straumann

STRAUMANN®
REGENERATIVE SOLUTIONS

Master any challenge.

Product portfolio

TOOTH PRESERVATION

Natural teeth are unique and as dental professionals we strive to preserve them as long as possible. Untreated inflammation can advance to periodontitis and potentially result in tooth loss. **Straumann® Emdogain®** is central part of our solution to support the effective regeneration of the periodontium and accelerate the healing to help to maintain natural teeth.

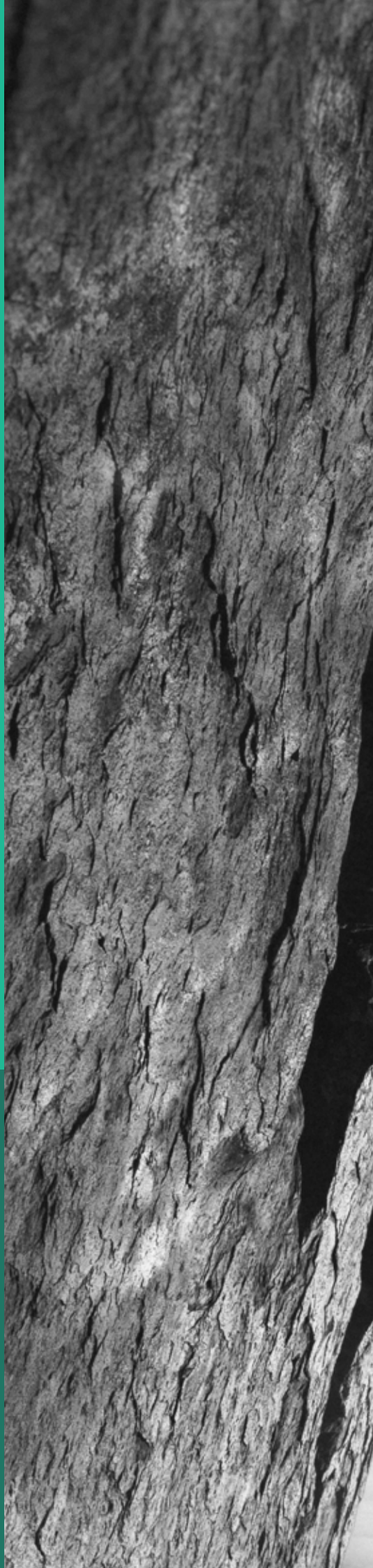
IMPLANT-SITE MANAGEMENT

The right amount of hard and soft tissue is the key to successful dental implant placement. Our solution includes a **comprehensive portfolio of biomaterials** to support tissue generation to ensure optimal conditions for implant placement.

IMPLANT PRESERVATION

Healthy peri-implant tissues are vital to preserve the placed implant. Untreated inflammation can advance to peri-implantitis and potentially result in implant loss. **Straumann® GalvoSurge®** is central part of our solution to support the effective regeneration of hard and soft tissue to help to maintain dental implants.

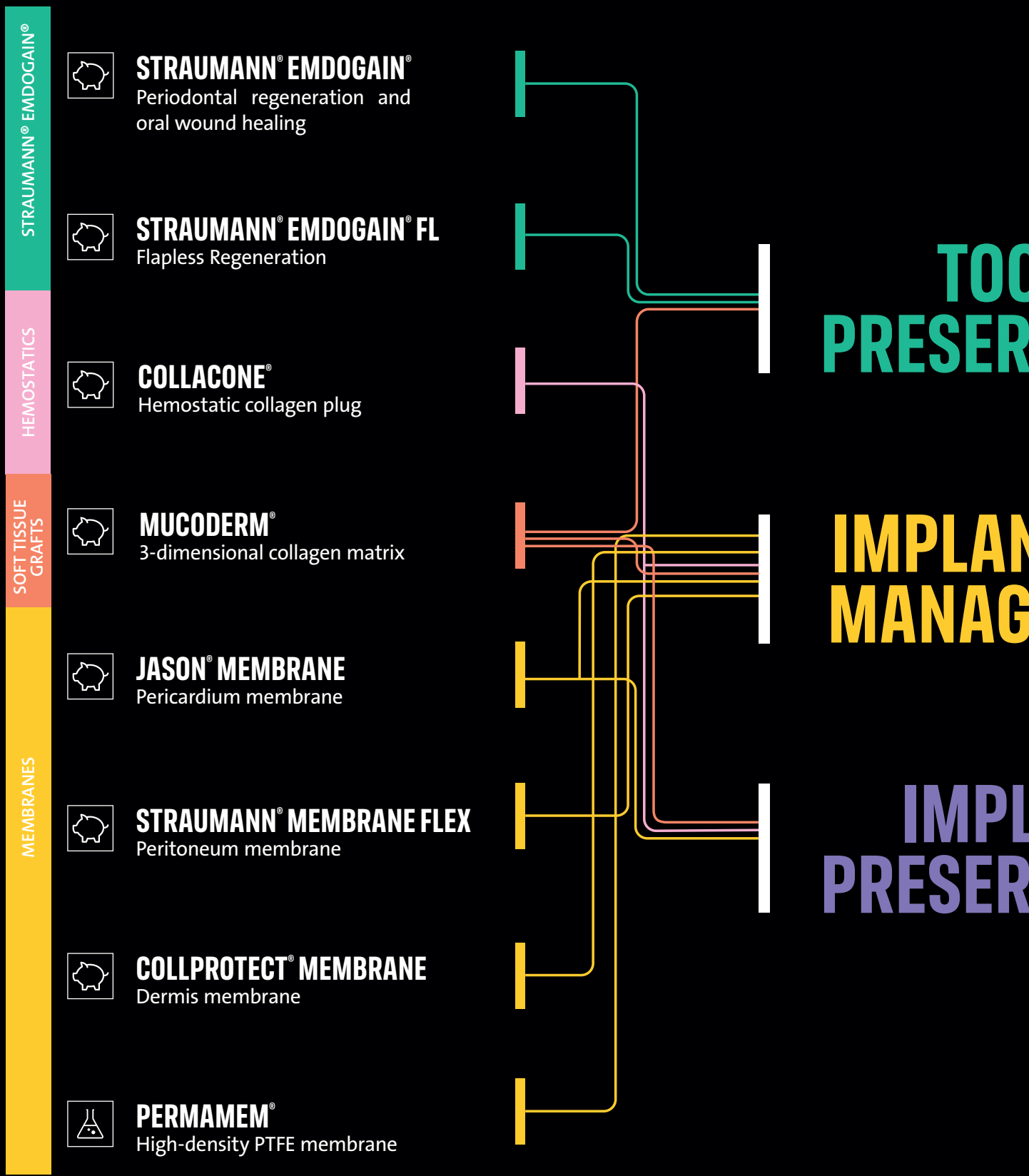
Modern dentistry needs specific solutions to ensure maximum performance and security.

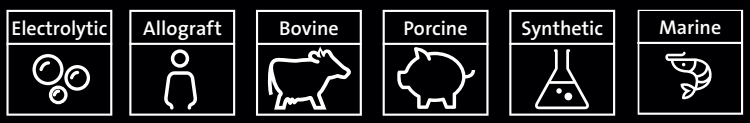


STRAUMANN® REGENERATIVE SOLUTIONS. WHAT CHALLENGE ARE YOU GOING TO MASTER TODAY?

Straumann® Regenerative Solutions is our contribution to regenerating hard and soft tissue around teeth and dental implants to maintain long-lasting function and esthetics. We are not just another supplier; we are here to support you by providing scientifically backed-up solutions for simple to complex cases around Tooth Preservation, Implant-Site Management and Implant Preservation.

PORTFOLIO OVERVIEW





OTH
AVATION

NT-SITE
GEMENT

LANT
AVATION

STRAUMANN® XENOGRAFT
Non-sintered granules

STRAUMANN® XENOFLEX
Collagenated xenograft cube

CERABONE®
Pure natural bone mineral

CERABONE® PLUS
Sticky bone out of the blister

MAXGRAFT® GRANULES / BLOCKS
Processed allograft

MAXGRAFT® BONEBUILDER
Individualized blocks

MAXGRAFT® CORTICO
Cortical plate

STRAUMANN® BONECERAMIC™
Biphasic calcium phosphate granules

LABRIDA BIOCLEAN™
Mechanical debridement

STRAUMANN® GALVOSURGE
Dental implant cleaning system

BONE GRAFTS

CLEANING SYSTEMS

CONTENT

Straumann® Emdogain®

STRAUMANN® EMDOGAIN® FL 8
Flapless regeneration

STRAUMANN® EMDOGAIN® 10
Periodontal regeneration and oral wound healing

Soft Tissue Grafts

MUCODERM® 12
3-dimensional collagen matrix

Hemostatics

COLLACONE® 14
Hemostatic collagen plug

Membranes

JASON® MEMBRANE 16
Native multilayered porcine pericardium membrane

STRAUMANN® MEMBRANE FLEX™ 18
Crosslinked porcine peritoneum collagen membrane

COLLPROTECT® MEMBRANE 20
Native collagen membrane made of porcine dermis

PERMAMEM® 22
High-density PTFE membrane

Bone Grafts

STRAUMANN® XENOGRAFT 24
Non-sintered granules

STRAUMANN® XENOFLEX 26
Collagenated xenograft cube

CERABONE® 28
Pure natural bone mineral

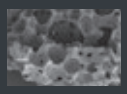
Bone Grafts

MAXGRAFT® GRANULES / BLOCKS
Processed allograft — 30

MAXGRAFT® BONEBUILDER
3D shaped individualized, processed allogenic block — 32

MAXGRAFT® CORTICO
Cortical plate — 34

STRAUMANN® BONECERAMIC™
Biphasic calcium phosphate granules — 36



MAXRESORB®
Biphasic calcium phosphate granules — 38

Cleaning Systems

LABRIDA BIOCLEAN™
Mechanical debridement — 40

STRAUMANN® GALVOSURGE
Dental implant cleaning system — 42

Instruments

Bone Block and Cortico Instruments — 44

botiss Titan Pin Set — 44

STRAUMANN® EMDOGAIN®

STRAUMANN® EMDOGAIN®

Porcine

Periodontal surgery and oral wound healing

Straumann® Emdogain® is a unique gel containing enamel matrix derivative. This mixture of natural proteins can induce biological processes that usually take place during the development of the periodontium and may stimulate certain cells involved in the healing process of soft and hard tissues.

Refer to the instructions for use available at ifu.straumann.com

FEATURES AND BENEFITS

Emdogain® induces true regeneration	By modulating the wound healing process, Emdogain® induces the regeneration of a functional attachment in periodontal procedures (as evidenced by human histological data[5,6])
Emdogain® improves wound healing in oral surgical procedures	By promoting angiogenesis[7,8], modulating the production of factors related to inflammation[9] and thanks to its anti-microbial effect toward oral pathogens[10], Emdogain® accelerates the wound healing process of oral surgical procedures[11]
Emdogain® increased the predictability of your periodontal procedures	Emdogain® leads to: → significantly improved clinical parameters in intra-osseous defects compared to open flap debridement procedures alone[12] → increased root coverage achieved when used in a coronally advanced flap (CAF) compared to CAF alone[13], and leads to results comparable to CAF + Connective Tissue Graft[14]
Emdogain® helps you achieve patient satisfaction	→ When used to treat intra-osseous defects, Emdogain® contributes to improve your patients' dental prognosis → When used in oral surgical procedures in general, Emdogain® accelerates wound closure[15], and reduces post surgical pain and swelling[16] → When used in periodontal plastic procedures around teeth and implants, Emdogain® may improve the esthetics of the results thanks to improved wound healing
Emdogain® is easy to apply	Because Emdogain® is a gel, it is easy to apply, even in defects difficult to access
Emdogain® means peace of mind	Emdogain® is backed by extensive and long term clinical documentation. It is documented in over 1000 scientific publications including 600 clinical publications[17] and 10 year data[14,18]

Institut Straumann AG
Peter-Merian-Weg 12
4002 Basel
Switzerland

PROPERTIES

Attribute	Description
Origin	Porcine unerupted tooth buds
Composition	Enamel matrix derivative, Propylene Glycol Alginate (PGA), water
Structure	Ready to use gel
Storage temperature	Cool storage in fridge (2–8 °C)
Shelf life	2 years

APPLICATION AND HANDLING

Emdogain® in oral regeneration

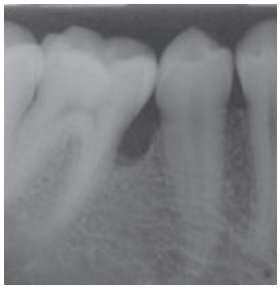
Periodontitis is associated with a loss of tooth-supporting tissues which is irreversible and the main reason for tooth loss if left untreated. Emdogain® is the golden standard when it comes to inducing the regeneration of lost periodontal tissues in a safe, easy and predictable way. Long-term clinical studies have demonstrated that Emdogain® can effectively help save teeth and revert gingival recessions.

