



Technical Data

TIVAR® Materials

TIVAR® 1000 anti-microbial

Material designation

ISO designation

PE-UHMW

Material description

Ultra High Molecular Weight
Polyethylene with
anti-microbial properties

Colour(s)

light-blue

Material properties

Standard

Unit

Average molecular weight (average molecular mass)		(g/mol)	approx. $5 - 9 \cdot 10^6$
Density	ISO 1183	(kg/m ³)	≥ 930
Water absorption at 23° C until saturation	ISO 62	(%)	< 0,01

Mechanical properties

Standard

Unit

Tensile stress at yield (tensile strength)	ISO 527	(MPa)	≥ 17
Elongation at break	ISO 527	(%)	≥ 300
Tensile modulus	ISO 527	(MPa)	≥ 700
Impact strength (Charpy) at 23° C	ISO 179	(kJ/m ²)	no break
Notched impact strength (Charpy) at 23° C	ISO 11542-2	(kJ/m ²)	≥ 80
Ball indentation hardness	ISO 2039-1	(N/mm ²)	30 - 35
Shore-Hardness D, 15 s value	ISO 868	(-)	60 - 65
Coefficient of friction	-	(-)	approx. 0,2
Abrasion (Sand-Slurry)	-	(%)	100

Thermal properties

Standard

Unit

Melting point DSC, 10 K/min	ISO 3146	(°C)	135 - 138
Vicat softening point	ISO 306	(°C)	80
Coefficient of linear thermal expansion between 23 and 80° C	ISO 11359	(K ⁻¹)	approx. $2 \cdot 10^{-4}$
Thermal conductivity	ISO 52612	(W/[m * K])	approx. 0,4
Use temperature (max.)	-	(°C)	80
Use temperature (briefly)	-	(°C)	90
Use temperature (min.)	-	(°C)	-200

Electrical properties

Standard

Unit

Relative permittivity at 100 Hz	IEC 60250	(-)	2,1
Dissipation factor at 100 Hz	IEC 60250	(-)	$3,9 \cdot 10^{-4}$
Volume resistivity	IEC 60093	(Ohm * m)	> 10^{12}
Surface resistivity	IEC 60093	(Ohm)	> 10^{12}
Dielectric strength	IEC 60243	(kV/mm)	45

Physiological properties

Standard

Unit

Food conformances according to EU Directive 2002/72/EC			yes
FDA Regulation 21CFR177.1520			yes
FDA Regulation 21CFR178.2010			yes
FDA Regulation 21CFR178.3297			yes

Notice to users:

The technical data shown in this data sheet refers to a 40 mm thick sheet. Due to the production process the data may vary depending on the material thickness.

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