

## Product Information

**VESTAKEEP® iC 4520 G****X-RAY OPAQUE POLYETHER ETHER KETONE FOR LONG TERM IMPLANTABLE MEDICAL DEVICES**

VESTAKEEP® iC4520 G is an opaque, natural colored, high viscosity polyether ether ketone (PEEK) resin. It contains 20% barium sulphate to render it x-ray opaque.

**Proven Biocompatibility**

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

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

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

A summary of biocompatibility is available upon request.

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

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

**Processing of VESTAKEEP® i-Grades**

VESTAKEEP® iC4520 G can be processed by common melt processing techniques like injection molding and extrusion.

For injection molding, we recommend a melt temperature between 380°C and 400°C during the injection molding process. The mold temperature should be within a temperature range from 160°C to 200°C, preferably 180°C.

**Delivery of VESTAKEEP® i-Grades**

VESTAKEEP® iC4520 G is supplied as cylindrical pellets in hobbcks containing 5 kg or 10kg. Polyethylene bags are used as primary packaging.

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**  
Injection molding

**Delivery form**  
Pellets, Granules

**Resistance to**  
Heat (thermal stability), UV / light / weathering

**Electrical**  
Insulating

**Conformity**  
Biocompatibility, Medical application

**Additives**  
Mineral fillers

### Mechanical properties ISO

	dry	Unit	Test Standard
Tensile modulus	<b>4350</b>	MPa	ISO 527
Tensile strength	<b>85</b>	MPa	ISO 527
Yield stress	<b>85</b>	MPa	ISO 527
Yield strain	<b>4.2</b>	%	ISO 527
Nominal strain at break, tB	<b>10</b>	%	ISO 527
Charpy notched impact strength, +23°C	<b>7</b>	kJ/m <sup>2</sup>	ISO 179/1eA
Type of failure	<b>C</b>	-	-

### 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

Rheological properties	dry	Unit	Test Standard
Melt volume-flow rate, MVR	<b>10</b>	cm <sup>3</sup> /10min	ISO 1133
Temperature	<b>380</b>	°C	-
Load	<b>5</b>	kg	-

## Characteristics

### Applications

Medical implants

### Special Characteristics

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

### Features

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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