dental
bone & tissue
regeneration

botiss
biomaterials

# cerabone®

## Natural bovine bone grafting material

## Scientific & Clinical Evidence

by Dr. Marius Steigmann et al.

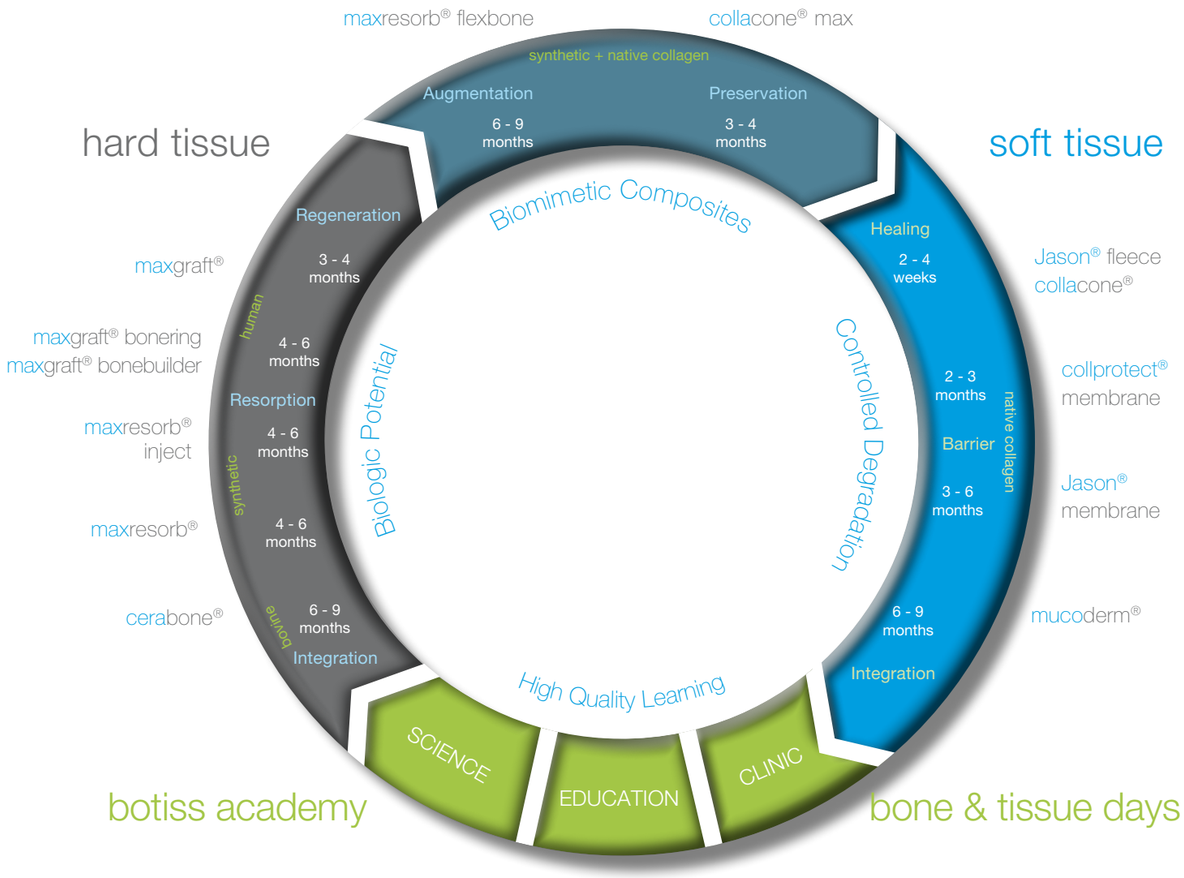
hard tissue

natural

safe

pure

# botiss regeneration system




cerabone®

natural bovine bone graft

maxresorb®

bi-phasic calcium phosphate

maxresorb® inject

synthetic injectable bone paste

maxgraft®

processed allogenic bone graft

maxgraft® bonering

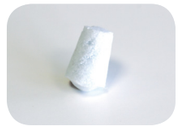
processed allogenic bone rings

maxgraft® bonebuilder

patient matched allogenic bone implants

maxresorb® flexbone

flexible blocks (CaP/collagen composite)



collacone® max

cone (CaP/collagen composite)

mucoderm®

3D-stable soft tissue (collagen) graft

Jason® membrane

native pericardium GBR/ GTR membrane



collprotect® membrane

native collagen membrane

Jason fleece® collacone®

collagenic haemostypt (sponge/cone)



# Dr. medic. stom. IMF Neumarkt Marius Steigmann, PhD

- Adjunct. Assistant Professor of Oral and Maxillofacial Surgery at Boston University
- Visiting Professor at the University of Michigan
- Honorary Professor of the “Carol Davila“ University Bucharest, Invited Senior Guest
- Visiting Professor at the University of Szeged, Faculty of Dentistry
- Visiting Professor at the Department of Implantology of Temeschburg
- Diplomate of the ICOI

- Dr. Marius Steigmann received the „Semmelweiss“ medal from Budapest University Dental School, Dept. of Oral and Maxillofacial Surgery
- Dr. Steigmann received his PhD with Summa cum laude from the University of Neumarkt
- Founder and scientific chairman of “Update Implantologie Heidelberg”
- Founder and director of the “Steigmann Implant Institute” in Neckargemünd

Dr. medic. stom. IMF Neumarkt Marius Steigmann, PhD

## The Steigmann Implant Institute

The Steigmann Implant Institute is a private teaching institution founded in 2006. The mission is teaching dentists all aspects of dental implants and biologics. However the main focus is on aesthetics with soft tissue management and bone regeneration.
Dr. Steigmann is considered a specialist and pioneer of modern dental implantology.

Global clinical and scientific network besides others: Prof. Dr. Hom-Lay Wang, Prof. Dr. Anton Sculean, Dr. Maurice Salama, Dr. Philippe Russe, Dr. Tiziano Testori, Dr. Scott Ganz, Dr. Olaf Daum, PD Dr. Dr. Daniel Rothamel, Dr. Damir Jelušić, Dr. Ophir Fromovich.

