VITALITY MEETS BONE VOLUME
AROUND DENTAL IMPLANTS

Straumann® BoneCeramic

COMMITTED TO
SIMPLY DOING MORE
FOR DENTAL PROFESSIONALS
Patient’s own bone regeneration is a key factor to successful osseointegration of the dental implants.

Straumann® BoneCeramic gradually resorbs and becomes substituted by new vital bone.

Bone volume restoration and preservation are essential requirements in order to achieve esthetic results successfully.

Straumann® BoneCeramic is engineered to support restoration and preservation of bone volume.
Bone formation accompanies Straumann® BoneCeramic degradation in vivo\textsuperscript{1,2}

\textbf{NMB:} new mineralized bone

\textbf{NMT:} non mineralized tissue displaying osteogenetic activity

\textbf{SBC:} Straumann® BoneCeramic particle

\textbf{Arrows:} Straumann® BoneCeramic degradation (grey zones)

Image by PD Dr. F. Schwarz. Methyl Green staining, original magnification X 400

Images and data from a preclinical canine study by PD Dr. F. Schwarz. Data on file\textsuperscript{2}.

\textsuperscript{1,2} see studies overview on page 8
Osteoid

Collagen I fibres (arrow), major component of the bone matrix, clearly indicate osteogenesis.

Osteoblasts

Osteoblasts (arrow), cells responsible for bone synthesis, present in the new forming bone (NFB).

Blood vessels

Blood vessels (BV) grow through Straumann® BoneCeramic augmented bone supplying nutrients for bone generation.

Sustained bone formation over healing time

Antigenic reactivity indicating bone formation over time

Mean antigenic reactivity (%)
**DESIGNED TO RESTORE PATIENT'S OWN BONE**

**STRAUMANN® BoneCeramic**

- Significantly less residual bone substitute and more non mineralized tissue (including bone marrow and connective tissue) with Straumann® BoneCeramic, compared to bovine bone mineral, 6–7 months post augmentation, in sinus floor elevation.

- Equivalent new mineralized bone, in comparison to bovine bone mineral.

- 28.35% average newly formed mineralized bone with Straumann® BoneCeramic versus 22.27% with bovine bone mineral, between 6 and 8 months post augmentation ($p = 0.6024$).

- Trend of increase in mineral bone formation over healing time with Straumann® BoneCeramic.

- Bone vitality was a 100% in all cores harvested.

- Significant increase in mineral bone area over healing time with Straumann® BoneCeramic in a composite with autogenous bone, in sinus floor elevation.

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**NMB:** New mineralized bone  
**SBC:** Straumann® BoneCeramic  
**Osteoid:** green staining

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See studies overview on page 8.
BONE VOLUME RESTORATION AND PRESERVATION FOR THE DESIRED ESTHETIC OUTCOME

In a prospective randomized controlled clinical study Straumann® BoneCeramic in combination with autogenous bone has been observed to successfully restore bone volume in dehiscence-type defects.

Equivalent defect fill as with bovine bone mineral 6 months after augmentation.

Significantly higher bone gain with Straumann® BoneCeramic compared to autogenous bone alone in interproximal intrabony defects.

Equivalent vertical bone growth and relative bone gain compared to bovine bone mineral 12 months post augmentation.

In a prospective randomized controlled clinical study, Straumann® BoneCeramic, in tooth extraction sockets, successfully supported ridge dimensions preservation.

Statistically significant less reduction in the bucco-lingual ridge dimension with Straumann® BoneCeramic than with bovine bone mineral, 8 months post augmentation.

Equivalent width of the buccal and palatal/lingual bone plate and equivalent distance (height) of the alveolar bone crest at the mesial- and distal-central aspects of the socket relative to the CEJ of neighboring teeth, with Straumann® BoneCeramic compared to bovine bone mineral, 8 months post augmentation.

See studies overview on page 8.
**STRAUMANN® BoneCeramic**
**EXCELLENT HANDLING, REPRODUCIBLE QUALITY**

Straumann® BoneCeramic is a fully synthetic and biocompatible product. Its manufacturing process features homogeneous phase distribution and batch-to-batch consistency.

