POLYETHYLENE

ASTM or UL test	Property	LDPE	HDPE	UHMW
PHYSICAL				
D792	Density (lb/in ³) (g/cm ³)	0.033 0.92	0.035 0.96	0.034 0.93
D570	Water Absorption, 24 hrs (%)	<0.01	<0.01	<0.01
MECHANICAL				
D638	Tensile Strength (psi) at 72°F	1,400	4,600	5,800
D638	Tensile Strength (psi) at 150°F	400	400	400
D638	Tensile Modulus (psi)	57,000	200,000	80,000
D638	Tensile Elongation at Break (%)	100	400	300
D790	Flexural Strength at Yield (psi)	1,500	4,600	3,500
D790	Flexural Modulus (psi)	29,000	174,000	88,000
D695	Compressive Strength (psi)	1,400	4,600	3,000
D695	Compressive Modulus (psi)	54,000	100,000	80,000
D732	Shear Strength (psi)	-	-	3,000
D785	Hardness, Shore D	D45	D69	D62-D66
D256	IZOD Notched Impact (ft-lb/in)	No Break	1.3	No Break
THERMAL				
D696	Coefficient of Linear Thermal Expansion (x 10 ⁻⁵ in./in./°F)	-	6	11
D648	Heat Deflection Temp (°F / °C) at 66 psi at 264 psi	120 / 48 116 / 46	170 / 76 176 / 80	203 / 95 180 / 82
D3418	Approx. Melting Temperature (°F / °C)	244 / 118	260 / 125	275 / 136
-	Max Operating Temp (°F / °C)	160 / 71	180 / 82	180 / 82
C177	Thermal Conductivity (BTU-in/ft ² -hr-°F) (x 10 ⁻⁴ cal/cm-sec-°C)	- -	- -	2.84 10.0
UL94	Flammability Rating	HB	HB<	HB
ELECTRICAL				
D149	Dielectric Strength (V/mil) short time, 1/8" thick	460-700	450-500	2300
D150	Dielectric Constant at 1 MHz	2.25- 2.30	2.30- 2.35	2.30- 2.35
D150	Dissipation Factor at 1 kHz	0.0002	0.0002	0.0005
D257	Surface Resistivity (ohm/square) at 50% RH	> 10 ¹⁵	> 10 ¹⁵	> 10 ¹⁵
D495	Arc Resistance (sec)	135-160	200-250	250-350

Benefits

- Abrasion Resistant
- High impact resistance
- Low coefficient of friction
- Scratch and marking resistant
- Chemical resistant
- Water and moisture resistant

Applications

- Food cutting boards
- Corrosion resistant covers
- Pipe flanges
- Radiation shielding
- Self-supporting containers
- Prosthetic devices

SHAPES AVAILABLE



NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.
All values at 73°F (23°C) unless otherwise noted.