Clinical contribution: Dr. Marius Steigmann, Dr. Damir Jelušić
Scientific contribution: PD Dr. Dr. Daniel Rothamel, Dr. Dr. Shahram Ghanaati, Prof. Dr. Zvi Artzi, Prof. Dr. Carla Vogt, Prof. Dr. Barbara Zavan, Prof. Dr. Herbert Jennissen, Dr. Markus Laub, Dr. Christoph Reichert

# Bone and Regeneration Techniques

## The use of bone graft materials

Bone graft materials are applied to replace and regenerate bone matrix lost by various reasons such as tooth extraction, cystectomy or bone atrophy following loss of teeth or inflammatory processes. For the filling of bone defects the patients own (autologous) bone is considered the „gold standard“, because of it‘s biological activity due to vital cells and growth factors. Nevertheless, the harvesting of autologous bone requires a second surgical site associated with an additional bony defect and potential donor site morbidity.

In addition, the quantity of autologous bone is limited. Today, due to a constant development, bone graft materials provide a reliable and safe alternative to autologous bone grafts.
Clinicians can choose between a variety of different bone graft materials and augmentation techniques. Bone graft materials are classified by their origin into four groups.

cerabone® 1-2mm

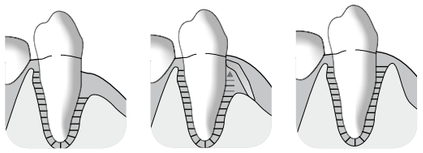


cerabone® 0.5-1mm

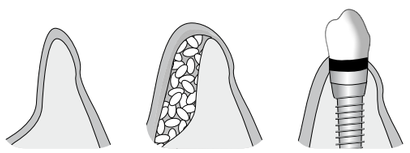
## The GBR/GTR technique

The principle of Guided Bone Regeneration (GBR) or Guided Tissue Regeneration (GTR) is based on the separation of the grafted site from the surrounding soft tissue by application of a barrier. Collagen membranes act as a resorbable matrix to avoid the ingrowth of the faster proliferating fibroblasts and/or epithelium into the defect and to maintain the space for controlled regeneration of bone.
The application of bone graft material into the defect prevents the collapse of the collagen membrane, acting as a place holder for the regenerating bone and as an osteoconductive scaffold for the ingrowth of blood vessels and bone forming cells.

### Guided Tissue Regeneration (GTR)



### Guided Bone Regeneration (GBR)



## Classification

### Autologous:
- patients own bone, mostly harvested intraoral or from the iliac crest
- intrinsic biologic activity

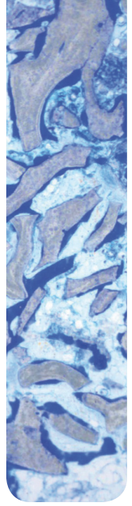
### Allogenic:
- bone from human donors (cadaver bone or femoral heads of living donors)
- natural bone composition and structure

### Xenogenic:
- from other organisms, mainly bovine origin
- Long term volume stability

### Alloplastic
- synthetically produced, preferably calciumphosphate ceramics
- no risk of disease transmission

Recommended material for large defects is a mixture of autologous or allogenic bone providing high biologic potential and bone graft material for volume stability of the grafting site.

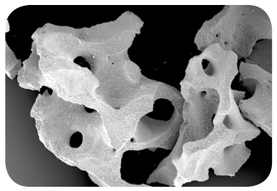


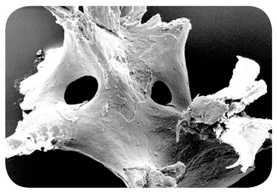
Histology of cerabone® 6 months after sinus lift; optimal integration and bone healing

## Xenogenic bone graft materials

Xenogenic bone grafts are derived from animal organisms, preferably of bovine origin. Bovine bone materials should be deproteinized by heating (sintering) to exclude the risk of allergic reactions and infection transmission[1].
The bovine bone materials have a long tradition, are very well documented and their clinical application has found wide-ranging acceptance. The removal of all proteins transforms them into biologically derived hydroxyapatite ceramics. They are characterized by their preserved three dimensional natural bone structure with interconnecting pores strongly resembling the human bone structure. Their guided osseous integration rather than rapid resorption leads to excellent volume stability of the graft, with the formation of new bone on the highly structured bovine bone surface.



SEM: cerabone® macro- and micropores resembling human bone



SEM picture of human bone

## cerabone® – natural bovine bone grafting material

cerabone® is derived from bovine bone in an established high temperature heating process (sintering) guaranteeing its safety[2].
Beside safety and reliablity of the product and the production process the material fulfills all other important requirements for the clinical success of a bovine bone graft material:

cerabone® excellent biofunctionality; superior hydrophilicity and blood uptake

- phase pure hydroxyapatite without organic components
- rough and open porous structure comparable to natural human bone
- excellent hydrophilicity enabling a rapid uptake of blood
- optimal biocompatibility proved in various in vitro and in vivo tests
- rapid and controlled osseous integration

These characteristics are the base for the excellent clinical results of cerabone® demonstrated by high volume stability at the graft site, complete integration into newly formed bone matrix and resulting in high bone density[3].

[1] Murugan et al., Heat-deproteinated xenogenic bone from slaughterhouse waste: Physico-chemical properties, Bull. Mater. Sci, Vol 26, No. 5, 2003

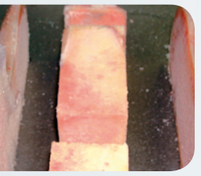
[2] BSE risk cerabone, aap biomaterials, GmbH

[3] D. Rothamel et al., Sinus floor Elevation using a sintered, natural bone mineral, zzi, 2011; 27(1)

# cerabone®: Safety & Reliability Facts Made in Germany

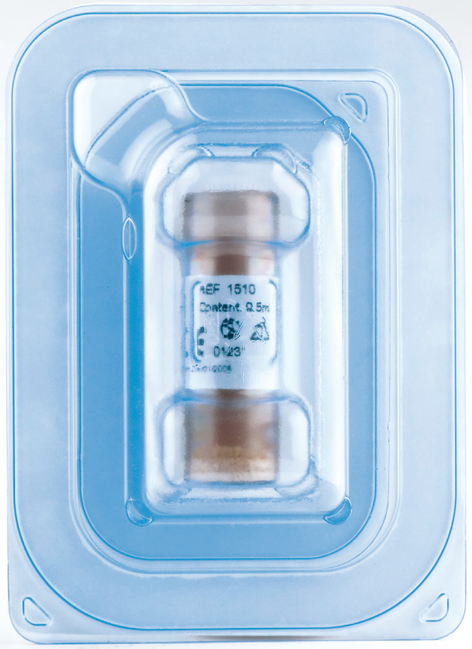
Sintering

Heating up to 1250 °C



## BSE free

cerabone® is gained from the cancellous bone of femur condyles of German cattle older than 30 months. All cattles have been tested for BSE with negative results. Because of the choice of the raw material (food industry) and the special processing, cerabone® is BSE free. Its safety has been officially certified by the health authority of the German state of Hesse.




