VESTAKEEP® DC 4450 G

PEEK — Evonik Operations GmbH

Product Texts

Tooth-colored polyether ether ketone for dental applications

VESTAKEEP® DC4450 G is a tooth-colored, high viscosity polyether ether ketone (PEEK) resin that is especially designed for removable and fixed dentures, crowns and bridges.

Biocompatibility of VESTAKEEP® Dental

For VESTAKEEP® DC4450 G, biocompatibility has been tested according to ISO 10993-1 recommendations for permanent mucous membrane contact. The compound composition is optimised for high biocompatibility and superior mechanical, thermal and chemical resistance.

Biocompatibility test reports available for VESTAKEEP® DC4450 G

Standard	Description
ISO 10993-03	Genotoxicity: Salmonella Typhimurium Reverse Mutation Test (Ames Test)
ISO 10993-05	Cytotoxicity: Quantitative Growth Inhibition Test
ISO 10993-10	Irritation: Intracutaneous Reactivity
ISO 10993-10	Sensitization: Local Lymph Node Assay
ISO 10993-11	Acute Systemic Toxicity
ISO 10993-11	Subacute / Subchronic Toxicity 14 days
ISO 10993-18	Extraction Tests
USP Class VI	Acute Systemic Toxicity Intracutaneous Reactivity Muscle Implantation

Processing of VESTAKEEP® Dental

VESTAKEEP® DC4450 G can be processed by common melt processing techniques like injection molding and extrusion.

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

Delivery of VESTAKEEP® Dental

VESTAKEEP® DC4450 G is supplied as granules in 25 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
OR VISIT OUR PRODUCT AT WWW.EVONIK.COM/MEDICAL-TECHNOLOGY

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
[C] Melt volume-flow rate, MVR	**11**	cm³/10min	ISO 1133
Temperature	**380**	°C	-
Load	**5**	kg	-
[C] Molding shrinkage, parallel	**0.9**	%	ISO 294-4, 2577
[C] Molding shrinkage, normal	**1.0**	%	ISO 294-4, 2577

[C]: CAMPUS

Mechanical properties	Value	Unit	Test Standard
ISO Data			
[C] Tensile Modulus	**4100**	MPa	ISO 527
[C] Yield stress	**95**	MPa	ISO 527
[C] Yield strain	**4.8**	%	ISO 527
[C] Nominal strain at break	**20**	%	ISO 527
[C] Charpy impact strength, +23°C	**N**	kJ/m²	ISO 179/1eU
[C] Charpy impact strength, -30°C	**N**	kJ/m²	ISO 179/1eU
[C] Charpy notched impact strength, +23°C	**6.8**	kJ/m²	ISO 179/1eA
[C] Type of failure	**C**	-	-

[C]: CAMPUS

Thermal properties	Value	Unit	Test Standard
ISO Data			
[C] Melting temperature, 10°C/min	**337**	°C	ISO 11357-1/-3

[C] Glass transition temperature, 10°C/min	**154**	°C	ISO 11357-1/-2
[C] Temp. of deflection under load, 1.80 MPa	**155**	°C	ISO 75-1/-2
[C] Temp. of deflection under load, 0.45 MPa	**210**	°C	ISO 75-1/-2
[C] Vicat softening temperature, B	**305**	°C	ISO 306
[C] Coeff. of linear therm. expansion, parallel	**45**	E-6/K	ISO 11359-1/-2

[C]: CAMPUS

Electrical properties	Value	Unit	Test Standard
ISO Data			
[C] Relative permittivity, 100Hz	**3.6**	-	IEC 62631-2-1
[C] Relative permittivity, 1MHz	**3.6**	-	IEC 62631-2-1
[C] Volume resistivity	**>1E13**	Ohm*m	IEC 62631-3-1
[C] Electric strength	**29.3**	kV/mm	IEC 60243-1

[C]: CAMPUS

Other properties	Value	Unit	Test Standard
[C] Water absorption	**0.4**	%	Sim. to ISO 62
[C] Humidity absorption	**0.3**	%	Sim. to ISO 62
[C] Density	**1510**	kg/m³	ISO 1183

[C]: CAMPUS

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

[C]: CAMPUS

Characteristics

Processing
Injection Molding, Other Extrusion

Delivery form
Pellets

Features
Thermal Stability

Chemical Resistance
General Chemical Resistance

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