Emdogain® in wound healing

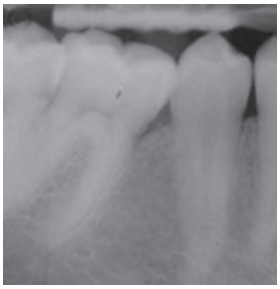
As esthetics, comfort and efficiency become more and more important when it comes to implant dentistry, Emdogain® is the solution you have been searching for. Emdogain® allows accelerated healing, minimizing discomfort for your patients through less swelling, less pain and faster recovery. Further it will initiate a natural rehabilitation that leads to esthetic outcomes.

TREATMENT

Courtesy of Prof. Carlos Nemcovsky

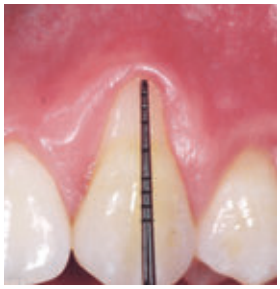


Before treatment
with Straumann® Emdogain®

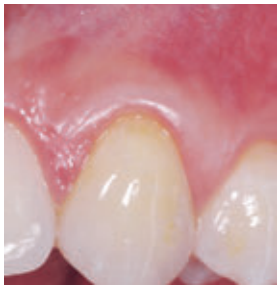


20 years after treatment
with Straumann® Emdogain®

Courtesy of Prof. Giovanni Zucchelli



Before treatment
with Straumann® Emdogain®



8 months after treatment with
Straumann® Emdogain®

Available in the following sizes

Product	Code
Emdogain® Singlepack	
1 × Straumann® Emdogain® 0.15 ml	075.127W
1 × Straumann® Emdogain® 0.3 ml	075.101W
1 × Straumann® Emdogain® 0.7 ml	075.102W
Emdogain® Multipack	
3 × Straumann® Emdogain® 0.3 ml 3 × Straumann® PrefGel® 0.6 ml	075.114W
3 × Straumann® Emdogain® 0.7 ml 3 × Straumann® PrefGel® 0.6 ml	075.116W
Emdogain® 5-Pack	
5 × Straumann® Emdogain® 0.15 ml	075.098W
PrefGel®	
5 × Straumann® PrefGel® 0.6 ml	075.203W

STRAUMANN® EMDOGAIN®

STRAUMANN® EMDOGAIN® FL

Porcine

Flapless periodontal regeneration

When applied to cleaned tooth root surfaces the unique protein composition in Straumann Emdogain® FL is able to induce the regeneration of all periodontal tissues: cementum, periodontal ligament, alveolar bone and gingiva.

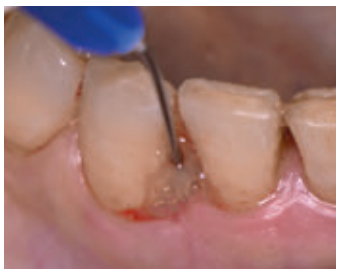
FEATURES AND BENEFITS

Less surgeries	Adding Emdogain® to the initial phase of periodontal therapy helps avoiding the surgery by solving 42 % of the pockets non-surgically[20]
More effective	Significantly improved pocket probing depth reduction compared to the SRP procedure without Emdogain[22]
More efficient	Similar results at 12 and 24 months as if the surgery would have been performed[21]
Less pain and inflammation	The wound healing properties of Emdogain® reduce pain reported by patients and overall inflammation markers[23]
Minimal invasive	A reduced invasiveness is allowed thanks to the new thinner cannula[20] that has a diameter similar to a periodontal probe
Thinner applicator for flapless use	True periodontal regeneration can now be achieved without open flap surgery for pockets with depth of 5 – 9 mm after Scaling and Root planning (SRP) procedures were performed[20]

Institut Straumann AG
Peter-Merian-Weg 12
4002 Basel
Switzerland

PROPERTIES

Attribute	Description
Origin	Porcine unerupted tooth buds
Composition	Enamel matrix derivative, Propylene Glycol Alginate (PGA), water
Structure	Ready to use gel
Storage temperature	Cool storage in fridge (2–8 °C)
Shelf life	2 years



Courtesy of Prof. Mario Aimetti, University of Turin, Italy

APPLICATION AND HANDLING

Expertize and outstanding clinical support

Following decades of clinical success in regenerative periodontal surgery and thanks to the introduction of a new applicator, Emdogain®, the unique gel containing enamel matrix derivative can now be applied flapless in periodontal pockets after scaling and root planning procedures.

Effective

Emdogain® FL renders procedures more effective and eliminates more periodontal pockets as part of periodontal debridement process.[20]

Reducing invasiveness

Using Emdogain® FL in a flapless approach leads to similar clinical results as when Emdogain® is applied with a flap surgery after 12 and 24 months.[22]

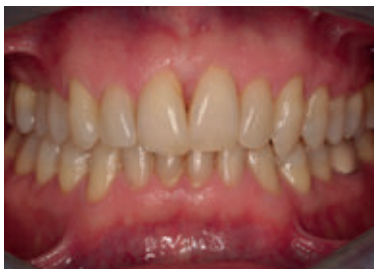
Patient comfort

Moreover, it improves the quality of life of patients by reducing pain, swelling and systemic inflammation.[20]

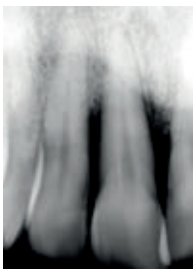
TREATMENT

3 year results after flapless periodontal regeneration with Emdogain® FL.

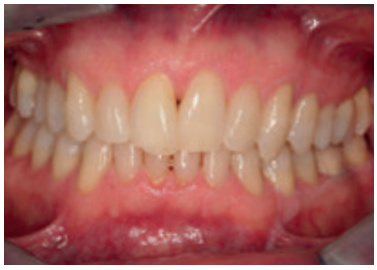
Pictures with courtesy of Dr. Orest G Komarnyckyj DDS, Phoenix AZ, USA



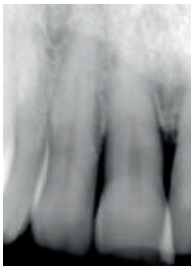
Left frontal incisor before treatment



PPD ≥ 9 mm



3 years after treatment with Straumann® Emdogain® FL



PPD = 1–2 mm

Available in the following sizes

Product	Code
Emdogain® FL 0.15 ml	
1 × Emdogain® FL 0.15 ml 1 × PrefGel® 0.6 ml 2 × cannulas	075.130
Emdogain® FL 0.3 ml	
1 × Emdogain® FL 0.3 ml 1 × PrefGel® 0.6 ml 2 × cannulas	075.131

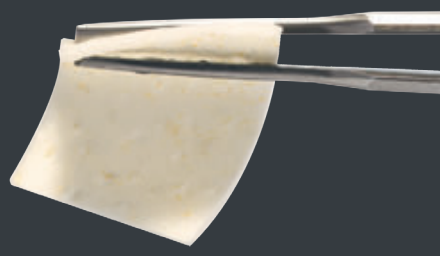
SOFT TISSUE GRAFTS

MUCODERM®

Porcine

Porcine 3D collagen graft

mucoderm® provides a true alternative in certain indications to the patient's own connective tissue. This stable 3-dimensional collagen soft tissue replacement, made of porcine dermis, supports fast revascularization and soft tissue integration, including color and texture.



FEATURES AND BENEFITS

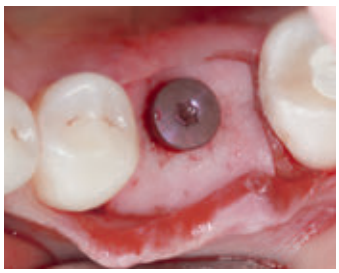
Safety and biocompatibility	The particular, certified multi-stage cleaning process of mucoderm® effectively removes all non-collagenous proteins and cells as well as potential immunogens, bacteria and viruses. Hence, mucoderm® is a highly safe matrix composed of pure collagen types I and III. mucoderm® is biocompatible and supports adhesion and proliferation of fibroblasts and endothelial cells.
3-dimensional matrix	The unique, porous structure makes mucoderm® an ideal scaffold for ingrowth of blood vessels and cells and promotes fast tissue integration and revascularization.[2,3]
High tensile strength	Due to the structural stability, mucoderm® can besutured, pinned or screwed, easily cut to the required size and shape, easily applied by the tunnel technique without risk of tearing the matrix apart.
Structure similar to human tissue	mucoderm® is a viable alternative to the patient's own tissue in certain indications: Remodels completely into patient's own tissue within 6–9 months. Reduces the patients' discomfort and donor site morbidity.

botiss biomaterials GmbH
Hauptstrasse 28
15806 Zossen
Germany

Literature:
https://botiss-dental.com/pdf/mucoderm_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	Porcine dermis
Composition	Native collagen type I and III
Thickness	1.2–1.7 mm
Healing/integration time	6–9 months
Storage temperature	Room temperature (< 24 °C)
Shelf life	5 years



Courtesy of Dr. Algirdas Puišys, Vilnius/Lithuania

APPLICATION AND HANDLING

Rehydration

Rehydration of mucoderm® in sterile saline solution or blood for 5–20 minutes prior to application is required. The rehydration time depends on the applied technique and the desired flexibility of the matrix; the longer the rehydration time the higher the flexibility of mucoderm®.[4]

Trimming

After rehydration, the shape and size of mucoderm® can easily be adapted to the defect by trimming it to the desired size with a scalpel or a pair of scissors.

If mucoderm® is only rehydrated for a short time and therefore is not so flexible, cutting or rounding the edges can prevent perforation of the gingival tissue during flap closure. For coverage of multi-recession defects, mucoderm® may be elongated by cutting the matrix on zalternating sides (mesh-graft-technique) and pulling both ends to extend it.

Exposure

The indication determines whether mucoderm® must be covered or may be left exposed. Exposure of mucoderm® should always be avoided in treatment of recession defects. It has to be ensured that the repositioned flap fully covers the matrix.

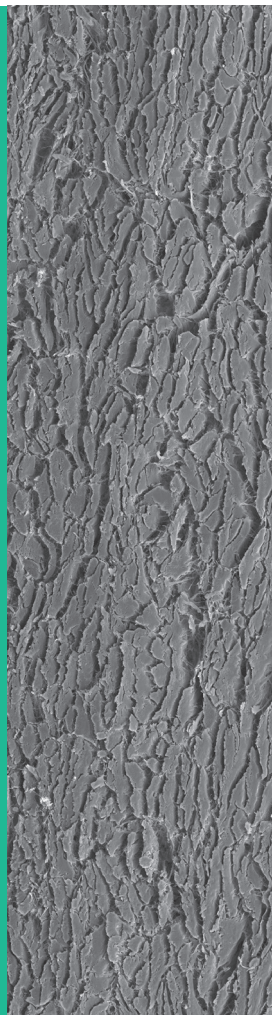
Complete coverage of the matrix ensures ingrowth of blood vessels and cells from the overlying flap and therefore a rapid incorporation of the graft. Early exposure may lead to fast resorption and contamination of mucoderm® matrix and soft tissue graft failure. Open healing is only possible if minor parts of the matrix are exposed and revascularization can occur from the surrounding margins of the flap. Open healing may also be possible, if mucoderm® is closely fixed to the underlying periosteum, e.g. if you want to increase the width of attached gingiva but not the tissue thickness.

Fixation

When preparing a split flap, mucoderm® should be sutured to the intact periosteum to ensure close contact between the matrix and the periosteal wound bed. Single button or cross sutures may be used; the use of resorbable sutures is recommended.

Postoperative care

After surgery, mechanical trauma of the treated site must be avoided. Patients should be instructed not to brush their teeth on the affected side for 4 weeks following surgery. Plaque prevention may be achieved by mouth rinsing with 0.2% chlorhexidine solution. After surgery, the patient should be recalled weekly for plaque control and evaluation of the healing process.



Available in the following sizes

Code	Description	Product
BO-701520	15 × 20 mm	mucoderm®
BO-702030	20 × 30 mm	
BO-703040	30 × 40 mm	

HEMOSTATICS

COLLACONE®

Porcine

Hemostatic collagen plug

The formation of a stable coagulum is of great importance for the regeneration of fresh extraction sockets, but also for wound healing; this can be supported by the use of collacone®.