threefold sterility

## Patented Manufacturing Process

Both product and production process are fulfilling the German and EU-regulatory and security requirements for bovine bone grafts including EN ISO 22442-1 and EN ISO 22442-2.
The proprietary manufacturing process of cerabone® is based on high temperature heating (sintering) and special surface treatment

- cell-friendly, biomimetically structured, rough surface
- complete removal of organic components and albuminous impurities
- no risk of allergic side effects or rejection reactions

## CE Certification

- CE certification of cerabone® was issued in 2002
- product is on the market since January 2002
- no single adverse event reported in association with the product

## Sterile & Storable

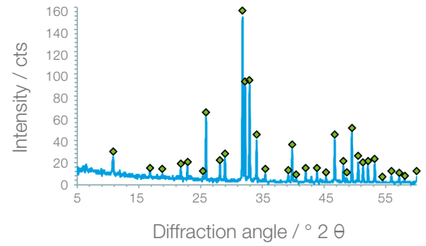

cerabone® is available as granules and in block form. The product is packed in sterile bottles and sealed in primary and secondary blister packaging and sterilized with gamma irradiation. cerabone® can be stored at room temperature for up to three years.



# cerabone®: 100% Pure Mineral Bone Phase

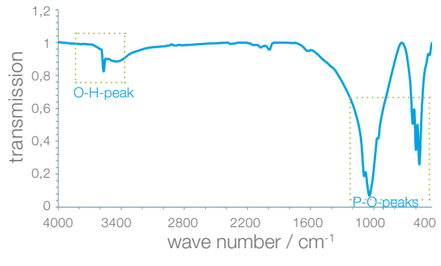
cerabone® consists of the pure mineral phase of bovine bone.
Beside hydroxyapatite no other phases are detectable. The high phase purity leads to a maximal volume stability. In addition, the absence of any organic components is the reason for the high safety of cerabone®.

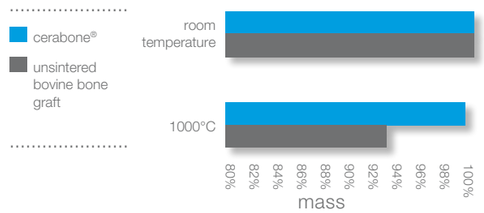
## Results from Prof. Dr. C. Vogt, University of Hannover




X-ray diffractometry: mineral phases and crystallinity.
Narrow peaks and low baseline.
cerabone® shows high crystallinity and 100% purity.

Infrared spectroscopy:
molecular fingerprint.
Characteristic reflexes of phosphate and hydroxy groups of the hydroxyapatite.
No other organic phases detectable.

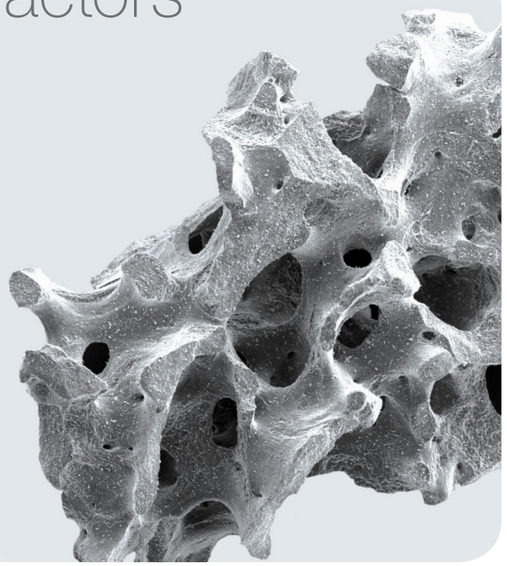



Thermogravimetric analysis showing combustion of organic components.
No mass loss by heating cerabone® up to 1000°C[4]
Complete removal of organic components (cells, collagen) by sintering process.

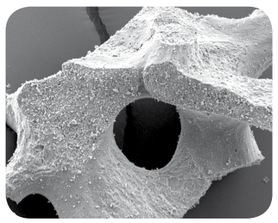

[4] Tadic et al., A thourough physicochemical characterization of 14 calcium phosphatebased bone substitute materials in comparison to natural bone, Biomaterials 25 (2004) 987-994

# Topography and Hydrophilicity as key success factors

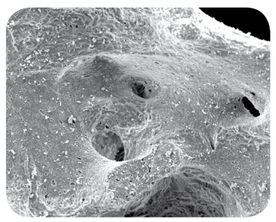


Optimal adhesion and ingrowth of cells, proteins and blood vessels

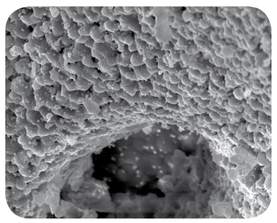
Scanning electron microscopic (SEM) pictures show the highly structured surface of cerabone® as well as the macro and micro pores.



The macroporous structure enables migration of cells and blood vessels and integration of the particles



The capillary effect of the micro pores leads to a quick blood uptake of the material



The rough surface ensures an excellent and homogenous surface adhesion of blood vessels, cells and proteins

## Excellent hydrophilicity of cerabone®

cerabone®'s rapid and complete hydration with blood or saline solution is crucial for superior handling characteristics, new bone formation and for the final clinical success.

Good hydrophilicity and fast blood uptake of cerabone®

Its strong capillary action enables the fast and efficient penetration of the material particles with fluids, nutrients and blood through the 3-dimensional, porous trabecular bone network, resulting in excellent handling, reliability and predictability in the daily clinical use.

