

## Product Information

**VESTAKEEP® iC 4520 R****STOCK SHAPES BASED ON X-RAY OPAQUE POLYETHER ETHER KETONE FOR LONG TERM IMPLANTABLE MEDICAL DEVICES**

**VESTAKEEP® iC4520 R** is a rod stock based on implantable grade polyether ether ketone resin VESTAKEEP® iC4520 G. It contains 20% barium sulphate to render it X-ray opaque.

**Proven Biocompatibility**

VESTAKEEP® iC4520 R is especially designed for long term implantable medical devices.

The compound composition is optimised for high biocompatibility and mechanical, thermal and chemical resistance.

Biocompatibility of has been tested following ISO 10993-1 recommendations for permanent tissue/bone contact and USP Class VI.

A summary of biocompatibility test results is available upon request.

**Biocompatibility reports available for VESTAKEEP® iC4520 R**

STANDARD	DESCRIPTION
ISO 10993-12	GC/MS Fingerprint of extractable organic substances
USP CLASS VI	Acute Systemic Toxicity Intracutaneous Reactivity Muscle Implantation
ISO 10993-5	Cytotoxicity
ISO 10993-10	Irritation: Intracutaneous Reactivity
ISO 10993-10	Sensitization: Maximization test according to Magnusson and Kligman
ISO 10993-11	Subchronic Systemic Toxicity
ISO 10993-3	Genotoxicity: Ames Test
ISO 10993-3	Genotoxicity: Chromosome Aberration test
ISO 10993-3	Genotoxicity: Mouse Lymphoma test
ISO 10993-6	Test for local effects after Implantation in bone (180 days)
ISO 10993-11	Material-mediated pyrogenes

**Delivery of VESTAKEEP® i-Grades**

VESTAKEEP® iC4520 R is supplied as stock shapes with 10 mm and 20 mm diameter and a length of 30000 mm. Other diameters and lengths are possible.

The results shown have been generated from a low number of production lots. Therefore, they are preliminary and not yet the result of a statistical evaluation. Therefore they must not be used to establish specifications.

The values presented are typical or average values, they do not constitute a specification.

FOR FURTHER INFORMATION PLEASE CONTACT US AT [EVONIK-HP@EVONIK.COM](mailto:EVONIK-HP@EVONIK.COM)  
OR VISIT OUR PRODUCT AT [WWW.EVONIK.COM/MEDICAL-TECHNOLOGY](http://WWW.EVONIK.COM/MEDICAL-TECHNOLOGY)

## Key Features

### Industrial Sector

Medical Devices

### Processing

Machining

### Delivery form

Stock shape (rods and plates)

### Optics

Opaque

### Resistance to

Heat (thermal stability), Hydrolysis / hot water, UV / light / weathering

### Electrical

Insulating

### Conformity

Biocompatibility, Medical application

### Additives

Mineral fillers

## Mechanical properties ISO

	dry	Unit	Test Standard
Tensile modulus	<b>4800</b>	MPa	ISO 527
Yield stress	<b>110</b>	MPa	ISO 527
Yield strain	<b>4.2</b>	%	ISO 527
Strain at break, B	<b>10</b>	%	ISO 527
Izod Impact notched, 23°C	<b>5.2</b>	kJ/m <sup>2</sup>	ISO 180/1A
Type of failure	<b>C</b>	-	-
Flexural modulus, 23°C	<b>4700</b>	MPa	ISO 178
Flexural strength, 23°C	<b>170</b>	MPa	ISO 178

## Thermal properties

	dry	Unit	Test Standard
Melting temperature	<b>340</b>	°C	ISO 11357-1/-3
Glass transition temperature, 2 nd heating, onset	<b>145</b>	°C	ISO 11357
Glass transition temperature, 2 nd heating, midpoint	<b>155</b>	°C	ISO 11357
Recrystallization temperature, 10 K/min	<b>285<sup>[e]</sup></b>	°C	ISO 11357
Melting Temperature	<b>340</b>	°C	ASTM D 3418

e: 20 K/minute

## Physical properties

	dry	Unit	Test Standard
Density	<b>1500</b>	kg/m <sup>3</sup>	ISO 1183

Water absorption	<b>0.4</b>	%	Sim. to ISO 62
Density	<b>1500</b>	kg/m <sup>3</sup>	ASTM D 792

## Characteristics

### Applications

Medical implants

### Special Characteristics

Phosphorus-free, PTFE-free, High impact strength, Semi-crystalline, High viscosity, Self-extinguishing

### Features

Low odor, Non-corrosive

### Color

Natural color

### Additives

Inorganic fillers

### Chemical Resistance

Acid resistance, Solvent resistance, Oxidation resistance, Radiation resistance, General chemical resistance

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