

## Patient Specific Implants made of PEEK

Beside our implant materials **BIOVERIT®II** and **Titanium** we offer you also patient specific implants of **PEEK** (PEEK-OPTIMA® / PEEK-VESTAKEEP®), a non-resorbable high performance thermoplastic for the long-term implantation. Since 2008, 3di GmbH is producing patient specific implants for the cerebral and visceral cranium made of this material.

### Advantages of PEEK

- bone-like temperature conductivity
- excellent proven biocompatibility
- intraoperative machinable
- no artefacts when using conventional imaging techniques such as X-Ray, CT / MRI (radiolucent)
- brilliant combination between strength, stiffness and viscosity, comparable to cortical bone
- resterilization is possible; all conventional procedures for the sterilization are applicable (Steam, Ethylene oxide and Gamma irradiation)



### Material

PEEK is a light grey beige, semi crystalline material, which can be processed with conventional tools with high manufacturing accuracies cutting. It permits the medical user to manufacture most diverse forms.

### Chemical Composition

PEEK (Polyetheretherketone) have a linear, aromatic polymer structure and belongs to the (Poly-)aryletherketone, which is one of the Polymer group.

#### **PEEK = Polyetheretherketone**

Structure: linear, aromatic polymer

Morphology: semicrystalline

Polymer group: (Poly-)aryletherketone

### Mechanical Handling

PEEK can be blade-machinable like BIOVERIT® II. The plain implant-edges can be modify with a scalpel. The curvatures are more difficult and should be modified by hard metal-cutting tools. Please drill or mill with large cutting geometries. Otherwise the material begins to smearing.

The processing can take place both with and without cooling agents but we recommend a cooling with e.g. distilled water. The driving peed should be slow (e.g. 10.000-20.000 rpm for a tool with a diameter 5mm) to avoid a burn out.

For minimization the time and effort beside the implant-form we also manufacture the holes for your desired attachment-method.