



UHMW (Ultra-High-Molecular-Weight Polyethylene)

General Material Properties

Property	Metric	units	English	units
General				
Density	931 - 949	kg/m ³	0.0336 - 0.0343	lb/ft ³
Mechanical				
Yield Strength	2.14e7 - 2.76e7	Pa	3.1 - 4.0	ksi
Tensile Strength	3.86e7 - 4.83e7	Pa	5.6 - 7.01	ksi
Elongation	3.5 - 5.25	% strain	350 - 525	% strain
Hardness (Vickers)	6.28e7 - 8.14e7	Pa	6.4 - 8.3	HV
Impact Strength (notched)	9.52e4 - 1.05e5	J/m ²	45.3 - 50	ft.lbf/in ²
Fracture Toughness	1.72e6 - 5.16e6	Pa/m ^{0.5}	1.56 - 4.69	ksi/in ^{0.5}
Young's Modulus	8.94e8 - 9.63e8	Pa	0.13 - 0.14	10 ⁶ psi
Thermal				
Max Service Temperature	110 - 130	°C	230 - 266	°F
Melting Temperature	125 - 138	°C	257 - 280	°F
Insulator or Conductor	Insulator		Insulator	
Specific Heat Capability	1.75e3 - 1.81e3	J/kg °C	0.418 - 0.432	BTU/lb. °F
Thermal Expansion Coefficient	2.34e-4 - 3.6e-4	strain/°C	130 - 200	μstrain/°F
Eco				
CO2 Footprint	3.16 - 3.49	kg/kg	3.16 - 3.49	lb/lb
Recycleable	Yes		Yes	

The information on this page is intended as general guidance only and is only accurate at the time of posting (8-16-12). Specific material properties vary by manufacturer. Please contact a Dielectric application engineer for help in choosing the optimal material for your application and budget.