

## Bone substitute material



safe and user-friendly

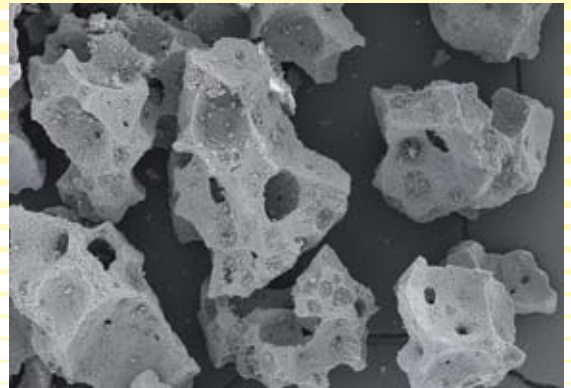
## The safe and user-friendly bone substitute material

*ossceram nano* is a fully synthetic, two-phase calcium phosphate ceramic consisting of

- 60% hydroxyapatite (HA) and
- 40 %  $\beta$ -tricalcium phosphate ( $\beta$ -TCP).

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

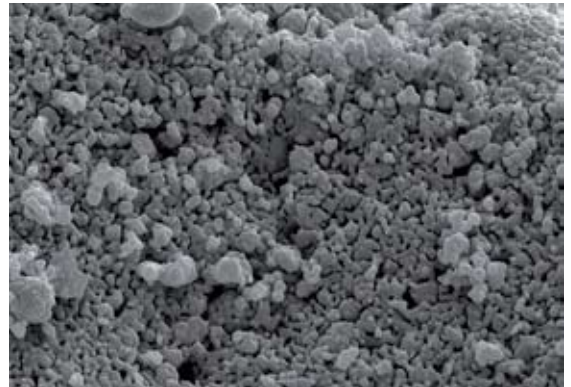
While the  $\beta$ -TCP exhibits quick osseous organization and is replaced by newly formed bone within a short period, the HA content ensures that the volume remains unchanged.



Micro- and macroporosity (magnification 25x)

**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.



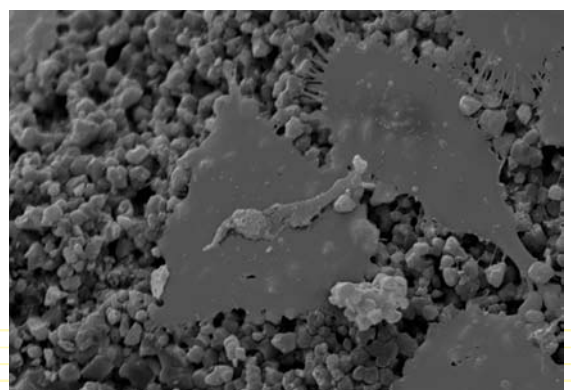
nano structure (magnification 1000x)

### 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.



SaOs-2 osteoblasts on *ossceram nano* (magnification 1000x)  
(The cover picture show a SEM photo with *ossceram nano* in false color)

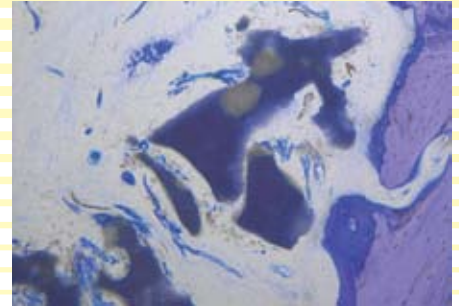
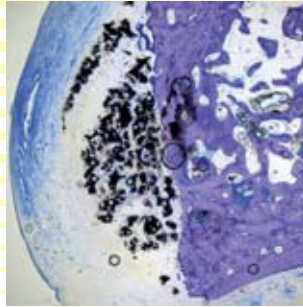


## Remodelling process of *ossceram nano*

### Healing period – 4 weeks

Formation of new bone, mainly starting from the basal direction, can be observed.

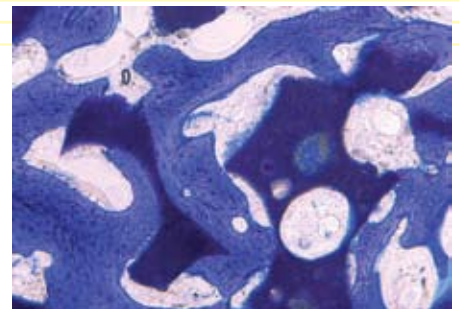
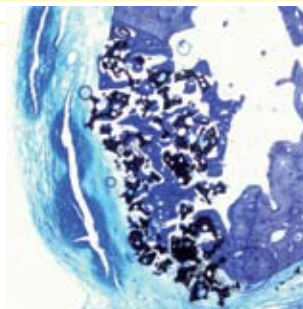
Initial signs of osteoid formation can be detected between the granules.