FEATURES AND BENEFITS

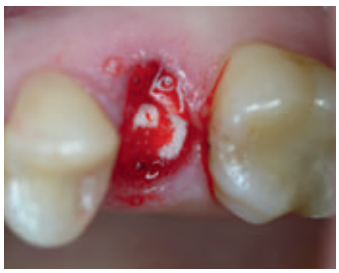
Natural collagen (type I) with a highly efficient local hemostatic effect	collacone® helps to stabilize the blood coagulum and control bleeding when applied after tooth extraction or to cover smaller oral wounds or biopsy harvesting sites. collacone® application is particularly beneficial in hemostatic compromised patients to prevent postoperative bleeding events.[1]
Rapid blood uptake	Due to its hydrophilic properties and highly porous structure, collacone® quickly absorbs blood.
Resorption within approx. 2–4 weeks	Optimal for wound protection.
Easy handling	collacone® is a wet-stable and moldable cone. The cone shape allows easy application.
Wound protection	The form-fitted cone shape protects the wound area from entry of food and bacteria.

botiss biomaterials GmbH
Hauptstrasse 28
15806 Zossen
Germany

Literature:
https://www.botiss-dental.com/pdf/Jason_fleece_collacone_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	Porcine dermis
Composition	Collagen type I and III
Size	Height 16 mm, bottom ⌀ 11 mm, top ⌀ 7 mm
Degradation time	2–4 weeks; will be completely resorbed
Product behavior	Collagenic hemostatic sponge supports the formation of the blood coagulum and helps to control bleeding.
Storage temperature	Room temperature (< 24 °C)
Shelf life	5 years



Courtesy of Dr. Eleni Kapogianni, Berlin/Germany

APPLICATION AND HANDLING

Efficient local hemostasis

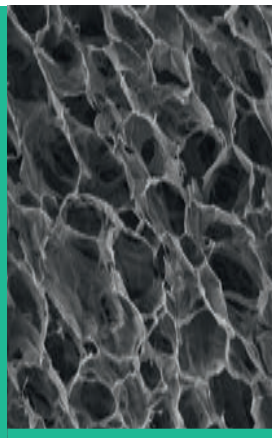
The natural collagen of collacone® has an inherent hemostatic effect. Collagen interacts directly or indirectly with receptors on thrombocytes, thereby inducing their aggregation and hence the hemostasis.

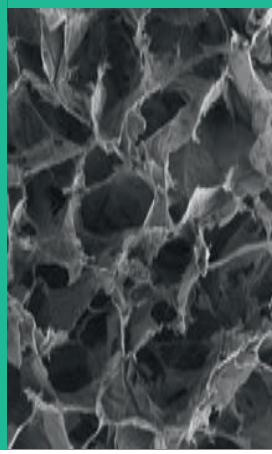
Fixation

At contact with the wet wound surface, collacone® sticks to the wound and forms a gel-like bond with the blood. Fixation by cross- or holding sutures is recommended to keep the cone in place when applied in extraction sockets.

Rehydration

Generally, collacone® is applied dry because soaking or moistening the collagen sponge prior to implantation may impair its hemostatic properties. collacone® soaks up blood rapidly at the defect site.





Available in the following sizes

Code	Description	Product
BO-511112	16 mm height, bottom width 11 mm, width on top 7 mm	collacone®

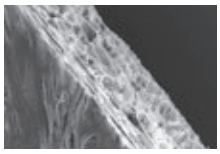
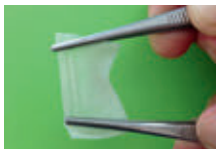
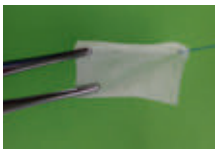
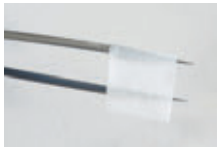
JASON® MEMBRANE

Porcine

Pericardium membrane

The Jason® membrane is a native collagen membrane obtained from porcine pericardium, developed and manufactured for dental tissue regeneration. The advantageous biomechanical and biological properties of the natural pericardium are preserved during the production process.

FEATURES AND BENEFITS

Native collagen structure preserved during the production process	High tensile strength due to the biomechanical properties of the pericardium. Allows a wide range of fixation methods, including pinning and suturing, despite the low thickness of only ~ 0.15 mm.   
Slow degradation time due to the natural honey-comb-like and multi-layered collagen structure.	The resulting prolonged barrier function makes the membrane the recommended choice particularly for large augmentative procedures.
Low thickness of only 0.15 mm	Facilitates soft tissue manipulation, particularly in challenging thin biotypes. 
Easy handling and application	Can be cut to shape and size in dry or wet conditions. Does not stick to itself and to instruments. Can be easily repositioned, if needed. Exceptional adaptability to surface contour after rehydration. 

botiss biomaterials GmbH
Hauptstrasse 28
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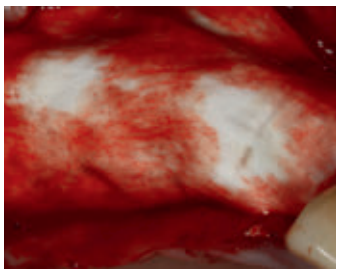
Germany

Literature:
https://www.botiss-dental.com/pdf/Jason_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	Porcine pericardium
Composition	Native collagen type I and III
Structure	Natural multilayered collagen structure, not side-specific
Thickness	0.05–0.35 mm (~ 0.15 mm)
Fixation	Generally not required due to good surface adaptation, but possible (pinning, suturing, screwing)
Degradation time	Slow degradation with prolonged barrier function (>12 weeks)
Storage temperature	Room temperature (< 30 °C)
Shelf life	3 years



Courtesy of Prof. Dr. Dr. Daniel Rothamel, Mönchengladbach/Germany

APPLICATION AND HANDLING

Rehydration

The Jason® membrane can be applied dry or rehydrated in sterile saline solution or blood. The initial placement of the dry membrane with subsequent application of the graft material is particularly advantageous for lateral augmentation of defects outside the ridge contour. After rehydration the Jason® membrane exhibits an exceptional adaptability to surface contours. Since it is not sticky, it can be easily repositioned, if required.

Placement

One side of the Jason® membrane is slightly smoother and marked with "G" at the top right corner. This side is meant to be placed towards the gingiva or soft tissue. The slightly rougher side of the Jason® membrane should face the bone. However, there is no problem if the membrane is placed the other way around. The clinical effect, if present, will be minimal, mainly due to the long-term barrier function of the Jason® membrane. The Jason® membrane should be cut and placed to overlap the defect walls by at least 2–3 mm. This way, the membrane is in close contact with the bone, and lateral ingrowth of gingival connective tissue can be prevented.

Fixation

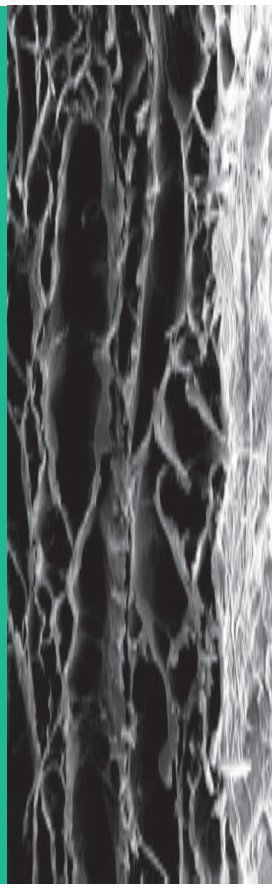
The Jason® membrane exhibits a remarkable multi-directional tear resistance. Therefore, it can easily be pinned, sutured or even screwed without rupturing. But the excellent adhesion of the membrane to the bony walls makes additional fixation unnecessary in most cases.

Exposure

Exposure of the Jason® membrane should be avoided, since fast bacterial resorption significantly reduces the barrier function of the thin membrane. In case of a dehiscence, the wound usually heals without complications by formation of free granulation tissue.

Shaping

The Jason® membrane can be cut to the desired shape and size with a pair of scissors – while maintaining sterility. It may be helpful to use appropriate templates for defining the required size of the membrane.



Available in the following sizes

Code	Description	Product
BO-681520	15 × 20 mm	Jason® membrane
BO-682030	20 × 30 mm	
BO-683040	30 × 40 mm	

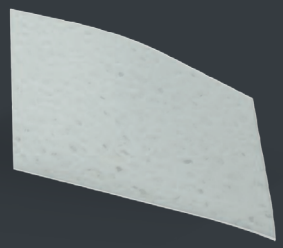
MEMBRANES

STRAUMANN®
MEMBRANE FLEX™

Porcine

Minimally crosslinked porcine peritoneum collagen membrane

Membrane Flex™ provides flexibility and strength in an easy-to-handle, easy-to-suture barrier for soft tissue support and graft containment. Meticulously manufactured from highly purified intact porcine collagen and minimally crosslinked, it's biocompatible and predictably resorbable. It naturally conforms to defects and contours – plus, it's easy to reposition. Once in place, it can be firmly anchored to surrounding tissue with minimal risk of tearing or detachment, thanks to its high suture pullout strength.*



FEATURES AND BENEFITS

Desirable handling characteristics	Not side specific. Can be placed dry or hydrated. Even when hydrated, does not adhere to gloves or instruments. Can be easily repositioned for precise placement. Takes sutures or tacks with ease, for simple yet secure placement.
Dependable strength	Proven biomechanical strength enhances fixation assurance.*
Supports wound healing	Protects the graft area from unwanted soft tissue infiltration during the initial phase of healing while still allowing for healthy nutrient transfer. Resorbs predictably over 3 to 4 months as new host collagen is simultaneously regenerated.*
Minimal crosslinking	The intact tissue of porcine peritoneum provides inherent strength which is further minimally crosslinked to control resorption time and handling.

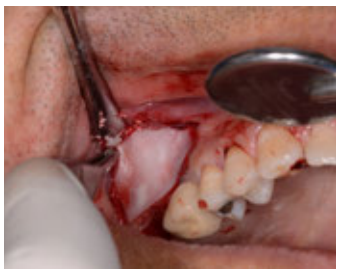
*Data on file with manufacturer

Collagen Matrix, Inc.
15 Thornton Road
Oakland New Jersey 07436
USA

Literature:
Li et al., Materials Science, 2015

PROPERTIES

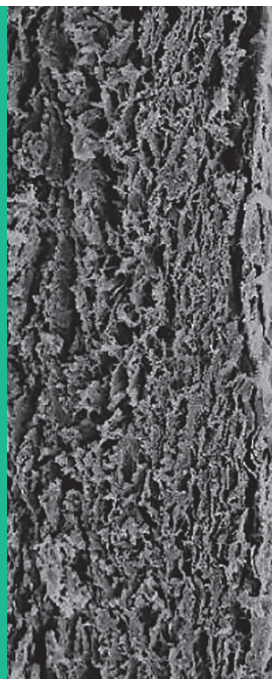
Attribute	Description
Origin	Porcine peritoneum
Composition	Types I and III collagen
Structure	Minimally cross-linked with glutaraldehyde
Thickness	0.5 mm
Degradation time	12–16 weeks
Storage temperature	Room temperature (15–30 °C)
Shelf life	3 years



Courtesy of Prof. Carlos Nemcovsky

APPLICATION AND HANDLING

- → It's easy to handle and to place because it's not side specific
- → With outstanding flexibility, it easily drapes over defects and naturally conforms to contours
- → Flexibility with placement as it can be easily repositioned for precise placement
- → Can be placed dry or hydrated
- → Even when hydrated, does not adhere to gloves or instruments
- → Takes sutures or tacks with ease, for simple yet secure fixation



Available in the following sizes

Code	Description	Product
070.008	15 × 20 mm	Straumann® Membrane Flex™
070.009	20 × 30 mm	
070.010	30 × 40 mm	

MEMBRANES

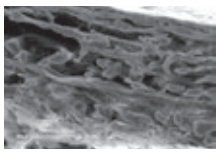
COLLPROTECT® MEMBRANE

Porcine

Dermis membrane

collprotect® membrane is a native collagen membrane made of porcine dermis. Its multi-step cleaning process ensures the removal of all antigenic and non-collagenous components while preserving its natural collagen structure.

