

UHMWPE

The following information corresponds with our current knowledge and indicates our products and possible applications. We cannot give a legally binding guarantee of certain properties or the suitability for a specific application. Existing commercial patents must be observed. A definitive quality guarantee is given in our general conditions of sales. Unless otherwise stated, these values represent averages taken from injection moulding samples. We reserve the right of technical alterations.

Properties	Unit	Test method DIN EN ISO / ASTM	
Mechanical			
Density	g/cm ³	527 / D 792	0.93
Tensile strength at yield	MPa	527 / D 638	17
Tensile strength at break	MPa	527 / D 638	40
Elongation at break	%	527 / D 638	>50
Modulus of elasticity in tension	MPa	527 / D 638	650
Modulus of elasticity in flexure	MPa	178 / D 790	800
Ball indentation hardness	MPa	2039 / 1	35
Impact strength	kJ/m ²	179 / D 256	no br.
Creep rupture strength after 1000 hrs with static load	MPa		
Time yield limit for 1% elongation after 1000 hrs	MPa		
Coefficient of friction against hardened and ground steel p = 0.05 N/mm ² , v = 0.6 m/s	-		0.29
Wear conditions as above	µm/km		
Thermal			
Crystalline melting point	°C	DIN 53 736	135
Glass transition temperature	°C	DIN 53 736	
Heat distortion temperature Method A Method B	°C °C	R 75 R 75	42 ~70
Max. service temperature short term long term	°C °C		120 90
Coefficient of thermal conductivity	W/(m K)		0.41
Specific heat	J/(g K)		1.84
Coefficient of thermal expansion	10 ⁻⁵ /K	DIN 53 483 / D 696	20
Electrical			
Dielectric constant at 10 ⁵ Hz		DIN 53 483	3
Dielectric loss factor at 10 ⁵ Hz		DIN 53 483	
Specific volume resistance	Ω cm	DIN 60093	10 ¹⁴
Surface resistance	Ω	DIN 60093	10 ¹²
Dielectric strength 1 mm	kV/mm	ASTM 149	45
Tracking resistance		53 480	KA 3c, KB>600,KC>600
Miscellaneous			
Moisture absorption: Equilibrium in standard atmosphere (23 °C / 50 % relative humidity)	%	62	0.01
Water absorption at saturation at 23°C	%	62	0.02
Resistance to hot water, washing soda			resistant
Flammability according to UL standard 94			HB
Resistance to weathering			Natural: not resistant Black: resistant