

## Technical Information

# VESTAKEEP® Care for medical applications

## NATURAL COLORED POLYETHER ETHER KETONE FOR THE MEDICAL INDUSTRY



VESTAKEEP® Care is natural colored polyether ether ketone (PEEK) that is especially designed for the medical industry.

### VESTAKEEP® CARE-GRADES

The good biocompatibility, processability and the option to pigment make the VESTAKEEP® Care-Grades an ideal material for the fabrication of medical devices with short time contact to human blood, tissue or bone for up to 30 days.

### BIOCOMPATIBILITY TESTS AVAILABLE FOR VESTAKEEP® CARE

Standard	Description
ISO 10993-6	Test for local effects after implantation in muscle (7days)
ISO 10993-5	Cytotoxicity
ISO 10993-6	Test for local effects after implantation in muscle (7days)
ISO 10993-10	Irritation: Intracutaneous Reactivity
ISO 10993-10	Sensitization: Maximization test according to Magnusson and Kligman
ISO 10993-11	Acute Systemic Toxicity
USP Class VI	Acute Systemic Toxicity Intracutaneous Reactivity Muscle Implantation

### PROCESSING OF VESTAKEEP® CARE

VESTAKEEP® Care-Grade resins are available at standard, medium and high viscosity and can be processed by common melt processing techniques like injection molding, extrusion, and compression molding.

Stock shapes can be machined by all conventional equipment like turning or milling machines.

### AVAILABILITY AND DELIVERY OF VESTAKEEP® CARE

VESTAKEEP® Care materials are available in the form of resin granules, as rod stock and as plates.

VESTAKEEP® Care resins are supplied as cylindrical pellets in 25kg boxes with polyethylene liners.

VESTAKEEP® Care M40 R rods can be produced in various diameters ranging from 6 mm up to 100 mm, plates in thicknesses ranging from 6 mm up to 60 mm. Please inquire for further dimensions.

### ADVANTAGES AT A GLANCE

- biocompatible
- biostable
- sterilization compatible
- resistant to chemicals
- no x-ray artifacts
- Good combination of mechanical strength, wear resistance and impact resistance makes PEEK a good choice for high strength medical devices
- Good dimensional stability allows for manufacturing of high-precision parts
- Good electrical properties, especially electrical insulation, is important for medical equipment.

### SUPPORT

Please inquire if you need technical support regarding the processing or other technical information.

For further information please contact us at [evonik-hp@evonik.com](mailto:evonik-hp@evonik.com).

## PROPERTIES OF VESTAKEEP® CARE

Properties	Test method	Unit	M20 G	M40 G	M33 G-HP	M40 R	
Density	23°C	ISO 1183	g/cm <sup>3</sup>	1.3	1.3	1.3	1.3
Tensile test	ISO 527						
Tensile modulus		MPa	3700	3500	3600	4000	
Stress at yield		MPa	100	96	98	110	
Strain at yield		%	5.0	5.0	5.0	4.8	
Strain at break		%	>20	>20	>20	>10	
CHARPY impact strength	23°C -30°C	ISO 179/1eU	kJ/m <sup>2</sup> N	N N	N N	N N	
CHARPY notched impact strength	23°C -30°C	ISO 179/1eA	kJ/m <sup>2</sup> kJ/m <sup>2</sup>	6 C 6 C	7 C 6 C	6 C 6 C	7 C 6 C
Izod Notched Impact	23°C	ISO 180/1eA	kJ/m <sup>2</sup>				5.5
Vicat softening temperature		ISO 306					
Method A	10 N		°C	335	335		335
Method B	50 N		°C	310	305		205
Linear thermal expansion, longitudinal	23-55°C	ISO 11359	10 <sup>-4</sup> K <sup>-1</sup>	0.6	0.6	0.6	0.6
Relative permittivity	50 Hz 1 MHz	IEC 60250		2.8 2.8	2.8 2.8		2.9 2.8
Electric strength	K20/P50	IEC 60243-1	kV/mm	25	25	25	25
Comparative tracking index	CTI	IEC 60112					
Test solution A				200	200		200
100 drops value				175	175		175
Volume resistivity		IEC 60093	Ohm·cm	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>15</sup>	10 <sup>15</sup>
Surface resistance		IEC 60093	Ohm	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>	10 <sup>14</sup>
Diff. scanning calorimetry (DSC)		ISO 11357					
Melting range	2 <sup>nd</sup> heating		°C	approx. 340	approx. 340	approx. 340	approx. 340
Melt volume-flow rate (MVR)	380°C/5 kg	ISO 1133	cm <sup>3</sup> /10min	70	12	20	
Flammability acc. UL94	1.6 mm	IEC 60695		V-0	V-0	V-0	V-0
Mold shrinkage		ISO 294-4					
in flow direction			%	1.1	0.9	0.9	
in transverse direction			%	1.1	1.1	1.1	

C = Complete break, incl. hinge break H

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