FEATURES AND BENEFITS

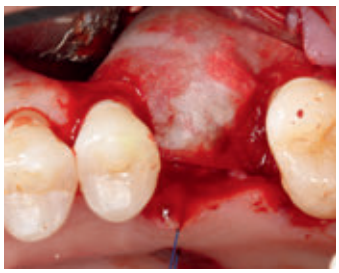
Native collagen structure preserved during the production process	The dense collagen network with natural pores and rough surface allows for quick integration into the surrounding tissue. 
Fast angiogenesis due to inherent pores of the native porcine skin	Facilitates vascularization of the defect area, while the membrane maintains a barrier against soft tissue ingrowth. 
Intermediate barrier function	Maintaining the necessary barrier function for most indications.
Easy application and handling	Particularly suited for treatment of smaller defects and periodontal bone defects. Can be cut to shape and size in dry or wet conditions. Does not stick to itself and to instruments. Can be easily repositioned, if needed. Exceptional adaptability to surface contour after rehydration.

botiss biomaterials GmbH
Hauptstrasse 28
15806 Zossen
Germany

Literature:
https://botiss-dental.com/pdf/collprotect_membrane_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	Porcine dermis
Composition	Native collagen type I and III
Structure	Dense collagen structure with natural pores
Thickness	0.2–0.5 mm (~ 0.4 mm)
Fixation	Not required due to good surface adaptation, but possible (pinning, suturing)
Degradation time	Intermediate barrier function (8–12 weeks)
Storage temperature	Room temperature (< 24 °C)
Shelf life	5 years



Courtesy of Dr. Michael Erbshäuser, Mühldorf am Inn/Germany

APPLICATION AND HANDLING

Rehydration

collprotect® membrane can be applied dry or rehydrated in sterile saline solution or blood from the defect. Especially for lateral augmentations, it is beneficial to place a dry membrane before application of the graft material. After rehydration, the membrane can be folded over the defect and easily repositioned if required.

Fixation

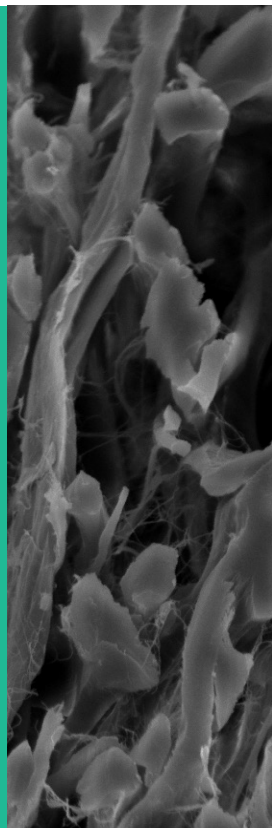
Normally, fixation is not required because of the excellent ability of collprotect® membrane to adhere to the underlying tissue and adapt to surface contours. However, collprotect® membrane supports suturing and pinning if required.

Shaping

The membrane can easily be cut with scissors or a scalpel to fit the shape of the defect. It is recommended to cut the membrane in dry state prior to application, although shaping the membrane after rehydration is also possible.

Exposure

In case of dehiscence, the wound usually heals without complications by granulation tissue formation and free contraction. Nevertheless, exposure of the membrane should be avoided since fast bacterial resorption significantly reduces the barrier function of the membrane. In unstable soft tissue situations or if wound dehiscence is expected, it is recommended to cover collprotect® membrane with a collagen fleece for protection of the wound area.



Available in the following sizes

Code	Description	Product
BO-601520	15 × 20 mm	collprotect® membrane
BO-602030	20 × 30 mm	
BO-603040	30 × 40 mm	

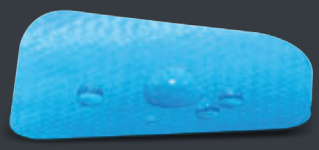
MEMBRANES

PERMAMEM®

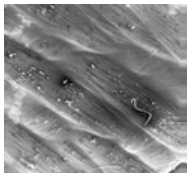
Synthetic

High-density PTFE membrane

permamem® is an exceptionally thin, non-resorbable, biologically inert and biocompatible membrane made of high-density polytetrafluoroethylene (PTFE). permamem® maintains its structural characteristics both during the initial implantation and over time. Due to its dense structure the membrane acts as an efficient barrier against bacterial and cellular penetration, and may therefore be left in place for open healing in certain indications.



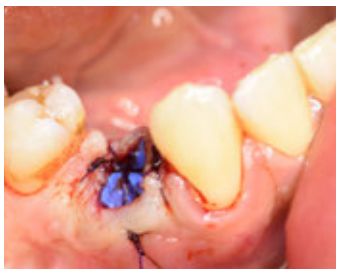
FEATURES AND BENEFITS

Safety	permamem® is a 100% synthetic barrier membrane, thus any risk for disease transmission can be excluded.
Impervious to bacteria	The membrane is composed of biologically inert, high-density PTFE, which acts as an efficient barrier against bacterial and cellular penetration, and may therefore be used for open healing in socket and ridge preservation. 
Space maintaining properties	The form stability of permamem® facilitates handling, and allows its use as a space provider for the regeneration of the underlying defect without spontaneous collapse of the membrane and the overlying soft tissue.
Easy handling and application	Easy handling thanks to its thin character (thickness ~ 0.08 mm). In open healing procedures, permamem® may easily be removed after the desired healing time with a pair of tweezers. The rounded edges of the membrane avoid traumatization of the soft tissue.

botiss biomaterials GmbH
Hauptstrasse 28
15806 Zossen
Germany

PROPERTIES

Attribute	Description
Origin	Synthetic
Composition	High-density polytetrafluoroethylene (PTFE)
Thickness	~ 0.08 mm
Fixation	Easy fixation with sutures or pins
Storage temperature	Room temperature (< 30 °C)
Shelf life	3 years



Courtesy of Dr. Axel Wöst,
Bad Honnef/Germany

APPLICATION AND HANDLING

Fixation
permamem® should always be immobilized at the recipient site by pins, screws or sutures.

Shaping
The membrane may be cut to the desired shape and size with a pair of scissors or a scalpel while maintaining sterility.

Exposure
The permamem® membrane is a temporarily implantable material that prevents the integration and passage of bacteria due to the small pores of the material, thus allowing intentionally open healing of the membrane. However, the membrane may also be covered by the flap to obtain primary wound closure.

Removal
Time of removal depends on the indication (please see instructions for use). An exposed membrane may be easily removed with tweezers. If primary closure is obtained during membrane placement, opening of the surgical site will be required to remove the membrane. After removal of permamem®, the primary healing process and the reepithelialisation of the regenerating soft tissue will be completed within one month.

Available in the following sizes

Code	Description	Product
BO-801520	15 × 20 mm	permamem®
BO-802030	20 × 30 mm	
BO-803040	30 × 40 mm	

BONE GRAFTS

STRAUMANN® XENOGRAFT

Bovine

Non-sintered granules

The everyday choice for successful bone and tissue regeneration.
Straumann® XenoGraft:
→ Easy to handle
→ Long-term volume stability
→ Successfully applied in over 500,000 cases worldwide

FEATURES AND BENEFITS

Osteoconductivity	The natural structure of Straumann® XenoGraft with interconnected porous granules facilitates the adhesion and invasion of bone forming cells and results in complete integration of the implant due to the ingrowth of cells and blood vessels.
Healing environment and volume stability	Straumann® XenoGraft undergoes superficial resorption only. The granules provide excellence space maintenance and predictably integrate into newly formed bone ensuring volume maintenance and a strong long lasting matrix for successful placement of dental implants.
Safety	In order to assure maximum safety, organic components are completely removed by solvent and temperature treatment (> 500 °C) during the manufacturing process of Straumann®Xenograft. Favorable handling and performance are ensured due to the comparably low temperature treatment (non-sintered), which preserves the natural microstructure of natural bone. The final sterility of Straumann® XenoGraft is ensured by gamma irradiation.
Rapid blood uptake	Straumann® XenoGraft particles absorb liquid quickly and adhere to each other after mixing.
Easy handling and application	Straumann® XenoGraft particles stick to the spatula after hydration. Avoid condensation of the particles during application. Non compacted particles leave space for blood vessel ingrowth and formation of new bone matrix.

NIBEC CO., Ltd.
Iwol electricity-electronic Agro-industrial Complex, 116, Bamdi-gil,
Iwol-myeon, Jincheon-gun, Chungcheongbuk-do, 27816, Korea

PROPERTIES

Attribute	Description
Origin	Bovine cancellous bone particles
Composition	Calcium phosphate (100 % pure hydroxyapatite, mineral phase)
Degradation kinetics	Long-term integration of bovine particles, very slow, limited degradation
Healing-/integration time	6–9 months (depending on defect)
Storage temperature	15–25 °C
Shelf life	3 years (from date of production)

APPLICATION AND HANDLING

Rehydration
Rehydration in blood or saline solution is recommended and facilitates handling and application.

Application
- → Straumann® XenoGraft can be delivered to the surgical site with surgical currette or periosteal elevator after wetting with blood or saline solution.
- → Ensure maximum contact between the graft material and well vascularized, bleeding bone surface to facilitate ingrowth of new blood vessels and bone forming cells.
- → A bioabsorbable membrane should be placed over the graft.

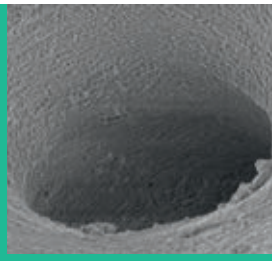
Wound closure
Ensure that soft tissue coverage of the grafted site is complete and free of tension

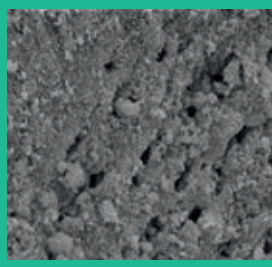
Healing time and Re-entry
The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on his diagnosis of the patient's individual situation.

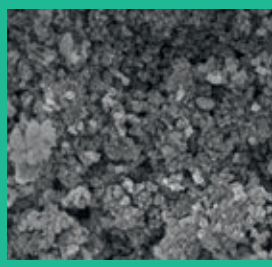
A minimum healing period of six months is recommended before re-entry to ensure stable integration of particles.

Combining with Allograft
Combining of Straumann® XenoGraft with allogeneic bone combines the advantages of both materials; the biological potential of allograft and the long-term stability of Straumann® XenoFlex lead to fast regeneration of vital, strong bone.

Combining with autologous bone
Combined use of Straumann® XenoGraft with autologous bone bring about a biological activity (osteo-inductive and osteo-genetic properties of autologous bone) and may support faster regeneration and improved formation of new bone.


1,000 × magnification


5,000 × magnification


20,000 × magnification

Available in the following sizes

Code	Volume (g/cc)	Granules Size (mm)	Product
S1-0210-025	0.25 g/0.55 cc	0.2–1.0 mm	Straumann® XenoGraft granules in bowl-type glass vial
S1-0210-050	0.5 g/1.3 cc		
S1-0210-100	1.0 g/2.4 cc		
S1-0210-200	2.0 g/4.5 cc		
S1-1020-025	0.25 g/0.68 cc	1.0–2.0 mm	Straumann® XenoGraft granules in bowl-type glass vial
S1-1020-050	0.5 g/1.55 cc		
S1-1020-100	1.0 g/2.9 cc		
S1-1020-200	2.0 g/5.0 cc		

BONE GRAFTS

STRAUMANN® XENOFLEX

Bovine

Collagenated xenograft cube

Straumann® XenoFlex is a biomimetric composite material that resembles the native bone in its basic biphasic composition of collagen and xenogenic hydroxyapatite. It has beneficial handling characteristics and the ability to be shaped to match the individual defect situation. Straumann® XenoFlex – an efficient, easy to handle, volume stable solution for the treatment of bone defects.

FEATURES AND BENEFITS

Osteoconductivity	The natural structure of Straumann® XenoFlex with interconnected porous granules and purified collagen facilitates the adhesion and invasion of bone forming cells and results in complete integration of the implant due to the ingrowth of cells and blood vessels.
Healing environment and volume stability	The collagen portion of Straumann® XenoFlex supports the initial healing environment and binding of the granules to the defect. The collagen creates the environment favorable for bone generation and is decomposed after a certain time (weeks). The granules undergo superficial resorption only. The granules provide excellence space maintenance and predictably integrate into newly formed bone ensuring volume maintenance and a strong long lasting matrix for successful placement of dental implants.
Safety	In order to assure maximum safety, organic components are completely removed by solvent and temperature treatment (> 500 °C) during the manufacturing process of Straumann® Xenoflex. The final sterility of Straumann® XenoFlex is ensured by gamma irradiation.
Spongy consistency after hydration	After hydration Straumann® XenoFlex changes to a slightly spongy consistency enabling excellent handling and defect application. The collagen fibers have intrinsic hemostatic properties facilitating the adhesion of proteins and signaling molecules from the blood to the embedded granules to further improve the fast bony integration of Straumann® XenoFlex.
Easy handling and application	Straumann® XenoFlex can be easily cut to the needed size and shape in dry and wet condition. The product can be placed into defect in one piece using tweezers shortening operation time.

