Bone substitute material

safe and user-friendly
The safe and user-friendly bone substitute material

**ossceram nano** is a fully synthetic, two-phase calcium phosphate ceramic consisting of
- 60% hydroxyapatite (HA) and
- 40% β-tricalcium phosphate (β-TCP).

Consequent bone regeneration is supported by this mineralogical composition, morphology analogous to bone and the resulting resorption characteristics.

While the β-TCP exhibits quick osseous organization and is replaced by newly formed bone within a short period, the HA content ensures that the volume remains unchanged.

The high porosity in conjunction with the nano-structured surface stimulates the formation of new bone thanks to
- **Microporosity**  
  For optimal diffusion of biological materials and quick ion exchange.
- **Macroporosity**  
  For quick blood vessel invasion and osseous organization.

**nano structure**

The clearly visible nano structure of the surface supports the formation of bone and hence creates perfect preconditions for the attachment of
- **Serum proteins**
- **Collagen fibers**
- **Osteoblasts**

In in-vitro studies the **ossceram nano** particles were colonized by osteoblasts already after a few days.
Remodelling process of ossceram nano

Healing period – 4 weeks
Formation of new bone, mainly starting from the basal direction, can be observed.
Initial signs of osteoid formation can be detected between the granules.

Healing period – 8 weeks
The augmentation material is fully integrated into the hard tissue.
The individual granules appear to be embedded in the mesh-bone.

Healing period – 12 weeks
Complete osteoconductive integration of the bone substitute material in the mature bone is achieved.
The individual granules are surrounded by newly formed bone tissue and linked with each other via hard tissue bridges.

Healing period – 24 weeks
Most of the original mesh-bone has been transformed into lamellar bone.
Surface degradation and the detection of resorption lacunae in addition to a slightly mineralized bone matrix are signs of functional remodelling.

Panoramic radiograph (12.5 x)  Fine detail radiograph (400 x)

Publications
D. Rothamel et al., Oberflächenstruktur, Biokompatibilität und Hartgeweberegeneration, Zeitschrift für Orale Implantologie 2(2009), S. 90-98
This publication is available as a special print.
Better efficiency

A comparison of ossceram nano with a synthetic calcium sulphate / hydroxyapatite ceramic and a natural bovine hydroxyapatite showed significantly better proliferation of osteoblasts on the ossceram nano surface.

Easy to use

After rehydration with

- blood from the defect region
- sterile sodium chloride solution or
- venous blood

ossceram nano can be easily and safely applied with the tray.

The rehydrated ossceram nano particles adhere firmly to the tray.

Once they are applied, the particles retain their position thanks to the spherical granules and do not need to be condensed.
Efficiency

ossceram nano granules produce a highly porous, regenerative matrix:

- Volume stability with low initial shrinkage
- Maximum space for the penetration by blood vessels and for regeneration of the vital bone
- Fast and reliable formation of new bone with long-term remodelling into purely vital bone

Indication

Sinus floor elevation, external
Preferred granule size: 0.8 – 1.5 mm

Sinus floor elevation, internal
Preferred granule size: 0.5 – 1.0 mm

Small and large defects around implants
Preferred granule size: 0.5 – 1.0 mm

Lateral augmentation
Preferred granule size: 0.5 – 1.0 mm

Cysts and other bone defects in the jaw area
Preferred granule size: depending on the extent of the bone defect

Radiopacity

The radiopacity allows safe control and reliable documentation of the treatment result.

ossceram nano is a microporous, synthetic bone substitute material which excels by its high biocompatibility and quick bone regeneration. The β-TCP contained in the material supports initial regeneration of hard tissue whereas the slowly resorbable hydroxyapatite ensures perfect volume stability. Moreover, even when performing complex augmentation procedures, it can be easily applied and retains its position thanks to the spherical particles.

Dr. Dr. Daniel Rothamel, University of Cologne, Germany
**ossceram nano**

- The β-TCP proportion is replaced by newly formed bone within a short period
- The optimized HA proportion retains the volume of the augmentation material
- The nano structure supports the formation of new bone thanks to optimized attachment of the serum proteins and collagen fibers

**Information on ordering**

<table>
<thead>
<tr>
<th>ossceram nano in 2 particle sizes</th>
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<tbody>
<tr>
<td><strong>Particle size</strong></td>
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<tr>
<td>0.5 - 1.0 mm</td>
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<td>0.5 - 1.0 mm</td>
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<td>0.8 - 1.5 mm</td>
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**alveoprotect**

- Protects and stabilizes the jaw bone and facilitates implant placement later on
- The pH neutrality has a positive influence on soft tissue regeneration and reduces inflammatory effects
- Supports the formation of the coagulum and provides the precondition for the adhesion of thrombocytes, fibroblasts and osteoblasts

**Information on ordering**

<table>
<thead>
<tr>
<th>Technical data:</th>
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<tbody>
<tr>
<td><strong>pH value</strong></td>
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<tr>
<td><strong>Barrier function</strong></td>
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<tr>
<td><strong>Hemostyptic</strong></td>
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<tr>
<td><strong>Soft tissue reaction</strong></td>
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<tr>
<td><strong>Resorption</strong></td>
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</tbody>
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**alveoprotect collagen fleece**

- 12 membranes 20 x 20 mm, single sterile packaging
- REF AP2x2x12