Hydrophilicity of a non sintered bovine bone graft material

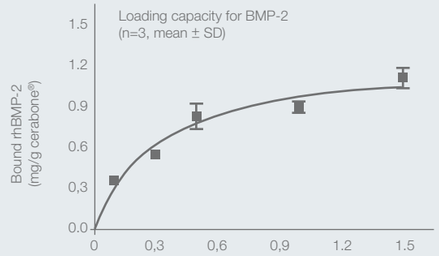


# cerabone® serves as an excellent matrix for bone regeneration

cerabone® and growth factors

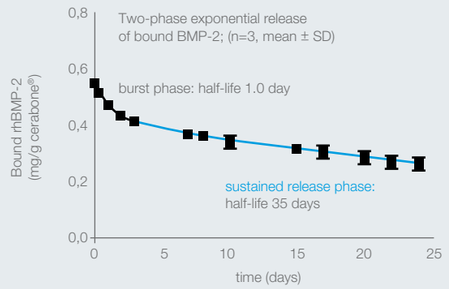
In vitro experiments from Prof. Dr. H. Jennissen und Dr. M. Laub
University of Duisburg-Essen/Morphoplant GmbH

A




In vitro experiments show that cerabone® can be loaded with up to ca. 1 mg BMP-2/g.

B

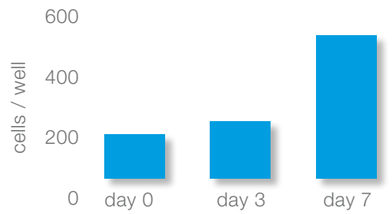



Two-phase controlled exponential release of BMP-2 may provide cerabone® as especially suitable for enhanced osseointegration (Morphoplant GmbH; patent application WO 2009/056567).

Growth of osteoblasts and osteoclasts on cerabone®
In vitro results from PD Dr. Dr. D. Rothamel, University of Cologne and Dr. C. Reichert, University of Bonn

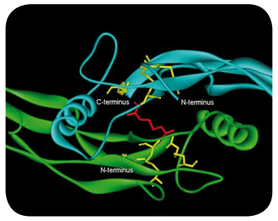
The rough surface also promotes the adherence of serum proteins and cells to the surface. Osteoblast-like cells are quickly attached to the cerabone® particles. Only attached osteoblasts can start to produce new bone matrix leading to the osseous integration of the cerabone® particles. In another study, good adherence of osteoclast promoted the superficial remodeling of the particles.

Proliferation of osteoblasts on cerabone®



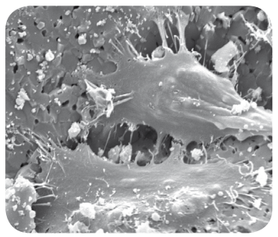

## Bone biology:

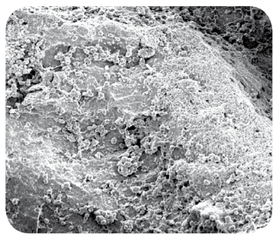
Scientific results from in vitro experiments




BMP-2 structure

Colonialization of cerabone® by osteoblasts
Priv.-Doz. Dr. Dr. Daniel Rothamel



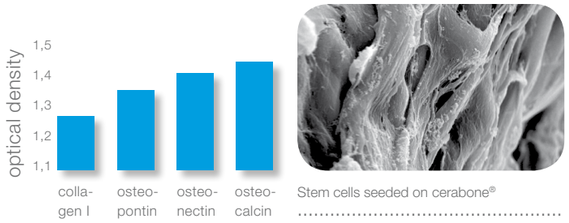


Osteoclastic resorption of cerabone®
Dr. C. Reichert, University of Bonn

# Stem Cell Research

## Interaction of cerabone® with stem cells
### In vitro results from Prof. Dr. B. Zavan, University of Padova

cerabone® supports the differentiation of attached stem cells into osteoblasts that produce new bone matrix.
Collagen, osteopontin, osteonectin and osteocalcin are proteins of the extracellular bone matrix that can be used as a marker for bone formation. Their detection 14 days after seeding stem cells on cerabone® are proof for the correct differentiation of the cells.

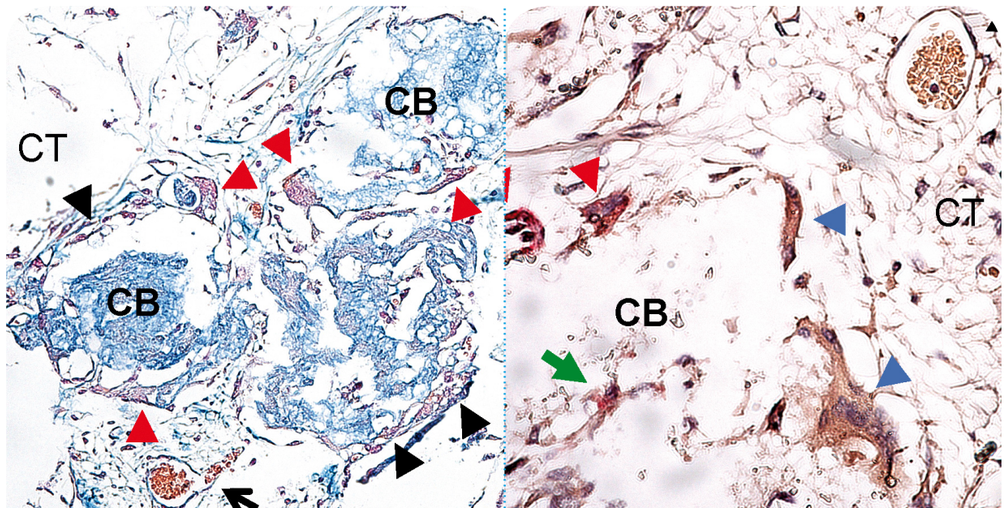




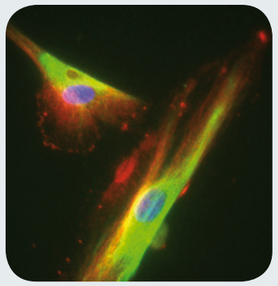

Stem cells seeded on cerabone®

## Tissue integration and cellular degradation
### In vivo data from a mouse model by Dr. Dr. S. Ghanaati, University of Mainz and University of Frankfurt a. M.

15 days after implantation into the subcutaneous tissue (CT) of mice, cerabone® (CB) is embedded within a well vascularized granulation tissue (blood vessels marked by arrows). No fibrous encapsulation or inflammatory reactions are observed. Mononuclear and multinuclear cells (arrow heads) indicate the starting superficial cellular degradation of the particles.