NIBEC CO., Ltd.
Iwol electricity-electronic Agro-industrial Complex, 116, Bamdi-gil,
Iwol-myeon, Jincheon-gun, Chungcheongbuk-do, 27816, Korea

PROPERTIES

Attribute	Description
Origin	Bovine cancellous bone particles Porcine collagen type I
Composition	90 % Calcium phosphate (100 % pure hydroxyapatite, mineral phase) 10 % Type I Collagen
Degradation kinetics	Fast binding at defect site due to 10 % of porcine collagen, very slow superficial degradation of bovine particles. Long term osseous integration of particles into newly formed bone matrix
Healing-/integration time	6–9 months (depending on defect)
Storage temperature	2–30 °C
Shelf life	3 years (from date of production)

APPLICATION AND HANDLING

Rehydration
Rehydration in blood or saline solution is recommended and facilitates handling and application.

Application
- → Straumann® XenoFlex may be cut to the needed size in dry form or after hydration in blood or saline solution (using tweezers and scissors).
- → Ensure maximum contact between the graft material and well vascularized, bleeding bone surface to facilitate ingrowth of new blood vessels and bone forming cells.
- → A bioabsorbable membrane should be placed over the graft.

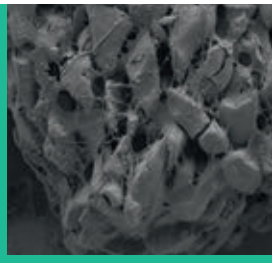
Wound closure
Ensure that soft tissue coverage of the grafted site is complete and free of tension.

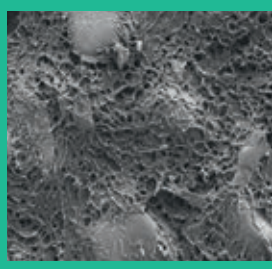
Healing time and Re-entry
The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on his diagnosis of the patient's individual situation.

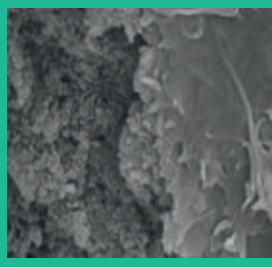
A minimum healing period of six months is recommended before re-entry to ensure stable integration of particles.

Combining with Allograft
Combining of Straumann® XenoFlex with allogeneic bone combines the advantages of both materials; the biological potential of allograft and the long-term stability of Straumann® XenoFlex lead to fast regeneration of vital, strong bone.

Combining with autologous bone
Combined use of Straumann® XenoFlex with autologous bone bring about a biological activity (osteo-inductive and osteo-genetic properties of autologous bone) and may support faster regeneration and improved formation of new bone.


50 × magnification


100 × magnification


50,000 × magnification

Available in the following sizes

Code	Dimension L × W × H (mm)	Product
NI-0110-005	6 × 6 × 3, 50 mg	Straumann® XenoFlex Block
NI-0110-010	6 × 6 × 6, 100 mg	
NI-0110-025	7 × 8 × 9, 250 mg	
NI-0110-050	9 × 10 × 11, 500 mg	

Code	Dimension Ø × L (mm)	Product
NI-0110-025S	4.6 × 40, 250 mg	Straumann® XenoFlex Syringe
NI-0110-050S	5.6 × 45, 500 mg	

BONE GRAFTS

CERABONE®

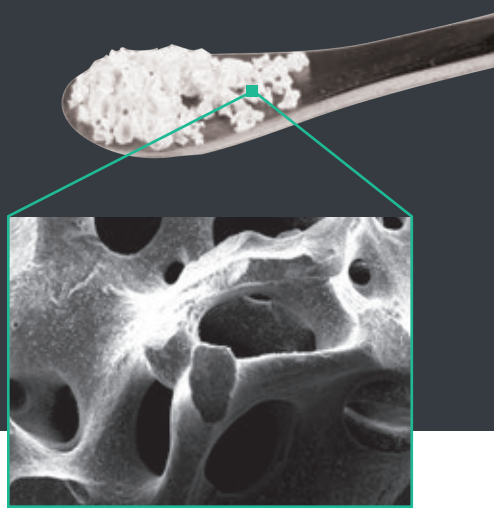
Bovine

1200 °C safety: pure natural bone mineral

cerabone® is one of the most commonly used bovine bone grafting materials in regenerative dental medicine. It is a dimensionally stable bone graft providing permanent structural support.

→ Lifetime volume stability

→ Over 1 million successful augmentations



FEATURES AND BENEFITS

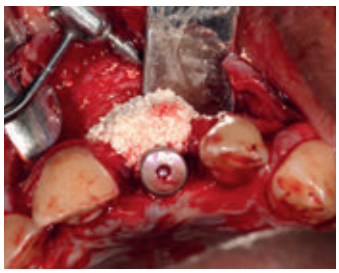
Safety + Purity	The unique 1200 °C manufacturing process of cerabone® removes all organic components for maximum safety and leads to a 100 % pure natural bone mineral – by utilizing heat and water only (free of chemical additives). Gamma-irradiation ensures final sterility of cerabone®.
Osteoconductivity	The human-like bone structure of cerabone® with its three-dimensional pore-network and bioactive surface result in excellent osteoconductive properties. It promotes the adhesion and invasion of bone forming cells resulting in complete integration of the granules into newly formed bone matrix.
Volume stability	Due to its exceptional high purity, cerabone® provides dependable volume stability of the augmented site, which is particularly advantageous for support of the soft tissue in the aesthetic region, for preservation of the ridge shape and to protect autologous or allogenic bone from resorption.
Hydrophilicity + Depot-Effect	The interconnected pores and superior hydrophilic surface of cerabone® support the adhesion of proteins from the blood. cerabone® binds and gradually releases signaling molecules thereby providing a long-term depot-effect. In addition, the 100 % pure natural bone mineral acts as a calcium reservoir slowly releasing calcium ions important for bone remodeling.
Predictability + Evidence	The long-term success of cerabone® in regenerative dentistry has been proven by >1 Mio treated patients worldwide. Moreover, cerabone® has been in use for more than 15 years in various medical applications (e.g. craniofacial surgery, oncology and hand- and spine surgery).
Patient comfort	Because of its long-term stability, cerabone® may be specifically preferred in patients with less adequate bone quality.

botiss biomaterials GmbH
Hauptstrasse 28
15806 Zossen
Germany

Literature:
https://www.botiss-dental.com/pdf/cerabone_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	Bovine cancellous bone
Composition	100 % pure natural bone mineral (calcium phosphate)
Porosity	65–80 %
Mean pore size	600–900 µm
Degradation kinetics	Only superficial degradation. Lifetime volume stability.
Healing/integration time	6–9 months
Storage temperature	5–25 °C
Shelf life	3 years



Courtesy of Dr. Hassan Maghaireh, Leeds/UK

APPLICATION AND HANDLING

Rehydration
Rehydration of cerabone® in blood from the defect site or saline solution is not required but recommended, as it facilitates handling and application of the particles.

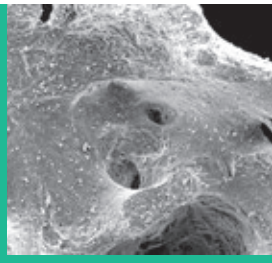
Application
- → Avoid compressing the particles during application. Non compacted particles leave space for blood vessel ingrowth and formation of new bone matrix.
- → Fill the defect as completely as possible.
- → Ensure maximum contact between the graft material and viable bone in a well vascularized area.
- → The granules should be secured with a membrane to prevent motion and migration and to ensure undisturbed bone regeneration.

Healing time and re-entry
The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on the assessment of the patient's individual situation. A minimum healing period of six months is recommended before re-entry to ensure stable integration of particles.

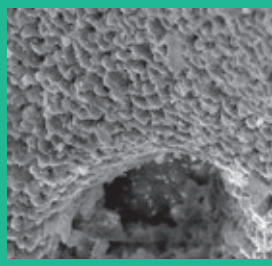
Particle size
Use of small granules gives better surface contouring, especially in the esthetic region. Use of large particles enables a better revascularization of larger defects.

Mixing with maxgraft® (allograft)
Mixing of cerabone® with allogeneic bone (maxgraft®) combines the advantages of both materials; the biological potential of maxgraft® and the long-term stability of cerabone® lead to fast regeneration of vital, strong bone.

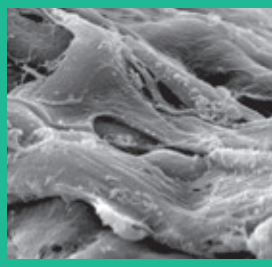
Mixing with autologous bone
Mixing of cerabone® with autologous bone adds a biological activity (osteoinductive and osteogenetic properties of autologous bone) and supports faster regeneration and improved formation of new bone.



Three-dimensional pore-network



Hydrophillic, rough surface



Cellular osseous integration

Available in the following sizes

Code	Description	Product
BO-1510	0.5–1.0 mm, 1 × 0.5 cc (ml)	cerabone® small granules
BO-1511	0.5–1.0 mm, 1 × 1.0 cc (ml)	
BO-1512	0.5–1.0 mm, 1 × 2.0 cc (ml)	
BO-1515	0.5–1.0 mm, 1 × 5.0 cc (ml)	
BO-1520	1.0–2.0 mm, 1 × 0.5 cc (ml)	cerabone® large granules
BO-1521	1.0–2.0 mm, 1 × 1.0 cc (ml)	
BO-1522	1.0–2.0 mm, 1 × 2.0 cc (ml)	
BO-1525	1.0–2.0 mm, 1 × 5.0 cc (ml)	

BONE GRAFTS

CERABONE® PLUS

Bovine

Pure natural bone mineral with hyaluronic acid

cerabone® plus is a combination of the established bovine bone grafting material cerabone® and sodium hyaluronate. Upon contact with saline or blood, it forms a sticky bone material, leading to excellent handling comfort by allowing both easy uptake and delivery to the site of application.

FEATURES AND BENEFITS

Sticky and malleable after hydration	Thanks to the pronounced liquid binding capacities of hyaluronate, cerabone® plus, upon hydration, forms a connected and malleable mass that provides easier application compared to conventional particulate bone grafts. cerabone® plus allows easy uptake, precise particle application, efficient defect filling and easy defect contouring.
Ideal liquid binding capacity of hyaluronic acid	Hyaluronic acid is capable to incorporate a liquid volume 1000 times larger than the molecule itself. It is highly hygroscopic, biodegradable, and will be quickly decomposed in the early phase of healing.
Human-like bone structure of bone mineral component	The bone mineral component (cerabone®) displays human-like bone structure with three-dimensional pore-network and rough surface. The osteoconductive scaffold promotes the adhesion and invasion of bone forming cells, resulting in complete integration of the granules into newly formed bone matrix.
1200 °C safety and biocompatibility	Utilizing heat and water only, the 1200 °C heating process of cerabone® removes all organic components and leads to a pure natural bone mineral. Gamma-irradiation ensures final sterility of cerabone® plus.
Long-term volume stability	With limited degradation, cerabone® plus provides predictable and viable structural support to the augmented site, which is particularly advantageous for support of the soft tissue in the esthetic region, for preservation of the ridge shape and to protect autologous or allogenic bone from resorption.

INDICATIONS

- → Alveolar ridge augmentation/reconstruction
- → Filling of bone defects (including after root resection, apicoectomy or cystectomy)
- → Filling of extraction sockets to support alveolar ridge preservation
- → Sinus floor elevation
- → Filling of periodontal bone defects
- → Filling of extraction sockets as part of immediate implantations
- → Filling of peri-implant bone defects

botiss biomaterials GmbH
Hauptstrasse 28
15806 Zossen
Germany

Available in the following sizes

Code	Description	Product
1810	cerabone® plus, 0.5–1.0 mm, 0.5 ml	cerabone® plus small granules
1811	cerabone® plus, 0.5–1.0 mm, 1.0 ml	
1820	cerabone® plus, 1.0–2.0 mm, 0.5 ml	cerabone® plus large granules
1821	cerabone® plus, 1.0–2.0 mm, 1.0 ml	

PROPERTIES

Attribute	Description
Origin	Bovine cancellous bone. Sodium hyaluronate obtained from bacterial fermentation
Composition	Natural bone mineral (calcium phosphate) and non-crosslinked sodium hyaluronate
Degradation kinetics	Bone mineral component: Only superficial degradation. Long-term volume stability. Hyaluronic acid: Complete resorption by enzymatic degradation within the first weeks following implantation.
Healing/integration time	6–9 months
Storage temperature	5–25 °C
Shelf life	3 years

Practical blister pack
for convenient hydration

APPLICATION AND HANDLING

Hydration

cerabone® plus must be hydrated before use (see table below). Approx. 0.5 ml of liquid (corresponds to about 10 – 12 drops) must be added to 1 ml of bone substitute material. Hydration can be performed with sterile saline solution or patient blood.improved formation of new bone.

