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

VESTAKEEP®

**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 | **595000** | psi | ISO 527 |
| Tensile strength | **13800** | psi | ISO 527 |
| Yield stress | **13800** | psi | ISO 527 |
| Yield strain | **4.8** | % | ISO 527 |
| Stress at break | **10700** | psi | ISO 527 |
| Strain at break, B | **15** | % | ISO 527 |
| Charpy notched impact strength, +23°C | **3.23** | $ftlb/in^2$ | ISO 179/1eA |
| Type of failure | **C** | - | - |

| Thermal properties | dry | Unit | Test Standard |
|---|---|---|---|
| Melting temperature | **644** | °F | ISO 11357-1/-3 |
| Glass transition temperature, 2 nd heating, onset | **293** | °F | ISO 11357 |
| Glass transition temperature, 2 nd heating, midpoint | **302** | °F | ISO 11357 |
| Recrystallization temperature, 10 K/min | **545** | °F | ISO 11357 |
| Melting Temperature | **644** | °F | ASTM D 3418 |

| Physical properties | dry | Unit | Test Standard |
|---|---|---|---|
| Density | **1.52** | $g/cm^3$ | ISO 1183 |
| Water absorption | **0.4** | % | Sim. to ISO 62 |
| Density | **1.52** | $g/cm^3$ | ASTM D 792 |

VESTAKEEP®

| 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 | **752** | °F | ISO 294 |
| Injection Molding, mold temperature | **356** | °F | ISO 294 |
| Injection Molding, injection velocity | **7.87** | in/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