

Product Information

VESTAKEEP® DC 4460 G

X-RAY OPAQUE, TOOTH-COLORED POLYETHER ETHER KETONE FOR DENTAL APPLICATIONS



VESTAKEEP® DC4460 G is a tooth-colored, high viscosity polyether ether ketone (PEEK) resin that is especially designed for removable and fixed dentures, crowns and bridges.

VESTAKEEP® DC4460 G contains 6% Barium sulphate to render it x-ray opaque.

Biocompatibility of VESTAKEEP® Dental

For VESTAKEEP® DC4460 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® DC4460 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® DC4460 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® DC4460 G is supplied as granules in 25 kg boxes with moisture-proof polyethylene liners.

Key Features

Industrial Sector
Medical Devices

Processing
Injection molding

Delivery form
Pellets, Granules

Optics
Opaque

Resistance to
Heat (thermal stability), Hydrolysis / hot water, Wear / abrasion, Fatigue resistance

Conformity
Biocompatibility, Medical application

Mechanical properties ISO

	dry	Unit	Test Standard
Tensile modulus	4100	MPa	ISO 527
Tensile strength	95	MPa	ISO 527
Yield stress	95	MPa	ISO 527
Yield strain	4.8	%	ISO 527
Stress at break	74	MPa	ISO 527
Strain at break, B	15	%	ISO 527
Charpy notched impact strength, +23°C	6.8	kJ/m ²	ISO 179/1eA
Type of failure	C	-	-

Thermal properties

	dry	Unit	Test Standard
Melting temperature	340	°C	ISO 11357-1/-3
Glass transition temperature, 2 nd heating, onset	145	°C	ISO 11357
Glass transition temperature, 2 nd heating, midpoint	150	°C	ISO 11357
Recrystallization temperature, 10 K/min	285	°C	ISO 11357
Melting Temperature	340	°C	ASTM D 3418

Physical properties

	dry	Unit	Test Standard
Density	1520	kg/m ³	ISO 1183
Water absorption	0.4	%	Sim. to ISO 62
Density	1520	kg/m ³	ASTM D 792

Optical properties	dry	Unit	Test Standard
Color L	84	-	CIE
Color a	2.5	-	CIE
Color b	20	-	CIE

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

Polymer analytics	dry	Unit	Test Standard
Ash content	25.4	%	ISO 3451

Test specimen production	dry	Unit	Test Standard
Injection Molding, melt temperature	400	°C	ISO 294
Injection Molding, mold temperature	180	°C	ISO 294
Injection Molding, injection velocity	200	mm/s	ISO 294

Characteristics

Special Characteristics

Semi-crystalline

Regulatory

US Pharmacopeia Class VI conformity

Color

Tooth-colored

Chemical Resistance

Acid resistance, Alkali resistance, Solvent resistance, Grease resistance, Hydrolytically stable, General chemical resistance