Hydration Protocol

Code	cerabone® plus volume	Hydration with
1810 and 1820	0.5 ml	approx. **0.25 ml** liquid
1811 and 1821	1.0 ml	approx. **0.5 ml** liquid

Handling tips

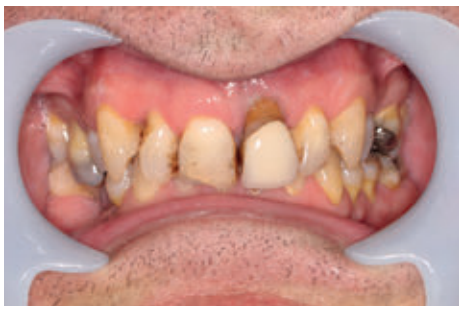
- → Add liquid carefully dropwise and mix liquid with cerabone® plus until the desired texture is obtained
- → Remove excess liquid from the defect site prior to the application
- → Fixate the graft with a barrier membrane

Healing time and re-entry

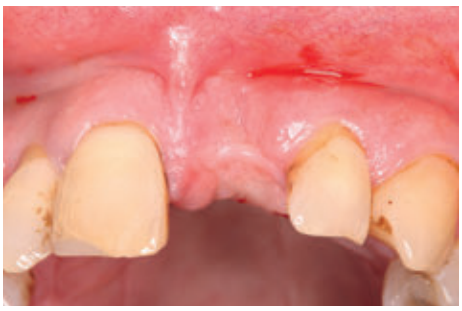
A minimum healing period of six months is recommended before re-entry to ensure stable integration of particles. The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on the assessment of the patient's individual situation.

CLINICAL APPLICATION

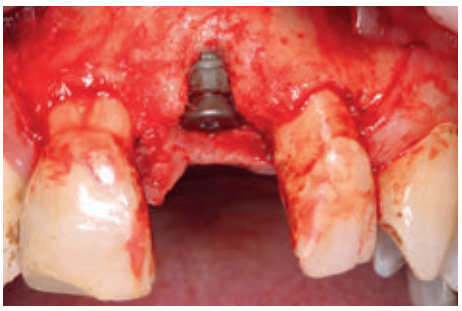
Bone augmentation and soft tissue support in the esthetic zone with cerabone® plus and Jason® membrane.



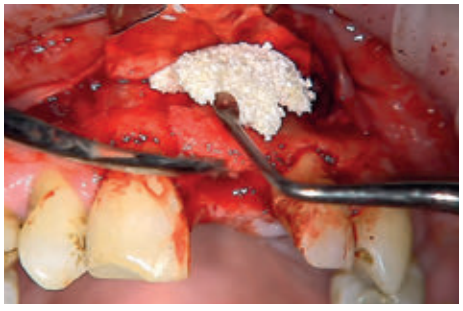
1. Initial situation



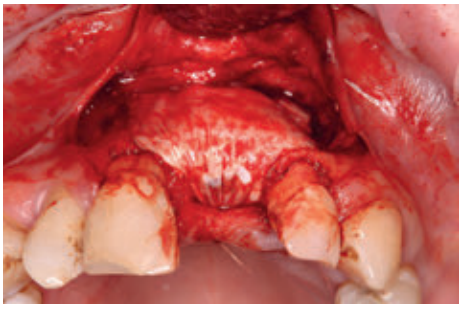
2. Soft tissue healing after extraction



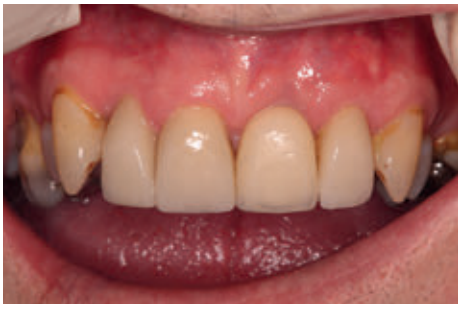
3. Straumann® BLT in place



4. GBR using layering technique: autogenous bone chips covered by cerabone® plus



5. Jason® membrane fixed to stabilize bone grafts and prevent soft tissue ingrowth



6. Result at 6 months after treatment

Pictures courtesy of Dr. Andoni Jones, Dublin, Ireland.

BONE GRAFTS

MAXGRAFT®
GRANULES/BLOCKS

Allograft

Processed allograft

maxgraft® allograft is the safe and established alternative to autologous bone. maxgraft® granules and cancellous blocks are 100 % derived from living donor bone processed under pharmaceutical conditions by the Cells and Tissue Bank Austria (C⁺TBA). Founded in 2004, C⁺TBA is one of the leading european tissue banks, recognized by numerous national authorities across the world and member of the European Association of Tissue Banks (EATB).

FEATURES AND BENEFITS

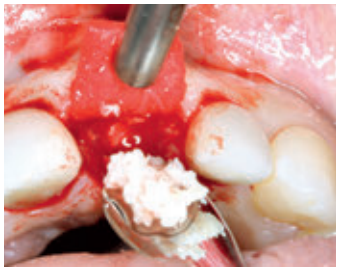
Safety and biocompatibility	The cleaning process (Allotec® process) of maxgraft® products preserves the natural structure of both the mineral phase and the organic phase (collagen).
Biofunctionality	High porosity and the physiologic content of human collagen account for the excellent osteoconductivity of maxgraft®. The natural bone structure allows complete integration of the implant due to the ingrowth of cells and blood vessels.
Hydrophilicity	Interconnected pores and rough surface morphology are fundamental to good hydrophilicity. Due to their excellent hydrophilicity, the maxgraft® products absorb liquid quickly. Adhesion of proteins and signaling molecules from the blood further improves the biological properties of maxgraft®.
Volume stability	Due to its close similarity to native bone, maxgraft® will be degraded by osteoclasts if not loaded after the healing period. Depending on the indication, the product can be mixed with a slow resorbable grafting material (deproteinized bovine bone minerals (DBBM)).
Patient comfort	maxgraft® is a safe and trusted bone regeneration solution most similar to patient's own bone. It is a true alternative to autologous bone, eliminating donor site complications such as morbidity, infection or postoperative pain.

Cells+ Tissuebank Austria gemeinnützige GmbH
Magnesitstraße 1, 3500 Krems an der Donau, Austria

Literature:
https://www.botiss-dental.com/pdf/maxgraft_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	All products originate from femoral heads explanted from living donors (hip total endoprosthesis).
Composition	Natural mineralized collagen
Porosity	65–80 %
Pore size	600–900 µm
Degradation kinetics	Fast graft incorporation and complete remodeling potential to patients' own bone.
Healing/integration time	3–4 months with particles 5–6 months in block augmentation
Storage temperature	5–30 °C
Shelf life	5 years



Courtesy of Dr. Algirdas Puišys, Vilnius/Lithuania

APPLICATION AND HANDLING

Opening
maxgraft® is delivered sterile and must be used immediately after opening in an aseptic environment.

Rehydration
Rehydration of maxgraft® granules in blood from the defect site or saline solution is not necessary but facilitates handling and application. maxgraft® blocks do not need to be rehydrated. However, larger sized bone grafts may be rehydrated in a suitable physiological medium for at least 10 minutes (e.g. physiological saline).

Application of granules
Avoid compressing the particles during application. Non-compacted particles leave space for blood vessel ingrowth and formation of new bone matrix.

Fill the defect as completely as possible.
Ensure maximum contact between the graft material and viable bone in a well vascularized area.

Application of blocks
Ensure maximum contact between the block and viable bone in a well vascularized area.

For fixation of the block, prepare a pilot hole carefully and fix the screw slowly without pressure.

Additional use of a granulated bone substitute may be recommended for achieving the aimed esthetic bony contour and for filling possible gaps.

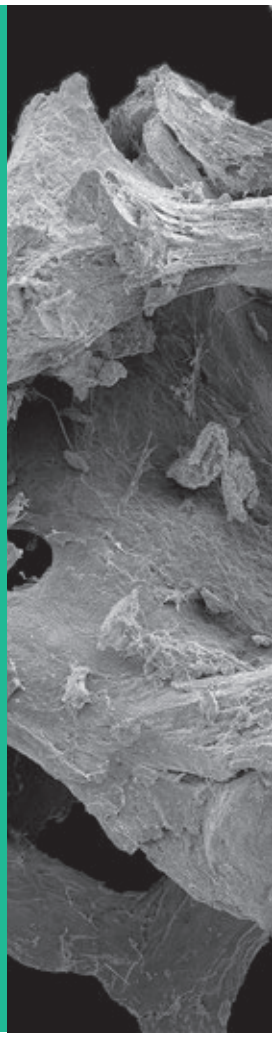
Covering
Always cover the augmentation site with a barrier membrane (e.g. Jason® membrane) to ensure undisturbed osseous regeneration and to prevent migration of the particles into the oral cavity.

Wound closure
Ensure that soft tissue coverage of the augmented site is complete and free of tension. Undisturbed vascularization of the augmented site is of utmost importance.

Healing time and re-entry
The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on the assessment of the patient's individual situation. Depending on the defect size, the graft will be incorporated stably within approx. 3–4 months (particles in socket preservation, smaller bone defects, periodontal defects) or approx. 5–6 months (block grafting in extensive defects).

Mixing with other bone substitutes
Mixing of maxgraft® granules with autologous bone adds a biological activity (osteoinductive and osteogenetic properties of autologous bone) and supports faster regeneration and formation of new bone.

Mixing of maxgraft® granules with xenogenic materials (Straumann® XenoGraft, cerabone®) combines the advantages of both materials: the biological potential of maxgraft® and the long-term volume stability of xenogenic materials lead to fast regeneration of strong vital bone.



Available in the following sizes

Code	Description	Product
BO-30005	< 2 mm, 1×0.5 cc (ml)	maxgraft® cancellous granules
BO-30010	< 2 mm, 1×1.0 cc (ml)	
BO-30020	< 2 mm, 1×2.0 cc (ml)	
BO-30040	< 2 mm, 1×4.0 cc (ml)	
BO-32112	20×10×10 mm, 1× block	maxgraft® cancellous block
BO-32111	10×10×10 mm, 1× block	

Code	Description	Product
BO-31005	< 2 mm, 1×0.5 cc (ml)	maxgraft® cortico-cancellous granules
BO-31010	< 2 mm, 1×1.0 cc (ml)	
BO-31020	< 2 mm, 1×2.0 cc (ml)	
BO-31040	< 2 mm, 1×4.0 cc (ml)	

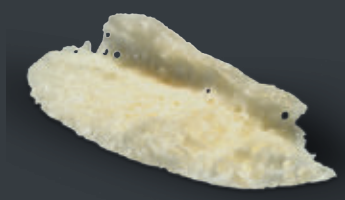
BONE GRAFTS

MAXGRAFT® BONEBUILDER

Allograft

3D shaped individualized, processed allogenic block

maxgraft® bonebuilder is an innovative, customized allogenic bone block which is individually designed and adjusted to the desired 3-dimensional bone contour. Based on CT/CBCT scans of the patient, the bone block is virtually designed by botiss biomaterials GmbH (Zossen, Germany) using the latest 3D-CAD technology. The final product is then milled from processed cancellous bone blocks directly in the clean room facility of the Cells and Tissue Bank Austria (C⁺TBA) prior to final irradiation.



FEATURES AND BENEFITS

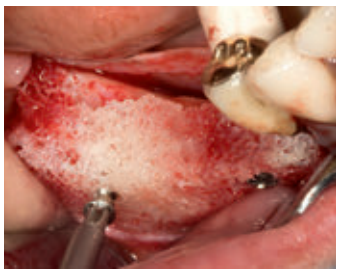
Easy to apply	The patient-individualized allogenic block is delivered sterile and → is ready to be applied in surgery → is designed to fit perfectly to the recipient site → reduces risk of infection compared to a bone block (because repetitive intra- and extraoral handling can be avoided) → saves chair-time compared to autologous blocks
Osteoconductivity	The natural structure and composition of maxgraft® provide an excellent scaffold for osseointegration: → High porosity and the physiological content of human collagen account for the excellent osteoconductivity → Maximum contact area between the graft and the bone supports fast vascularization and integration of the graft
Preservation of mineral and organic phase of the bone	The cleaning process (Allotec® process) of maxgraft® products preserves the natural structure of both the mineral phase and the organic phase (collagen). Collagen attracts endothelial cells and osteoblasts by chemotaxis. This ensures quick incorporation and natural remodeling.
Hydrophilicity	Interconnected pores and rough surface morphology are fundamental to good hydrophilicity. Due to the excellent hydrophilicity, the maxgraft® bonebuilder absorbs blood quickly. Adhesion of proteins and signaling molecules from the blood further improves the biological properties of maxgraft®.
Volume stability	Clinical experience shows that the maxgraft® bonebuilder has a high volume stability.

