

## Technical Data Sheet

### Ultra-High-Molecular-Weight Polyethylene (UHMWPE)

Chemical Name(s): Ultra-High-Molecular-Weight Polyethylene  
Common Abbreviation(s): UHMWPE  
Available Profiles: Sheet, Rod

UHMWPE is a type of polyethylene with extremely long chains, resulting in high molecular weight. This material is known for its exceptional wear resistance, low coefficient of friction, and high impact strength. It is commonly used in applications such as lining for chutes, hoppers, and industrial equipment due to its durability and chemical resistance.

**Benefits:**

- Outstanding wear and abrasion resistance
- Extremely low coefficient of friction
- High impact strength, even at low temperatures
- Excellent chemical resistance
- Self-lubricating properties
- Lightweight and easy to fabricate

**Common Applications:**

- Wear strips and guide rails
- Conveyor systems and chute linings
- Industrial hopper linings
- Marine fendering systems
- Food processing equipment
- Tank and silo linings

**TYPICAL PROPERTIES of ULTRA-HIGH-MOLECULAR-WEIGHT POLYETHYLENE**

	Property	Test Method	Value
Physical Properties	Density (g/cm <sup>3</sup> )	ATSM D792	0.93
	Water Absorption (%)	ASTM D570	<0.01
Mechanical Properties	Tensile Strength at 23°C (MPa)	ASTM D638	40
	Tensile Modulus (MPa)	ASTM D638	900
	Tensile Elongation at Break (%)	ASTM D638	300
	Flexural Strength (MPa)	ASTM D790	20
	Flexural Modulus (MPa)	ASTM D790	700
	Compressive Strength (MPa)	ASTM D695	25
	Hardness (Shore D)	ASTM D785	D64
Thermal Properties	Impact Strength (kJ/m <sup>2</sup> )	ASTM D256	No Break
	Coefficient of Linear Thermal Expansion (mm/mm/°C)	ASTM D696	2.0 x 10 <sup>-4</sup>
	Heat Deflection Temperature at 0.45 MPa (°C)	ASTM D648	85
	Approx. Melting Temperature (°C)	ASTM D3418	135
Electrical Properties	Max Operating Temperature (°C)	-	90
	Dielectric Strength (kV/mm)	ASTM D149	25
	Dielectric Constant at 1 MHz	ASTM D150	2.3
	Dissipation Factor at 1 kHz	ASTM D150	0.0004
	Surface Resistivity (ohm/sq)	ASTM D257	>10 <sup>14</sup>
Flammability	Arc Resistance (sec)	ASTM D495	120-150
Standards Compliance	Flammability Rating	UL94	HB
Environmental Considerations	FDA compliant for food contact		
	ASTM D638, D790, D695, D257 compliant		
UHMWPE is environmentally inert under normal conditions and has a minimal environmental footprint during use.			

