UHMW® Material Specifications

UHMW® is the ideal material for many wear parts in machinery and equipment. Polyethylenes are semi-crystalline materials with excellent chemical resistance, good fatigue and wear resistance, and a wide range of properties.

Physical Properties	Units	Test	UHMW®
Density	lb/in³ g/cm³	D792	0.034 0.93
Water Absorption, 24 hrs.	%	D570	< 0.01

Mechanical Properties	Units	Test	UHMW®
Tensile Strength	@ 72ºF psi	D638	5800
Tensile Strength	@ 150ºF psi	D638	400
Tensile Modules	psi	D638	80,000
Tensile Elongation at Break	%	D638	300
Flexural Strength at Yield	psi	D790	3500
Flexural Modulus	psi	D790	88,000
Compressive Strength	psi	D695	3000
Compressive Modulus	psi	D695	80,000
Shear Strength	psi	D732	3000
Hardness, Shore D	-	D785	D62 - D66
Izod Impact Notched	ft-lb/in	D256	No Break

Thermal Properties	Units	Test	UHMW®
Coefficient of Linear Thermal Expansion	X 10^{-5} in./in./°F	D696	11
Heat Deflection Temperature	@ 66 psi °F/°C @ 264 °F/°C	D648	203 / 95 180 / 82
Approx. Melting Temperature	ºF/ºC	D3418	275 / 136
Max. Operating Temperature	ºF/ºC	-	180 / 82
Thermal Conductivity	BTU- in/ft^2-hr.-°F x 10^{-4} cal/cm-sec-°C	C177	2.84 10.0
Flammability Rating	-	UL94	HB

Electrical Properties	Units	Test	UHMW®
Dielectric Strength	(V/mil) short time, 1/8" thick	D149	2300
Dielectric Constant	@1 MHz	D150	2.30 - 2.35
Dissipation Factor	@1 KHz	D150	0.0005
Surface Resistivity	ohm/square @ 50% RH	D257	>10^{15}
Arc Resistance	sec	D495	250 - 350

**The information provided in this table is a compilation of publicly available data. This information is provided for comparison purposes only, and is not intended to be warrantable. Further, *Technical Products, Inc.* disclaims any and all liability from errors, in accuracies, or omissions.