

## Technical Data

### TIVAR® Materials

### TIVAR® 1000 Oil Filled

#### Material designation

ISO designation

PE-UHMW

Material description

Ultra High Molecular Weight  
 Polyethylene with  
 optimised sliding properties

Colour(s)

grey

#### Material properties

#### Standard

#### Unit

Average molecular weight (average molecular mass)		(g/mol)	approx. $9 \times 10^6$
Density	ISO 1183	(kg/m <sup>3</sup> )	927 - 938
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	(%)	≥ 250
Tensile modulus	ISO 527	(MPa)	700
Impact strength (Charpy) at 23° C	ISO 179	(kJ/m <sup>2</sup> )	no break
Notched impact strength (Charpy) at 23° C	ISO 11542-2	(kJ/m <sup>2</sup> )	≥ 80
Ball indentation hardness	ISO 2039-1	(N/mm <sup>2</sup> )	30 - 35
Shore-Hardness D, 15 s value	ISO 868	(-)	60 - 65
Coefficient of friction	-	(-)	approx. 0,1
Abrasion (Sand-Slurry)	-	(%)	80

#### 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 <sup>-1</sup> )	approx. $2 \times 10^{-4}$
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	(-)	$3,9 \times 10^{-4}$
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 conformance according to EU Directive 2002/72/EC			yes
FDA Regulation 21CFR177.1520			yes
FDA Regulation 21CFR178.2010			N/A
FDA Regulation 21CFR178.3297			yes
FDA Regulation 21CFR178.3620			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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