TECHNICAL DATA SHEET
UHMW Polyethelyne (UHMW PE)

(Ultra High Molecular Weight Polyethylene)

UHMWPE is light weight (1/8 the weight of steel), high tensile strength, and is easily machined. It is the ideal material for many wear parts in machinery and equipment as well as a superb lining in material handling systems and storage containers. UHMW PE is self-lubricating, shatter resistant, long-wearing, abrasion and corrosion resistant. It meets FDA and USDA acceptance for food and pharmaceutical equipment and is a good performer in applications up to 180 °F (82 °C) or when periodically cleaned with live steam or boiling water to sterilize.

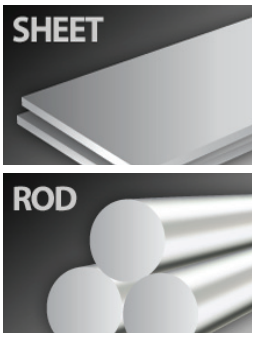
TYPICAL PROPERTIES of POLYETHYLENE

ASTM or UL test	Property	LDPE	HDPE	UHMW
	PHYSICAL			
D792	Density (lb/in³) (g/cm³)	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/ft²-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
Durability
Easily fabricated
Chemical resistance
Abrasion resistance
Electrical properties
Impact resistance
Low coefficient of friction
Moisture resistance

Applications
Tanks and containers
Food storage containers
Laboratory equipment
Disposable formed products
Surface structures
Vacuum formed end caps and tops
Moisture barrier

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.