

**Product Texts**

**Implantable grade polyether ether ketone resin for permanent implants**

VESTAKEEP® i4 G is a natural colored, high viscosity polyether ether ketone (PEEK) that is especially designed for long term implantable medical devices. This grade is often used for extrusion processing technologies.

**Proven Biocompatibility of VESTAKEEP® i-Grades**

The extra high purity and extended quality measures make VESTAKEEP® i-Grade materials an excellent choice for permanent implants.

For VESTAKEEP® i4 G, biocompatibility has been tested following ISO 10993-1 recommendations for permanent tissue/bone contact and USP Class VI.

VESTAKEEP® i4 G complies ASTM F2026 “Standard Specification for Polyetheretherketone (PEEK) Polymers for Surgical Implant Applications”.

A summary of biocompatibility test results is available upon request.

**Biocompatibility tests available for i4 G**

**Processing of VESTAKEEP® i-Grades**

VESTAKEEP® i4 G can be processed by common melt processing techniques like injection molding and extrusion.

We recommend a melt temperature between 370°C and 380°C during the injection molding process. The mold temperature should be within a range of 160°C to 200°C, preferably 180°C.

Our technical experts would appreciate to give you support regarding the special requirements for the processing of VESTAKEEP® i4 G.

**Delivery of VESTAKEEP® i-Grades**

VESTAKEEP® i4 G is supplied as cylindrical pellets in 10 kg boxes with moisture-proof polyethylene liners.

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)

Processing/Physical Characteristics	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Melt volume-flow rate, MVR	12	cm <sup>3</sup> /10min	ISO 1133
Temperature	380	°C	-
Load	5	kg	-

[C]: CAMPUS

Mechanical properties	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Tensile Modulus	3500	MPa	ISO 527
<sup>[C]</sup> Yield stress	94	MPa	ISO 527
<sup>[C]</sup> Yield strain	5	%	ISO 527
<sup>[C]</sup> Nominal strain at break	>50	%	ISO 527
<sup>[C]</sup> Charpy impact strength, +23°C	N	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy impact strength, -30°C	N	kJ/m <sup>2</sup>	ISO 179/1eU
<sup>[C]</sup> Charpy notched impact strength, +23°C	9.1	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Type of failure	C	-	-
<sup>[C]</sup> Charpy notched impact strength, -30°C	6	kJ/m <sup>2</sup>	ISO 179/1eA
<sup>[C]</sup> Type of failure	C	-	-

[C]: CAMPUS

Thermal properties	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Melting temperature, 10°C/min	<b>338</b>	°C	ISO 11357-1/-3
<sup>[C]</sup> Glass transition temperature, 10°C/min	<b>152</b>	°C	ISO 11357-1/-2
<sup>[C]</sup> Temp. of deflection under load, 1.80 MPa	<b>150</b>	°C	ISO 75-1/-2
<sup>[C]</sup> Temp. of deflection under load, 0.45 MPa	<b>205</b>	°C	ISO 75-1/-2
<sup>[C]</sup> Vicat softening temperature, B	<b>305</b>	°C	ISO 306

[C]: CAMPUS

Other properties	Value	Unit	Test Standard
<sup>[C]</sup> Water absorption	<b>0.4</b>	%	Sim. to ISO 62
<sup>[C]</sup> Humidity absorption	<b>0.12</b>	%	Sim. to ISO 62
<sup>[C]</sup> Density	<b>1300</b>	kg/m <sup>3</sup>	ISO 1183

[C]: CAMPUS

Test specimen production	Value	Unit	Test Standard
<b>ISO Data</b>			
<sup>[C]</sup> Injection Molding, melt temperature	<b>380</b>	°C	ISO 294
Injection Molding, mold temperature	<b>180</b>	°C	ISO 294
Injection Molding, injection velocity	<b>200</b>	mm/s	ISO 294

[C]: CAMPUS

**Characteristics**

**Processing**

Injection Molding, Other Extrusion

**Delivery form**

Pellets, Natural Color

**Certifications**

Medical Grade, Biocompatibility ISO 10993, US Pharmacopeia Class VI Approved

**Applications**

Medical

**Regional Availability**

North America, Europe, Asia Pacific, South and Central America, Near East/Africa