

# TECHNICAL DATA SHEET

## PE – UHMW 1000

Property	Method	Units	Specification
<b>Physical</b>			
Color	-	-	Grey
Average molar mass (average molecular weight) – (1)	-	10 <sup>6</sup> g/mol	9
Density	ISO 1183 – 1	g/cm <sup>3</sup>	0.995
Water absorption at saturation in water of 23 °C	-	%	< 0.1
<b>Mechanical</b>			
Tension test:			
- Tensile stress at yield	ISO 527-1/-2	MPa	19
- Tensile strain at yield	ISO 527-1/-2	%	15
- Tensile strain at break	ISO 527-1/-2	%	> 50
- Tensile modulus of elasticity	ISO 527-1/-2	MPa	775
Compression test:			
- Compressive stress at 1/2/5 % nominal strain	ISO 604	MPa	7 / 11.5 / 18
Charpy impact strength – unnotched	ISO 179-1/1eU	KJ/m <sup>2</sup>	No break
Charpy impact strength – notched	ISO 179-1/1eA	KJ/m <sup>2</sup>	90P
Charpy impact strength – notched (double 14° notch)	ISO 11542-2	KJ/m <sup>2</sup>	105
Ball indentation hardness	ISO 2039-1	N/mm <sup>2</sup>	30
Shore hardness D	ISO 868	-	62
Relative volume loss during a wear test in “sand/water-slurry”	ISO 15527	-	75
<b>Thermal</b>			
Melting Temperature (DSC, 10 °C/min)	ISO 11357-1/-3	°C	135
Thermal conductivity at 23 °C	-	W/(K.m)	0.40
Average coefficient of linear thermal expansion between 23 and 100 °C	-	m/(m.K)	200*10 <sup>-6</sup>
Temperature of deflection under load:			
- Method A: 1.8 MPa	ISO 75-1/-2	°C	42
Vicat softening temperature –VST/B50	ISO 306	°C	82
Max. allowable service temperature in air:			
- For short periods	-	°C	120
- Continuously: for 20000 h	-	°C	80
Min. Service temperature	-	°C	-150
Flammability:			
- “Oxygen Index”	ISO 4589-1/-2	%	< 20
- According to UL 94 (6 mm thickness)	-	-	HB
<b>Electrical</b>			
Electric strength	IEC 60243-1	kV/mm	-
Volume resistivity	IEC 60093	Ohm.cm	> 10 <sup>14</sup>
Surface resistivity	IEC 60093	Ohm	> 10 <sup>12</sup>
Relative permittivity $\epsilon_r$ : - at 100 Hz	IEC 60250	-	-
- at 1 MHz	IEC 60250	-	-
Dielectric dissipation factor $\tan \delta$ : - at 100 Hz	IEC 60250	-	-
- at MHz	IEC 60250	-	-
Comparative tracking index (CTI)	IEC 60112	-	-