Straumann® BoneCeramic rapidly absorbs fluids, forming a granular putty. The wetted granules adhere to the application instrument and subsequently fit the bony defect nicely. Straumann® BoneCeramic mixes well with sterile saline solution, autogenous blood and bone.

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### Ordering information

<table>
<thead>
<tr>
<th>Art. No.</th>
<th>Article</th>
<th>Dimensions</th>
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</thead>
</table>
| 070.203  | Straumann® BoneCeramic 400 – 700     | Granule size: 400 – 700 microns  
Unit size: 0.25 g  
Volume: approx. 0.3 ml |
| 070.204  | Straumann® BoneCeramic 500 – 1000    | Granule size: 500 – 1000 microns  
Unit size: 0.5 g  
Volume: approx. 0.95 ml |
| 070.205  | Straumann® BoneCeramic 500 – 1000    | Granule size: 500 – 1000 microns  
Unit size: 1 g  
Volume: approx. 1.9 ml |
**TECHNICAL SHEET**

**Straumann® BoneCeramic** is a fully synthetic bone graft substitute indicated for filling and/or augmenting intraoral/maxillofacial osseous defects:

- bony defects of the alveolar ridge
- tooth extraction sites
- sinus floor elevation
- intrabony periodontal osseous defects and furcation

**Optimized morphology**

With its optimized porosity, Straumann® BoneCeramic is designed to favour vascularisation, osteoblast migration and bone deposition. High porosity and minimum amount of material leave maximum space for new bone.

**Gradual resorption**

Straumann® BoneCeramic consists of hydroxylapatite and β-tricalcium phosphate in a very homogenous composite. β-Tricalcium phosphate resorbs faster than hydroxylapatite, becoming replaced by natural bone. Hydroxyapatite prevents excessive resorption and preserves bone volume for a successful esthetic result.

**Reproducible quality and safety of synthetic products**

Straumann® BoneCeramic is a fully synthetic and biocompatible material. It mixes well with sterile saline solution, autogenous blood or bone. Straumann® BoneCeramic rapidly absorbs fluids, forming a granular putty which adheres to the application instrument and fits the bony defect nicely.

**Biphasic calcium phosphate**

- 60% hydroxylapatite
- 40% β-tricalcium phosphate

**High porosity**

- Total porosity: 90%
- Interconnected pores
- Pores size: 100–500 μm

**Granule dimensions**

- 400–700 μm
- 500–1000 μm

**Excellent wettability and handling**

- Absorbs fluids, forming a granular putty
- Adheres to the application instrument
- Nicely conforms to the bony defect

* see studies overview on page 8
### STUDIES

**STRAUMANN® BoneCeramic**

<table>
<thead>
<tr>
<th>Reference</th>
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<th>Indication</th>
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<tr>
<td>2 Schwarz F. et al. Immunohistochemical characterization of wound healing at two different bone graft substitutes. A pilot study in dogs. Data on file</td>
<td>Preclinical canine study</td>
<td>Dehiscence-type defects</td>
</tr>
<tr>
<td>6 van Assche N. et al. BoneCeramic as alternative for Bio-Oss in the treatment of bony dehiscences along implants. EAO 2007. Data on file (study CR 04/05)</td>
<td>Prospective, randomised controlled clinical study</td>
<td>Dehiscence-type defects</td>
</tr>
<tr>
<td>7 Zafiropoulos G-G. K. et al. Treatment of intrabony defects using guided tissue regeneration and autogenous spongiosa alone or combined with hydroxyapatite/beta tricalcium phosphate bone substitute or bovine-derived xenograft. J. Periodontol. 2007, 78: 2216-2225</td>
<td>Single masked, non randomized, case-control clinical study</td>
<td>Periodontal intrabony defects</td>
</tr>
<tr>
<td>8 Mardas N. et al. Socket preservation with synthetic bone substitute or a bovine xenograft. IADR 2008. Data on file (study CR 03/05)</td>
<td>Prospective, single blind, randomized, controlled clinical study</td>
<td>Alveolar ridge dimensions preservation</td>
</tr>
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THREE REASONS TO CHOOSE STRAUMANN® BoneCeramic

The vitality you need around your implants

Bone volume restoration and preservation for the desired esthetic outcome

Excellent handling, reproducible quality

www.straumann.com