

UHMW Polyethylene / UHMWPE

Ultra High Molecular Weight Polyethylene (UHMW, UHMWPE) is a thermoplastic characterised by long molecular chains and high resistance to cut, wear and chemical corrosion. Its' extremely long molecular chains - with molecular weight ranging between 3.1 and 5.67 million - give it the ability to withstand high impact and extreme load.

Used where strength and durability are especially important, its' applications include high-stress machine parts and artificial joints. Its' very low coefficient of friction is comparable to that of Teflon®.

Key Properties		Units	Test Method
General			
Density	0.94 (0.034)	g/cm ³ (lb/in ³)	ISO 1183
Density relative to water (=1)	0.94	-	ISO 1183
Water absorption (24 hrs)	<0.01	%	ISO 62
Thermal			
Continuous Service Temperature	80 (176)	°C (°F)	-
Vicat Softening Temperature	80 (176)	°C (°F)	ISO 306
Heat Conductivity	0.41	W/mK	DIN 52612
Heat Distortion Temperature (0.46 Mpa)	65 (149)	°C (°F)	ISO 75
Temperature Range	-260 (-426) to 80 (176)	°C (°F)	-
Linear Thermal Expansion	2.0	x10 ⁻⁴ / °C	DIN 53752
Flammability Rating	HB	-	UL 94
Mechanical			
Impact Strength, Notched Izod @ 23°C	No break	-	-
Impact Strength, Double Notch	≥ 200	MPa	ISO 11542-2
Tensile Modulus of Elasticity	≥ 700	MPa	ISO 527
Elongation at Yield	≥ 8	%	-
Elongation at Break	> 50	%	-
Yield Stress	17.0	MPa	-
Shore Hardness (D)	68	N/mm ²	-
Electrical			
Surface Resistance	10 ¹¹	Ohm	-
Dielectric Strength	None	-	-

Notes

Figures shown are for panel thickness 3mm

DISCLAIMER: The purpose of this data sheet is to enable a consistent comparison with other products to help users to make an informed choice. The information provided in this product data sheet is for comparison and reference purposes only and is based on generic information gathered from a number of sources. In some cases the data provided is an average value only and represents our best attempt to describe the material's properties under typical factory conditions. We make no representations or warranties as to the completeness or accuracy of any of the data contained in this data sheet and users should use them as a general decision-making guide only. Branded data sheets are available on request. The information contained in this data sheet is subject to copyright. This data sheet cannot be reproduced for commercial purposes, apart from assisting users with making a purchasing decision, without the express permission of Plastic Wholesale.