Cells+ Tissuebank Austria gemeinnützige GmbH
Magnesitstraße 1, 3500 Krems an der Donau, Austria

Literature:
https://www.botiss-dental.com/pdf/maxgraft_LiteratureList.pdf

PROPERTIES

Attribute	Description
Origin	The maxgraft® bonebuilder is manufactured from cancellous blocks originating from femoral heads explanted from living donors (hip total endoprosthesis).
Composition	Natural mineralized collagen
Porosity	Natural porosity of human cancellous bone (65–80 %)
Degradation kinetics	Fast graft incorporation and complete remodeling potential into patients' own bone. Newly generated bone will degrade if not loaded after healing period.
Healing/integration time	Approx. 6 months
Storage temperature	5–30 °C
Shelf life	5 years



Courtesy of Dr. Michele Jacotti, Brescia/Italy

APPLICATION AND HANDLING

Indication
maxgraft® bonebuilder can be used in all stable situations in which an augmentation with a bone substitute material is indicated. It is especially beneficial in indications in which extensive horizontal and limited vertical augmentation (up to 4 mm) is desired, such as:

Block grafting in extensive horizontal/vertical defects where a predictable outcome cannot be achieved by application of bone substitute particles

Complex 3-dimensional reconstruction of large defects

Rehydration
Larger sized bone grafts, may be rehydrated in a suitable physiological medium for at least 10 minutes (e.g. physiological saline). However, excessive rehydration prior to transplantation may compromise the physical properties of maxgraft® bonebuilder and should therefore be avoided.

Preparation of the augmentation site prior to fixation of maxgraft® bonebuilder
Perforate the cortical layer of the bone prior to fixation of maxgraft® bonebuilder to induce bleeding, which leads to the translocation of blood and growth factors into the grafting area.

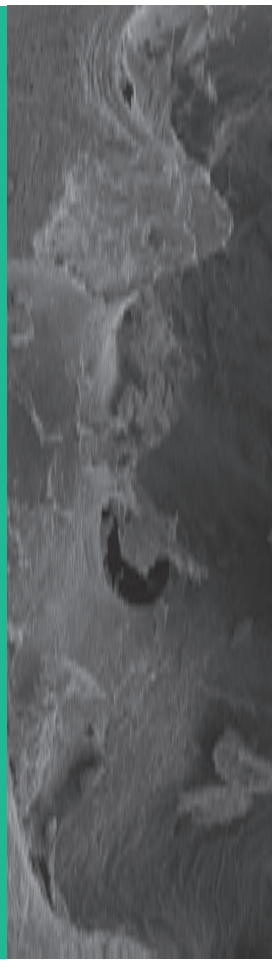
Combination with xenograft or synthetic bone graft
Additional void volume should be filled with particulate grafting material (e.g. Straumann® XenoGraft, cerabone® or Straumann® BoneCeramic) to improve the esthetic outcome and to protect the soft tissue.

Guided bone regeneration (GBR)
Cover the maxgraft® bonebuilder with a resorbable barrier membrane for GBR (e.g. Jason® membrane) to prevent ingrowth of soft tissue into the bone graft.

Fixation of the maxgraft® bonebuilder
Fix the maxgraft® bonebuilder with screws for osteosynthesis, preferably with flat-headed screws to avoid perforation of the surrounding soft tissue (such as the Straumann® Bone Block Fixation 1.5 mm). Application of excessive force may cause damage to the maxgraft® bonebuilder.

Volume stability
Due to its close similarity to native bone, maxgraft® will be degraded by osteoclasts if not loaded after the healing period.

Re-entry
Depending on the defect size, the graft will be steadily incorporated within 5–6 months.



Available in the following sizes

Code	Description	Product
BO-PMIa	Individualized allogenic bone graft, maximum dimensions 23 × 13 × 13 mm	maxgraft® bonebuilder

For more information visit www.botiss-bonebuilder.com

BONE GRAFTS

MAXGRAFT® CORTICO

Allograft

Cortical plate

maxgraft® cortico has the function of a stable, dense, avital and slowly resorbable barrier enabling safe and micro-movement free protection of the augmented area, creating the desired environment for new bone growth in horizontal and vertical dimensions.

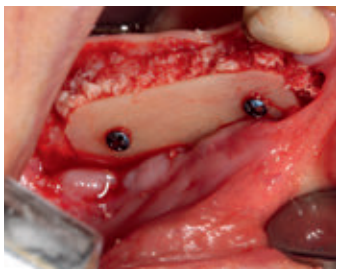
FEATURES AND BENEFITS

Safety and biocompatibility	The cleaning process (Allotec® process) of maxgraft® products preserves the natural structure of both the mineral phase and the organic phase (collagen). Collagen attracts endothelial cells and osteoblasts by chemotaxis. This ensures the reliable incorporation and natural remodeling over time. maxgraft® products are safe and have an impressive safety track record with no reported cases of disease transmission.
Biofunctionality	maxgraft® cortico is an avital cortical bone plate with full remodeling potential. Due to its slow remodeling it allows outstanding space maintenance for new bone growth in horizontal and vertical dimension. The physiologic content of human mineralized collagen as well as the overall structure most similar to patient's own bone allows excellent biocompatibility and predictable integration combined with long-term stability.
Easy handling; established technique	The convenience of the shelf availability, predictable size and thickness of maxgraft® cortico obviates the need for bone harvesting and allows a faster and easier treatment procedure. maxgraft® cortico is easy to stabilize with screws, therefore micro-movements of the augmented site are easily prevented, offering best possible conditions to support bone healing.
Patient comfort	maxgraft® is the safe and trusted bone regeneration solution most similar to patient's own bone. It is a true alternative to autologous bone, eliminating donor site complications such as morbidity, infection or postoperative pain. It improves patient comfort by reducing the number of surgical intervention sites and/or decreases invasiveness.

Cells+ Tissuebank Austria gemeinnützige GmbH
Magnesitstraße 1, 3500 Krems an der Donau, Austria

PROPERTIES

Attribute	Description
Origin	Donors are only accepted from selected central European countries that have successfully transferred Directive 2004/23/EU into national law. maxgraft® products are produced at the Cells+Tissuebank Austria (C+TBA), a non-profit organization aiming to provide allogenic transplants for orthopedic and dental regeneration. C+TBA is certified and audited by the Austrian Ministry of Health in accordance with the European Directives and regulated by the Austrian Tissue Safety Act (GSG 2009).
Composition	Cortical bone from human donors
Healing/ integration time	5–6 months
Storage temperature	5–30 °C
Shelf life	5 years



Courtesy of Dr. med. dent. Kai Höckl, Bad Krozingen, Germany

APPLICATION AND HANDLING

Shell technique with maxgraft® cortico

The concept of the shell technique is the preparation of a biological container which creates the necessary space for full incorporation of the particulated bone graft material. The maxgraft® cortico bone plate functions as a stable, avital and potentially resorbable barrier. It enables a safe and motion-free protection of the augmented area and helps creating the needed environment for new bone growth.

Trimming

maxgraft® cortico can be trimmed extraorally using a diamond disk to match the required size.

Rehydration

maxgraft® cortico does not need to be hydrated. However, rehydration in sterile saline for approximately 10 minutes has been shown to increase breaking strength and the flexibility of the plate.

Application of maxgraft® cortico

The plate is positioned with a distance by predrilling through the plate and the local bone. Osteosynthesis screws are used to create an immobile compartment.

To prevent perforations of the soft tissue, sharp edges need to be removed, e.g. by using a diamond ball.

Additional use of a granulated bone substitute is recommended for filling the created gap between host bone and maxgraft® cortico. The use of autologous and/or allogeneic granulated bone grafting material (maxgraft® granules) is recommended for maximum regeneration potential.

Covering

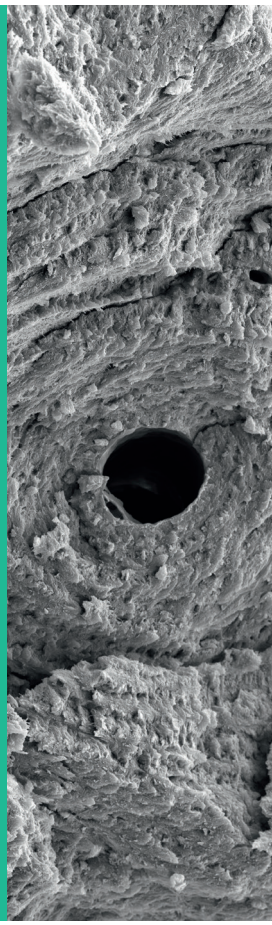
Always cover the augmentation site with a barrier membrane (e.g. Jason® membrane) to ensure undisturbed osseous regeneration, and to prevent migration of particles into the oral cavity.

Wound closure

Ensure that soft tissue coverage of the augmented site is complete and free of tension. Undisturbed vascularization of the augmented site is of utmost importance.

Healing time and re-entry

The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on the assessment of the patient's individual situation and the particulated material used.



Available in the following sizes

Code	Description	Product
BO-31251	25×10×1mm cortical bone plate	maxgraft® cortico

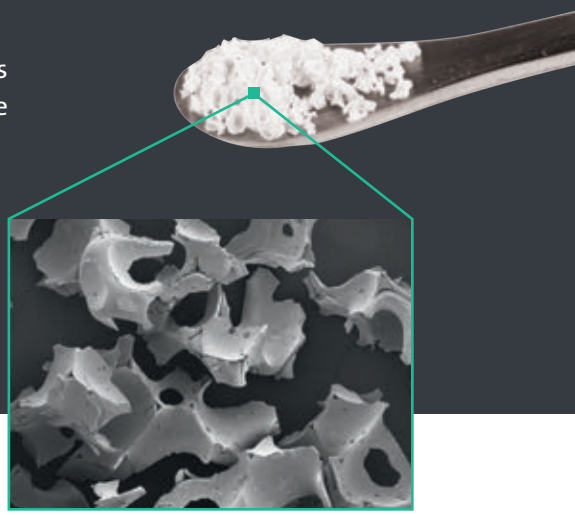
BONE GRAFTS

STRAUMANN® BONECERAMIC™

Synthetic

Biphasic calcium phosphate granules

One of the best documented alloplastics in the market, which offers a state-of-the-art scaffold with controlled resorption for vital bone regeneration without compromising on volume preservation.



FEATURES AND BENEFITS

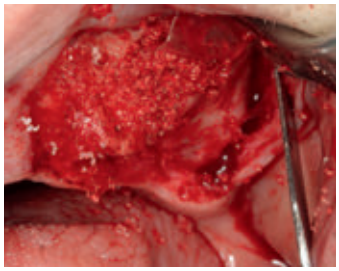
Safety and biocompatibility	The chemical process technology used in the production of Straumann® BoneCeramic™ ensures → reproducibility → batch to batch consistency → biocompatibility Because of its 100 % synthetic composition any risk of infection or disease transmission can be excluded.
Optimized morphology	Optimized 90 % porosity encourages vascularization, osteoblast migration and subsequent bone deposition. High porosity and minimum amount of material leave maximum space for new bone growth.
Homogenous composition	Biphasic calcium phosphate in homogenous composition: 60 % hydroxyapatite (HA) as a strong matrix for long-term bone volume preservation: → 60 % HA prevents excessive resorption and preserves the bone volume. → 40 % β-tricalcium phosphate (β-TCP) for rapid initial bone forming cell response: β-TCP resorbs faster and is replaced by natural bone.
Biofunctionality	The morphology of Straumann® BoneCeramic™ facilitates osteoconductivity, vascularization and osteoblast migration. Straumann® BoneCeramic™ serves as a scaffold for bone deposition during the bone formation process. The slow resorption rate of HA prevents excessive resorption and maintains the stability of the augmentate volume. Fast resorbing β-tricalcium phosphate (β-TCP) allows for regeneration of vital bone during healing time.