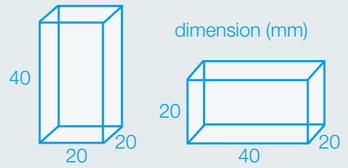



Immuno fluorescence staining of stem cells

# Maximal Stability and good osseous integration of cerabone®

## Histological studies on cerabone®

| | | |
|---|---|---|
| Compressive force (N) | 1670±120 | 4510±770 |
| Compressive resistance (N/cm²) | 420±32 | 564±96 |
| Shear force (N/cm²) | 124±35 | 338±200 |




## Endodontics
### cerabone® – osteoconduction and bony regeneration

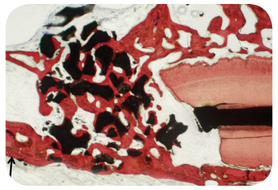
An animal study demonstrated optimal bone regeneration after bone defect treatment with cerabone®.

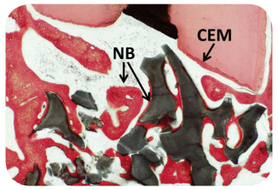
Bony defects following apicectomia, were filled with cerabone®.

The histological examination showed a complete bridging of the osteotomy orifice after three months and a well established new bone (NB) and cementum formation (CEM) around the cerabone® particles.

### In vivo

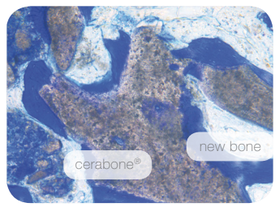
Results from Prof. Dr. Z. Artzi, University of Tel Aviv [5]





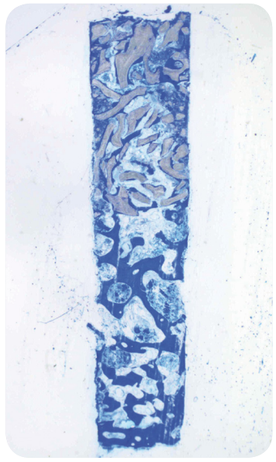

Section of maxillary block stained with Stevenels blue and Van Gieson's picro fuchsin

## Implantology
### cerabone® – osseous integration and optimal stability
Sinus lift study from PD Dr. Dr. D. Rothamel, University of Cologne [6]




Biopsy taken 6 months after sinus floor elevation. cerabone® particles are covered by a layer of newly formed bone.

A study on 12 patients showed that cerabone® acts as an osteoconductive material that supports the regeneration of bone after sinus floor elevation surgery. After 6 months the particles of all biopsies were completely integrated into the newly formed bone matrix, while clinically the grafted area showed excellent volume stability.

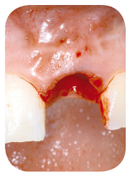


[5] Effect of Guided Tissue Regeneration on Newly Formed Bone and Cementum in Periapical Tissue Healing after Endodontic Surgery: An In Vivo Study in the Cat
Artzi Z, Wasersprung N, Weinreb M, Steigmann M, Prasad HS, Tsesis I; JOE — Volume 38, Number 2, February 2012

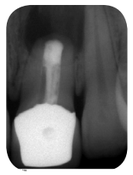
[6] Sinus floor elevation using a sintered, natural bone mineral – A histological case report study
Rothamel, D., Smeets, R., Happe, A., Fienitz, T., Mazor, Z., Schwarz, F., Zöller, J., Zeitschrift für zahnärztliche Implantologie, 2011;27(1):60

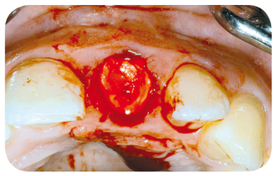
# Clinical Case by Dr. Marius Steigmann

cerabone® for coverage of implant dehiscence and ridge augmentation

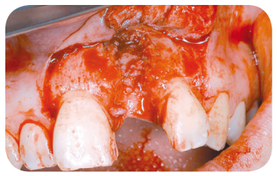


Extraction of tooth 21 after endodontic treatment

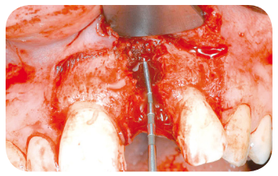




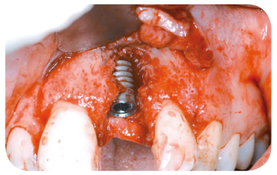
Application of collacone® for stabilization of the blood clot



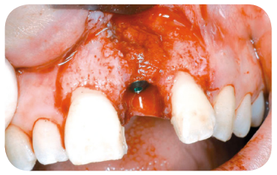
Buccal bone defect after eight weeks healing time



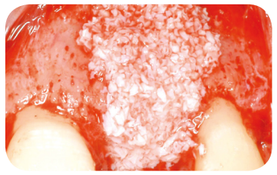
A periodontal probe demonstrates the vertical extension of the defect



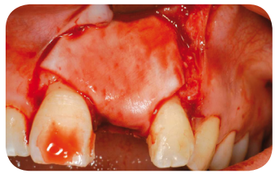
Implant placed into the former extraction socket



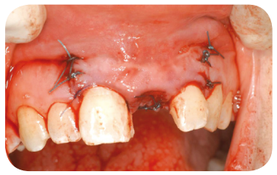
Surface of the implant is covered with autologous bone



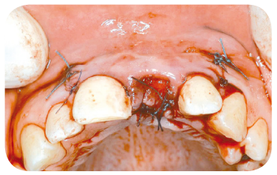
Coverage of the autogenous bone with cerabone® (0,5-1 mm)



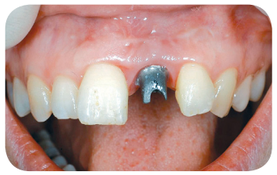
Covering of the bone substitute with Jason® membrane



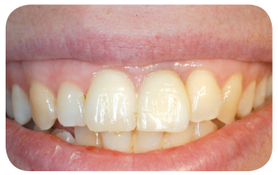
Closure of the site using single sutures after periosteum slitting



Tension-free suturing maintains undisturbed healing



Abutment installation after implant uncovering, six months after implantation



Final prosthetic restoration with a full-ceramic crown

## Contour maintenance

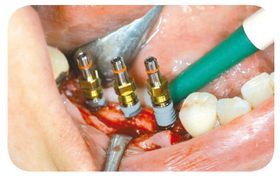
For augmentations in the aesthetic region cerabone® provides long term dimensional stability and therefore a good bone bed to support an optimal contour of the soft tissue and sustained aesthetic result.



