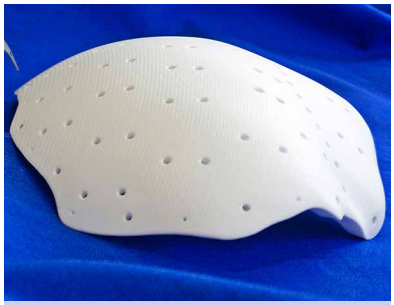
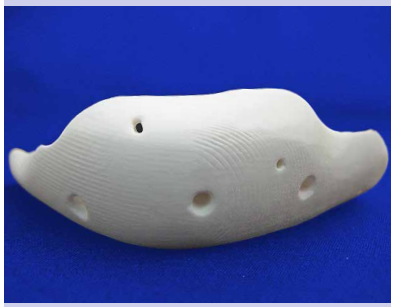
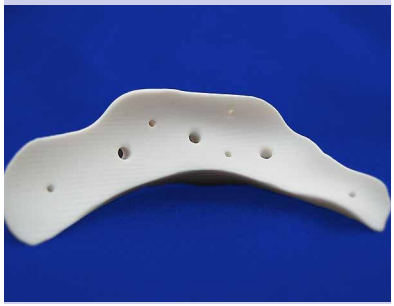
Implanting the Future

Patient Specific Implants made of BIOVERIT®II

Beside our implant materials PEEK and titanium we also offer you patient specific implants made of **BIOVERIT®II**. This material has been used for the production of implants since 1982. Since 2000, 3di GmbH has been successfully manufacturing cranial implants made of **BIOVERIT®II** for patients.







Advantages of BIOVERIT®II

- bio-compatible (proven fibroblast growth)
- corrosion resistant and bioinert
- bone-like thermal conductivity
- intraoperatively machinable
- very good postoperative diagnosis (no artefacts in CT/MRI examinations)
- resterilisable by means of steam sterilisation

Material

BIOVERIT®II is a white, odourless, solid, non-outgassing material, which can be machined with conventional cutting tools with high manufacturing accuracies. It allows the medical user to produce a wide variety of shapes. There is no reburning of the glass ceramic after forming necessary, so there is no subsequent shrinkage of the material.

Chemical composition

BIOVERIT®II is a machinable glass ceramic of the SiO_2-Al_2O_3-$MgONa_2O$-K_2O-F-system, which consists of a crystal phase (approx. 60 %) with mainly phlogopite crystals embedded in an alumosilicate glass matrix (approx. 40 %). There are no known toxic effects.

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Subject to change.

Mechanical Handling

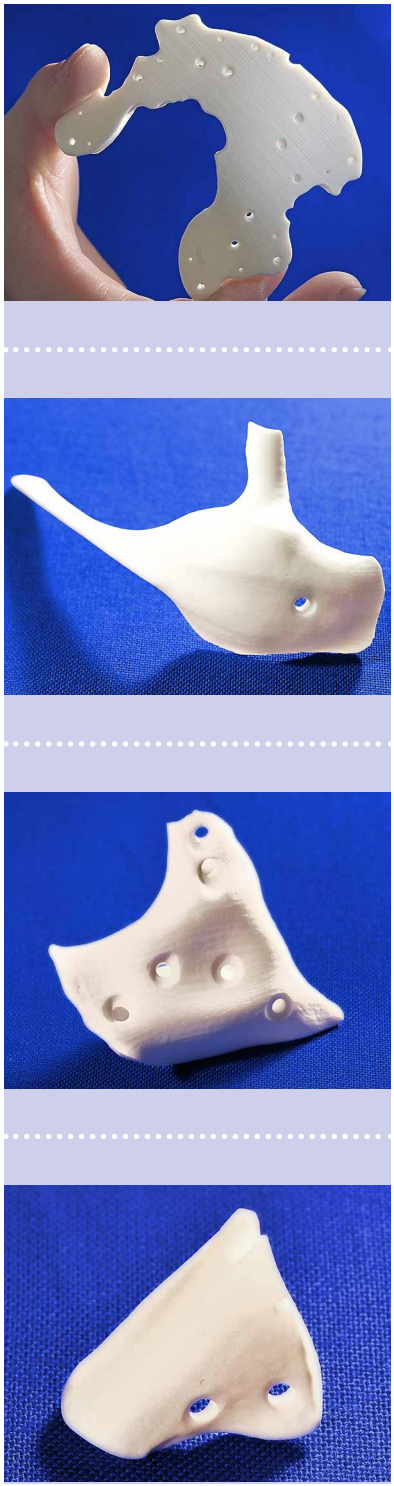
BIOVERIT®II combines good machinability (cutting tools, no pliers, or similar) with the biomedical properties of glasses and ceramics. The machinability of BIOVERIT®II is based on its two-phase microstructure of the mica crystals embedded in a residual glass matrix. The components of the cutting force of the tool cause a separation of crystals with attached residual glass matrix. At the same time cracks are formed, which propagate along the mica crystals. These cracks are stopped or diverted by transverse crystals and do not allow formation of deep cracks. The material is removed in microscopic particles (about 20 μm).

The processing can be done with or without coolant. For machining with surgical tools we recommend cooling e. g. with distilled water. The speed should be chosen as low as possible (e. g. 10,000–20,000 rpm for a tool with a diameter of 5 mm) to avoid annealing of the tool.

The intraoperative processing of BIOVERIT®II can be carried out with the following surgical tools:

- rose-head-drill
- diamond-drill
- coarse diamond cutter
- carbide cutter
- call-end cutter
- micro-milling cutter

In order to avoid the effort for you, we manufacture the holes for the fixation system you prefer during the production of the implant.



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