

Product Information

**VESTAKEEP® DC 4450 R**

**TOOTH-COLORED POLYETHER ETHER KETONE FOR DENTAL APPLICATIONS**



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

**Biocompatibility of VESTAKEEP® Dental**

For VESTAKEEP® DC4450 R, biocompatibility has been tested following 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 R**

| 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  |

**Delivery of VESTAKEEP® Dental**

VESTAKEEP® DC4450 R rods are available in different diameters and lengths.

**Dimensions of VESTAKEEP® DC4450 R**

| Diameter   | Standard length |
|------------|-----------------|
| 6 and 8 mm | 3000 mm         |
| 100 mm     | 1000 mm         |

Other custom dimensions are available on request.

**Key Features**

**Industrial Sector**

Medical Devices

**Processing**

Machining

**Delivery form**

Stock shape (rods and plates)

**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             | <b>696000</b> | psi                  | ISO 527       |
| Yield stress                | <b>16000</b>  | psi                  | ISO 527       |
| Yield strain                | <b>4.2</b>    | %                    | ISO 527       |
| Nominal strain at break, tB | <b>10</b>     | %                    | ISO 527       |
| Izod Impact notched, 23°C   | <b>2.43</b>   | ftlb/in <sup>2</sup> | ISO 180/1A    |
| Flexural modulus, 23°C      | <b>696000</b> | psi                  | ISO 178       |
| Flexural strength, 23°C     | <b>25400</b>  | psi                  | ISO 178       |

**Thermal properties**

|  | dry           | Unit     | Test Standard  |
|--|---------------|----------|----------------|
| Temp. of deflection under load A, 1.80 MPa                 | <b>311</b>    | °F       | ISO 75-1/-2    |
| Temp. of deflection under load B, 0.45 MPa                 | <b>410</b>    | °F       | ISO 75-1/-2    |
| Vicat softening temperature A, 10 N, 50 K/h                | <b>635</b>    | °F       | ISO 306        |
| Vicat softening temperature B, 50 N, 50 K/h                | <b>581</b>    | °F       | ISO 306        |
| Coeff. of linear therm. expansion, 23°C to 55 °C, parallel | <b>2.5E-5</b> | in/in/°F | ISO 11359-1/-2 |

**Physical properties**

|                  | dry         | Unit              | Test Standard  |
|------------------|-------------|-------------------|----------------|
| Density          | <b>1.52</b> | g/cm <sup>3</sup> | ISO 1183       |
| Water absorption | <b>0.4</b>  | %                 | Sim. to ISO 62 |
| Density          | <b>1.52</b> | g/cm <sup>3</sup> | ASTM D 792     |

**Optical properties**

|         | dry       | Unit | Test Standard |
|---------|-----------|------|---------------|
| Color L | <b>86</b> | -    | CIE           |

VESTAKEEP®

|         |     |   |     |
|---------|-----|---|-----|
| Color a | 1.5 | - | CIE |
| Color b | 16  | - | CIE |

### Characteristics

#### Special Characteristics

Semi-crystalline

#### Regulatory

US Pharmacopeia Class VI conformity

#### Color

Tooth-colored

#### Delivery form

Rods Ø6-20mm,stan.lengths 3000mm, Rods  
Ø70-100mm,stan.lengths 1000mm

#### Chemical Resistance

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