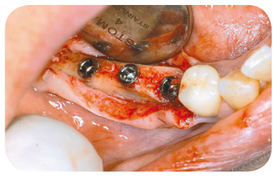
Clinical application of cerabone®

# Clinical Case by Dr. Marius Steigmann

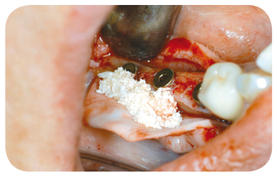
cerabone® for horizontal augmentation



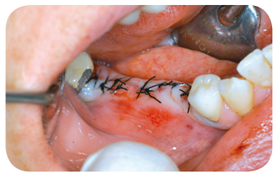
Three implants placed in a narrow posterior mandible



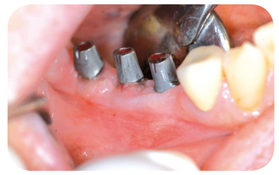
Due to resorption an augmentation of the buccal wall is necessary



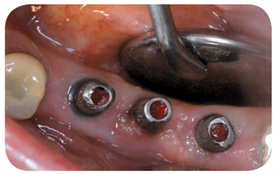
Augmentation of the buccal bone using cerabone® and Jason® membrane.



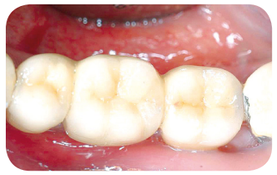
Tension-free suturing of the flap



Installation of individualized abutments three months post-OP



Good regeneration of the alveolar ridge with stable soft tissue conditions



Final prosthetic rehabilitation with ceramic crowns

## Rehydration

Due to its excellent hydrophilicity cerabone® particles adhere to each other after mixing with blood or sterile saline, supporting and optimal handling and good adaptation to surface contours.

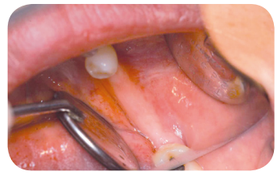
## Particle Size

Small cerabone® particles (0.5-1 mm) allow a good adaptation to surface contours; they are especially useful for lateral augmentations or to fill voids when working with autologous bone blocks.

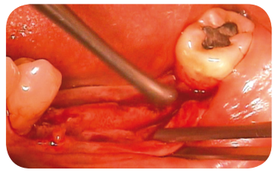
For sinus lift and extensive augmentations we recommend the use of cerabone® particle size 1-2 mm. The bigger spaces between the large particles enable a better vascularization and improve the regeneration of larger defects.

# Clinical Case by Dr. Marius Steigmann

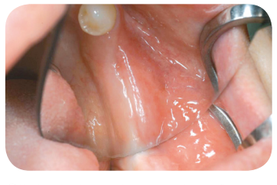
## cerabone® for horizontal augmentation



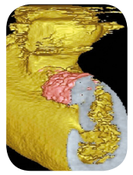
Atrophic alveolar ridge in the left mandible



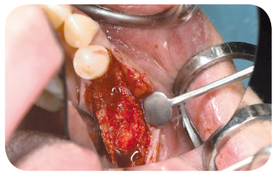
After mucoperiosteal flap elevation, the extensive bone resorption is visible



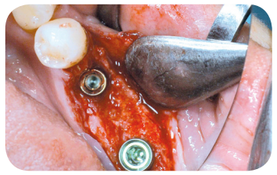
Clinical view six months after augmentation reveals healthy soft tissue situation



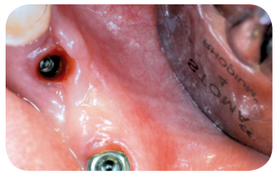
Pre-operative cone beam scan revealing good osseous formation of the augmented site.



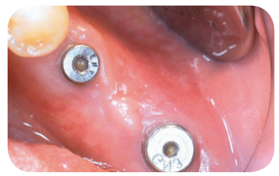
Excellent bone regeneration six months after application of cerabone® particles and Jason® membrane



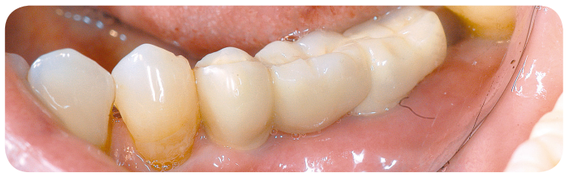
The wide ridge allows for stable insertion of the two implants



Situation after healing of the soft tissue



Insertion of gingiva formers allow for soft tissue maturing



Final prosthetic restoration with ceramic bridge

### Antibiotic prophylaxis

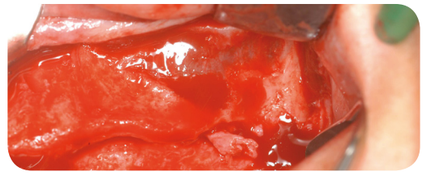
Make sure that the patient's blood contains a sufficient concentration of antibiotics before starting the augmentation (especially for larger augmentation volumes), e.g. by starting the antibiosis one day prior surgery or at least one hour before by ingestion of a full daily dose.