Institut Straumann AG
Peter-Merian-Weg 12
4002 Basel
Switzerland

Literature:
https://www.straumann.com/en/dental-professionals/science/literature/bone-substitutes.html

PROPERTIES

Attribute	Description
Origin	Synthetic
Composition	Biphasic calcium phosphate (60 % hydroxyapatite (HA), 40 % β-tricalcium phosphate (β-TCP))
Porosity	90 %
Pore size	100 – 500 µm
Degradation kinetics	Natural (cell-mediated) resorption process; fast resorption of β-TCP, slow resorption of HA
Healing/integration time	6 months
Storage temperature	Room temperature
Shelf life	5 years



Courtesy of Dr. A. Stricker, Konstanz/Germany

APPLICATION AND HANDLING

Rehydration
Rehydration in blood from the defect site or saline solution is recommended and facilitates handling and application.

Application
- → Avoid compressing the particles during application; non compacted particles leave space for blood vessel ingrowth and formation of new bone matrix.
- → Fill the defect as completely as possible.
- → Ensure maximum contact between the graft material and viable bone in a well vascularized area.

Covering
When working with particulate bone regeneration materials, the augmentation site should always be covered with a barrier membrane to ensure undisturbed osseous regeneration and to prevent migration of the particles into the oral cavity.

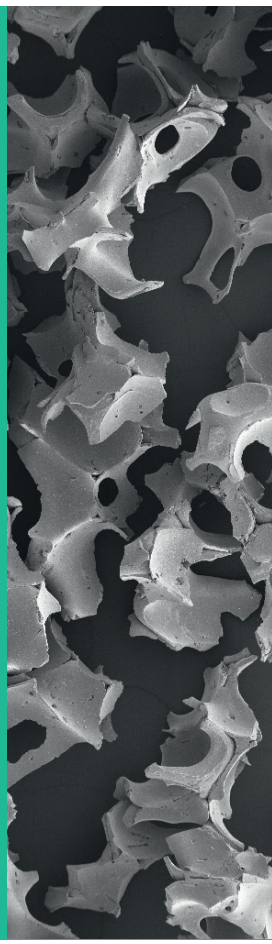
Wound closure
Ensure that soft tissue coverage of the grafted site is complete and free of tension.

Healing time and re-entry
The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on the assessment of the patient's individual situation. A healing period of six months is recommended before re-entry to ensure stable integration of particles.

Particle size
The small granules are preferably used in the esthetic region to give a better surface contouring. It is also beneficial to use smaller granules in smaller defect sites like periodontal defects.

The large granules enable enhanced revascularization of larger defects.

Mixing with autologous bone
Mixing of Straumann® BoneCeramic™ with autologous bone adds a biological activity (osteoinductive and osteogenetic properties of autologous bone) and supports faster regeneration and improved formation of new bone.



Available in the following sizes

Code	Size, amount	Product
070.198	0.4 – 0.7 mm, 0.25 g, 0.3 cc (ml)	Straumann® BoneCeramic™ granules
070.199	0.5 – 1.0 mm, 0.5 g, 0.95 cc (ml)	
070.200	0.5 – 1.0 mm, 1.0 g, 1.9 cc (ml)	

LABRIDA BIOCLEAN™

LABRIDA BIOCLEAN™

Marine

For effective debridement of teeth and dental implant surfaces

Labrida BioClean™ is a medical device designed for effective cleaning of osseointegrated dental implants and/or teeth with pocket depths ≥ 4mm.[1,5] Removal of plaque-forming bacteria from the infected dental implant/tooth surface is the first step in biofilm management.

FEATURES AND BENEFITS

For efficient implant care[1–5]	→ Efficient implant maintenance → Effective cleaning of the implant surface → Gentle to implant surface*
Maintains peri-implant health[1–3, 6–9]	→ Treatment of peri-implant mucositis and peri-implantitis → Prevention of peri-implantitis → Supports peri-implant health
Increases patient comfort compared to Ti curettes[2,5]	→ More comfortable for patient compared to treatment with Ti curettes
Chitosan fibres	Chitosan → is a non-allergenic marine biopolymer → is biocompatible and resorbs very fast → has documented bacteriostatic and anti-inflammatory properties[10,11,12]
Polypropylene sleeve	→ Protective properties against mechanical damage of implant prosthesis
Medical grade stainless steel mandrel	→ Durable material

* demonstrated in vitro

Labrida AS
Slemdalsveien 1
0369 Oslo
Norway

PROPERTIES

Attribute	Description
Storage temperature	Room temperature 2–30 °C
Shelf life	3 years

APPLICATION AND HANDLING

Labrida BioClean™ is a dental device with a working end of fastdegrading chitosan attached to a medical grade stainless steel stem covered with a white soft polypropylene sleeve. The sleeve protects the implant prosthesis from damage. Labrida BioClean™ is a disposable device for cleaning of up to 4 infected dental implants per patient. Labrida BioClean™ has to be used with an oscillating dental hand piece (average 600–1000rpm).

Available in the following sizes

Product	Code
Labrida BioClean™	LBC2013.0001

CLEANING SYSTEMS

STRAUMANN® GALVOSURGE

Biofilm removal and implant surface decontamination in 2 minutes.

In just 2 minutes, GalvoSurge® effectively removes biofilm from dental implants affected by peri-implantitis, and creates optimal conditions for bone regeneration and re-osseointegration.

FEATURES AND BENEFITS

Electrolytic cleaning to decontaminate the implant surface surgically	Electrolytic cleaning is done by controlled application of low voltage to the metallic implant and simultaneous application of an electrolyte solution. The resulting reaction creates hydrogen bubbles which lift off the biofilm from the implant surface, leaving implants clean and ready for re-osseointegration.
Cleaning takes only 2 minutes	Decontaminates the exposed implant surface including threads, undercuts and microstructures in just 2 minutes.
Safety	Extra low voltage, gentle to soft and hard tissue and does not harm implant structure.
Compatibility	Can be used on metallic implants.

GalvoSurge Dental AG
Nöllenstrasse 15a
CH-9443 Widnau
Switzerland

GALVOSURGE® DENTAL IMPLANT CLEANING SYSTEM COMPONENTS:

Article No.	Product Name
GVS1002	GalvoSurge® Control Unit GS 1000
GVS1008	GalvoSurge® Dental Implant Cleaning Set*

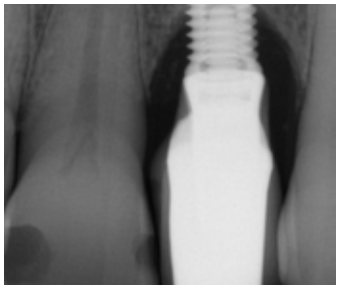
* GalvoSurge® Dental Implant Cleaning Set consists of 1 bottle of Cleaning Solution and 1 Tube Package. Each cleaning set can be used to clean up to two implants in the same patient.

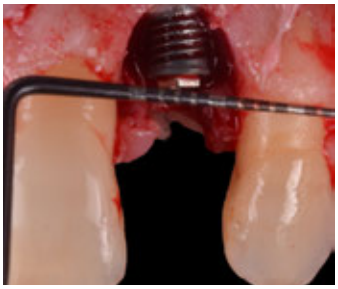
SURGICAL WORKFLOW

Step 1: Remove the prosthetic components.
Step 2: Administer local anesthesia to the patient.
Step 3: Conduct flap elevation and site management to remove any granulation tissue, cement residue, calculus or hard deposits.
Step 4: Inform the patient about the strong salty taste of the GalvoSurge® cleaning solution.
Attach the GalvoSurge® spray head to the internal connection of the implant.
Step 5: Start the electrolytic cleaning with GalvoSurge®. The cleaning solution is passed through with a very low voltage.
Note: Should the patient feel pain, pause the procedure immediately and re-anaesthetize.
Step 6: During the 2-minute treatment time, hydrogen bubbles are formed and lift the biofilm from the implant surface. The implant is now clean and decontaminated.
Note: Make sure the implant is sufficiently covered with the electrolyte solution. Avoid placing the suction tip too close to the treated area.
Use non-metallic suction only.
Step 7: Remove any residual cleaning solution or coagulum.
Step 8: Place a sterile cover screw or healing abutment.
Step 9: Perform bone augmentation if required.
Step 10: Proceed with flap closure at the surgical site.

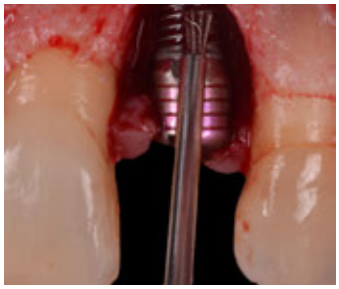
CLINICAL APPLICATION

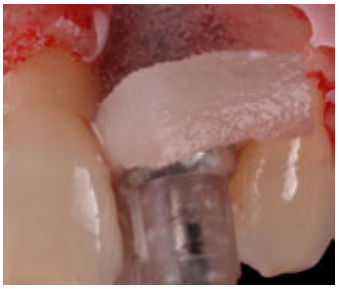
2-year results after surgical treatment of peri-implantitis with GalvoSurge



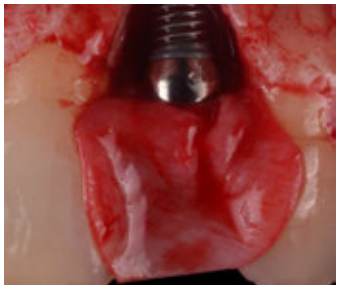


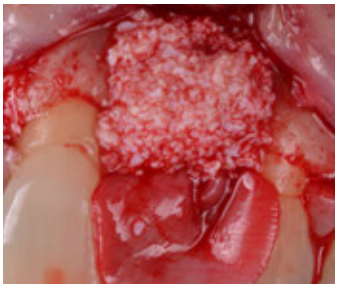
1. Initial situation: Implant #22 with ,oderate 2-wall defect (Class Ib)



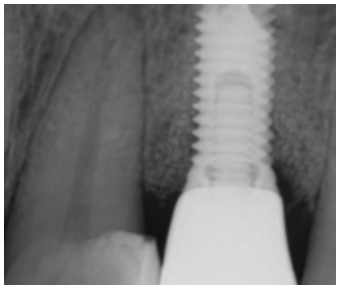


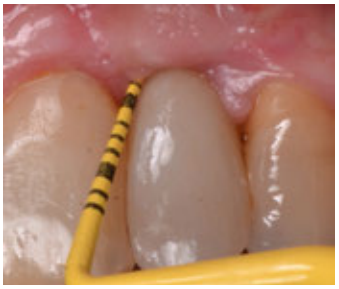
2. Granulation tissue & calculus were removed by curette and brush, followed by GalvoSurge® cleaning





3. GBR and sub-epithelial connective tissue graft, followed by tension-free wound closure





4. Radiographic control after 20 months and clinical situation after 2 years: bone level gain and stability

Pictures with courtesy of Dr. Alberto Monje, Spain.

BONE BLOCK AND CORTICO INSTRUMENTS

Product	Image	Description	Material	Code
Micro-screws, cross-recessed		Ø1.2 mm, length 6 mm, packaging 5 pieces	Ti	68-112-506
		Ø1.2 mm, length 8 mm, packaging 5 pieces		68-112-508
		Ø1.2 mm, length 11 mm, packaging 5 pieces		68-112-511
		Ø1.2 mm, length 13 mm, packaging 5 pieces		68-112-513
Pilotdrill		Ø1.0 mm, length 14 mm, for Ø1.2 mm screws		68-510-014
		Ø1.2 mm, length 14 mm, for Ø1.4 mm screws		68-512-014
Storage box		Storage box for micro screws, Ø1.0 mm – 1.4 mm	Stainless steel	68-720-002
Screwdriver		Screwdriver, 11 cm		68-740-002
		Blade, 60 mm		68-740-102
cortico trimmer®		Instrument for maxgraft® cortico adaption	Ti	BO-34000

BOTISS TITAN PIN SET

Product	Image	Description	Material	Code
botiss Titan Pin Set				
botiss Titan Pin Set		1 × applicator 1 × dispenser for 15 titan pins 1 × titan pins 3 mm (10 pieces)		BO-440000
botiss Titan Pins 3 mm		Titan pins 3 mm (10 pieces)		BO-440310

Institut Straumann AG
Peter-Merian-Weg 12, 4002 Basel, Switzerland
(for 0xy code numbers)

Ustomed Instrumente, Ulrich Storz GmbH & Co. KG
Bischof-Sproll-Strasse 2, 78532 Tuttlingen, Germany
(for BO-xy and BK-xy code numbers)

STRAUMANN® REGENERATIVE SOLUTIONS

Master any challenge.

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