### Healing period – 8 weeks

The augmentation material is fully integrated into the hard tissue.

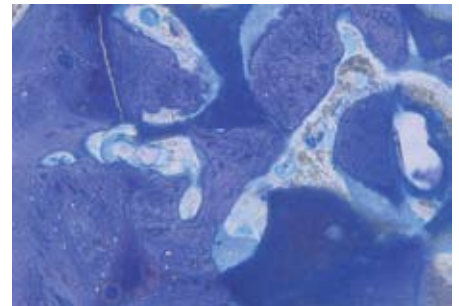
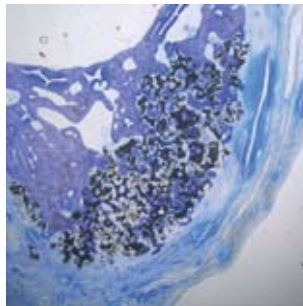
The individual granules appear to be embedded in the mesh-bone.



### Healing period – 12 weeks

Complete osteoconductive integration of the bone substitute material in the mature bone is achieved.

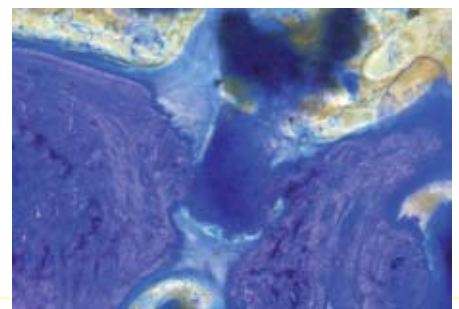
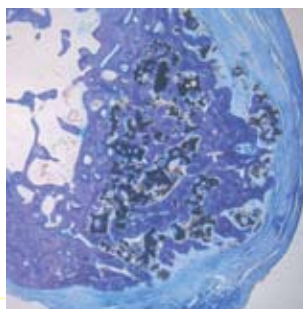
The individual granules are surrounded by newly formed bone tissue and linked with each other via hard tissue bridges.



### 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)

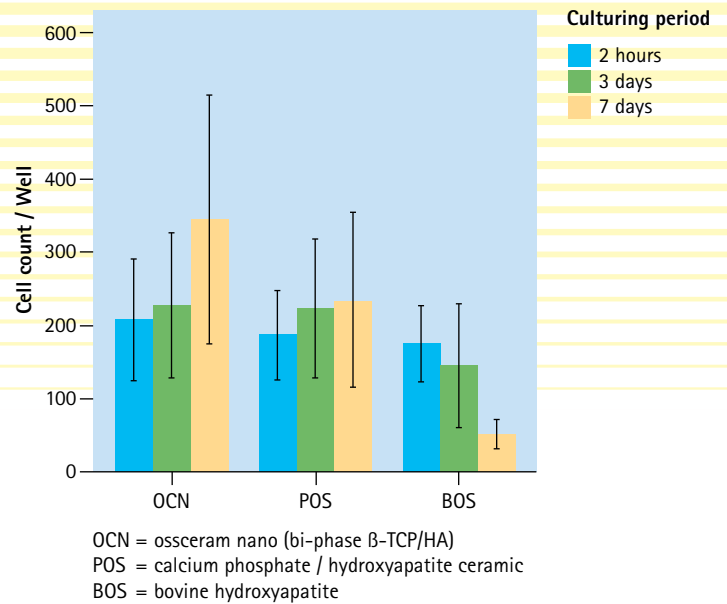
#### Publications

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.

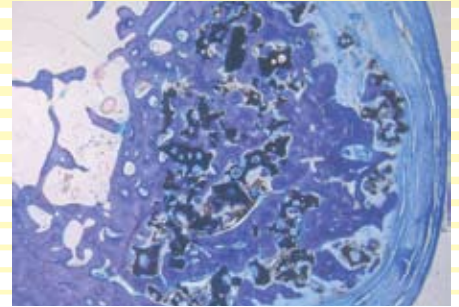
Once they are applied, the particles retain their position thanks to the spherical granules and do not need to be condensed.



## 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  $\beta$ -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  $\beta$ -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



ossceram nano in 2 particle sizes

Particle size	Volume	REF	Color
0.5 - 1.0 mm	0.5 cc	OSSY1005	Green
0.5 - 1.0 mm	1.0 cc	OSSY1010	Green
0.8 - 1.5 mm	1.0 cc	OSSY1510	Red
0.8 - 1.5 mm	2.0 cc	OSSY1520	Red

## alveoprotect for socket preservation

- 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



#### Technical data:

pH value	7.0 neutral
Barrier function	yes
Hemostyptic	yes
Soft tissue reaction	positive
Resorption	2-4 weeks

#### alveoprotect collagen fleece

12 membranes 20 x 20 mm, single sterile packaging

REF AP2x2x12