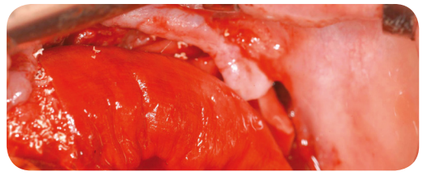
Clinical application of cerabone®

# Clinical Case by Dr. Marius Steigmann

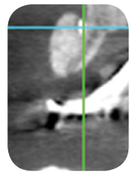
## cerabone® for sinus floor elevation

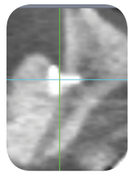


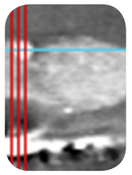
Combined lateral and vertical defect of the anterior and lateral maxilla requiring augmentation. Situation after preparation of the Schneiderian membrane



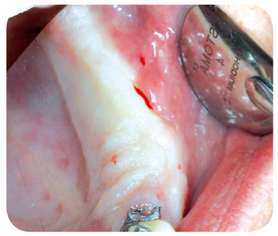
Sinus lift and additional horizontal augmentation with cerabone® and Jason® membrane

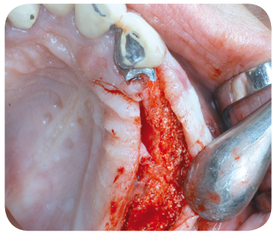




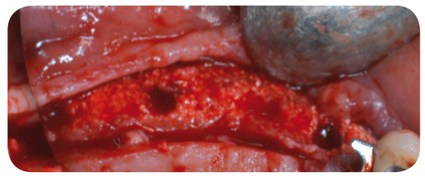


Pre-operative CT scan for implant positioning reveals excellent bone regeneration in both lateral and sinus applications

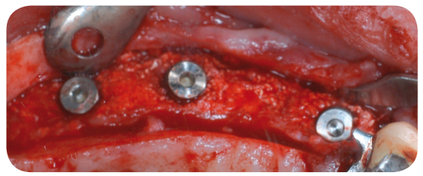




Good soft tissue situation and excellent bone formation six months after augmentation. cerabone® particles are integrated into newly formed bone matrix



Successful bone regeneration allows for prosthetically driven implant positioning



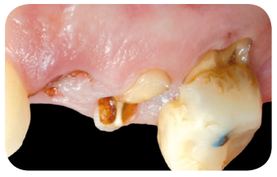
Situation after insertion of three implants in positions 22, 25 and 26

### Schneiderian membrane perforation

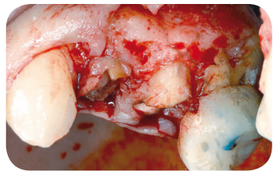
In case of a small perforation (< 5 mm) of the Schneiderian membrane in progress of sinus floor elevation, the application of a collagen membrane (e.g. Jason® membrane or collprotect® membrane) is a useful tool for perforation coverage. Make sure that the patient doesn´t sneeze for two weeks and prescribe antibiotics and swelling prophylaxis (e.g. Xylomethazoline). Never continue if you find an acute sinusitis with presence of pus.

# Clinical Case by Dr. Damir Jelušić, Opatija, Croatia

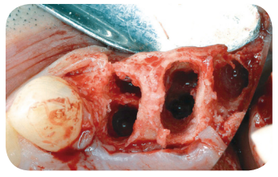
## Immediate implant placement in one stage surgery



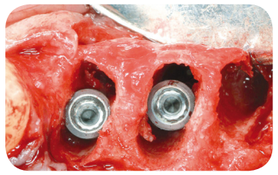
Clinical situation before extraction and implantation



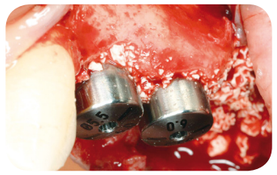
View after preparation of the mucosal flap, teeth 24 to 26 planned for extraction



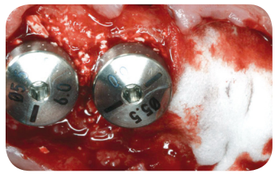
Situation after extraction of teeth 24 to 26



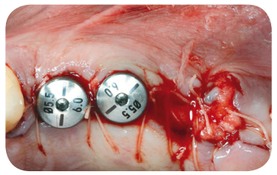
Immediate placement of two implants into the extraction sockets in position 24 and 25



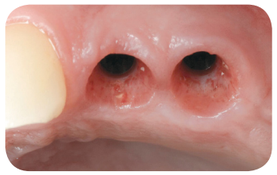
Placement of healing abutments and filling of the gaps and of the extraction socket in position 26 with cerabone®



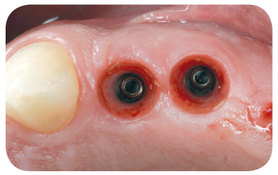
Covering of the augmentation area in position 26 with Jason® fleece



Wound closure



Situation four months after healing, good soft tissue situation, vestibular view



Situation four months after healing, good soft tissue situation, occlusal view

### Sterile application

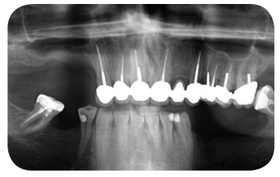
Pay attention to sterile application of the substitute, e.g. by using new instruments for granule insertion (and trimming of membranes). Prior contact to saliva may contaminate your graft.



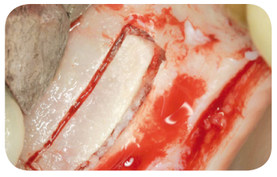
Clinical application of cerabone®

# Clinical Case by Dr. Damir Jelušić, Opatija, Croatia

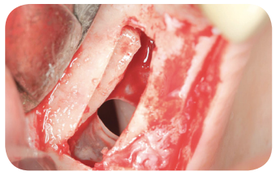
## Sinus floor elevation



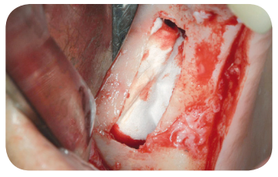
Pre-operative OPG



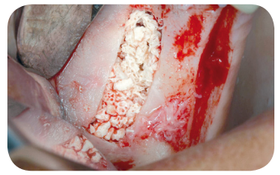
Preparation of a lateral window for sinus floor elevation



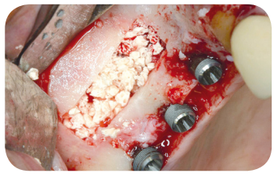
Perforation of the Schneiderian membrane visible after preparation of the lateral window



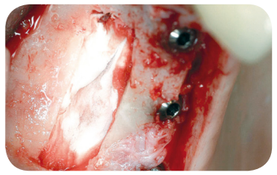
Jason® fleece introduced into the sinus cavity to cover the Schneiderian membrane



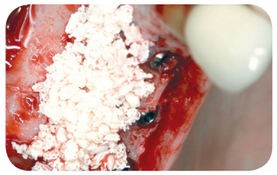
Filling of the sinus cavety with cerabone® (particle size 1-2 mm)



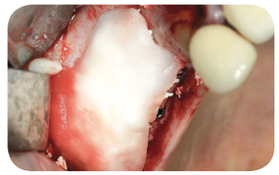
Simultaneous placement of three implants



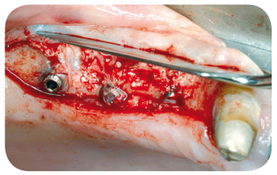
Jason® fleece covering the lateral sinus window



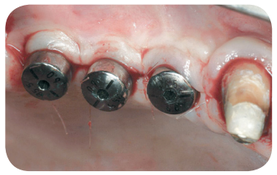
Additional horizontal augmentation with cerabone® (particle size 1-2 mm)



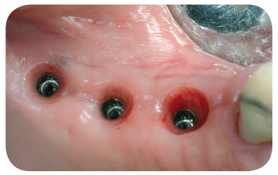
Covering of the augmentation site with Jason® membrane



Re-opening six months after implantation, stable integration of the cerabone® particles



Placement of gingiva formers



Good situation after removal of ginigva formers, six weeks after re-opening

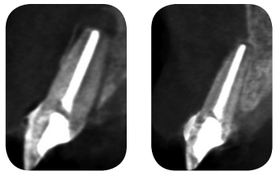
### Membrane coverage

For better and more predictable results we recommend always to cover the augmentation area (and the lateral sinus window after sinus floor elevation) with a collagen membrane (e.g. collprotect® membrane or Jason® membrane).

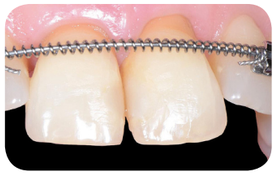
# Clinical application of cerabone®

## Clinical Case by
## Dr. Damir Jelušić, Opatija, Croatia

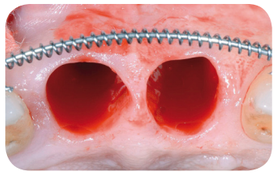
### Socket preservation



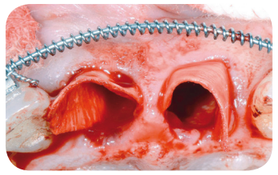
Pre-operative CT of teeth 11 and 21 after endodontic treatment



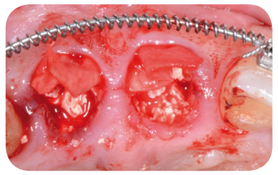
Teeth 11 and 21 not worse saving and planned for extraction



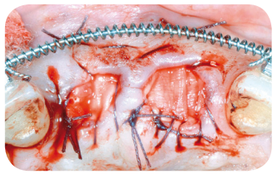
Situation after extraction of the front teeth



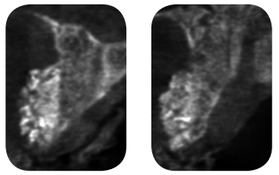
Jason® membrane place in the extraction sockets and covering the vestibular wall



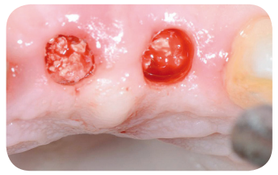
Filling of the sockets with cerabone®



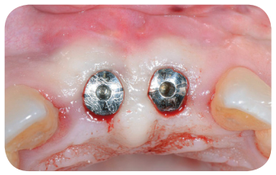
Jason® membrane turned down over the socket and sutured



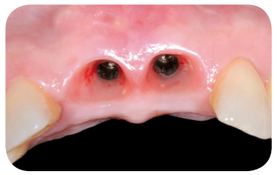
Post-operative CT four months after extraction, good preservation of the ridge



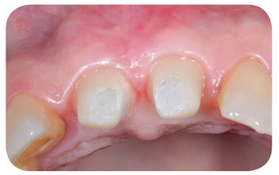
Flapless implant placement (punch technique) four months after socket preparation; complete integration of cerabone® particles



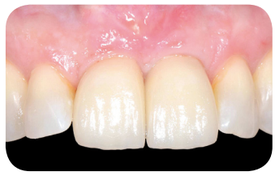
Placement of gingiva formers



Final prosthetic situation with individual emergence profile created with provisional crowns (4 months post implantation)



Individualized zirconium abutments



Final prostethic restoration with ceramic crowns

### Density

Avoid a high compression of cerabone® particles at the defect site to leave space between the particles for blood vessel ingrowth and the formation of new bone matrix.

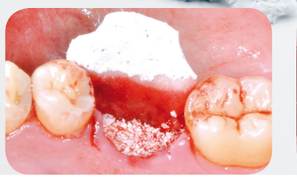


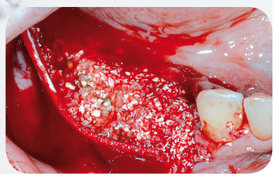
# Indications for cerabone®

cerabone® product family

### Periodontology

Intraosseous defects (1-3 walls)
Furcation defects (class I-II)





### Implantology, Oral & CMF surgery

Sinus floor elevation

Horizontal augmentation

Vertical augmentation

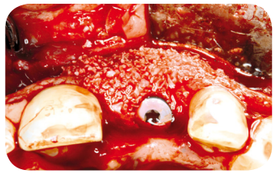
Ridge preservation

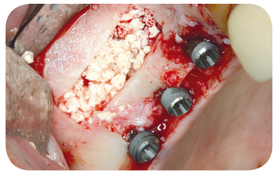
Peri-implant defects

Extraction sockets

Socket preservation

Bone defect augmentation





# Product Specifications


cerabone® packaging

### cerabone® Granules

| Article No. | Particle Size | Content |
|---|---|---|
| 1510 | 0.5-1.0mm | 1x0.5cc (ml) |
| 1511 | 0.5-1.0mm | 1x1.0cc (ml) |
| 1512 | 0.5-1.0mm | 1x2.0cc (ml) |
| 1515 | 0.5-1.0mm | 1x5.0cc (ml) |
| 1520 | 1.0-2.0mm | 1x0.5cc (ml) |
| 1521 | 1.0-2.0mm | 1x1.0cc (ml) |
| 1522 | 1.0-2.0mm | 1x2.0cc (ml) |
| 1525 | 1.0-2.0mm | 1x5.0cc (ml) |

### cerabone® Block

| Article No. | Dimension | Content |
|---|---|---|
| 1720 | 20x20x10mm | 1xBlock |

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