

STRAUMANN[®] BIOMATERIALS

Master any challenge.





COMPREHENSIVE

Our comprehensive portfolio provides you with exactly the choice you need to master challenges from surgical/flapless periodontal regeneration, enhanced wound healing, bone regeneration, to soft-tissue management and wound care.



INDIVIDUAL SOLUTIONS

We understand that an all-rounder, one-size-fits all solution, does not always help you meet every challenge. That's why we provide individual solutions for your individual challenges.



POWERFUL

Whether it's better healing, volume preservation, speed or natural esthetic results, we provide exactly what you need to meet your challenges, backed by scientific evidence and powered by innovation.

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





STRAUMANN® BIOMATERIALS. WHAT CHALLENGE ARE YOU GOING TO **MASTER** TODAY?

We understand that your cases are as individual as your patients. That's why we offer products you feel comfortable with and can depend on, day in, day out. You can trust in the experience and expertise, that is synonymous with Straumann®, to deliver the right solution for different situations. Whatever your patient needs: from a volume preserving xenograft, to the speed and natural results of an allograft, or a well-balanced combination, our innovative solutions provide you with exactly what you need to master your challenges.

Together with our strategic partners, Straumann® now provides a carefully selected and comprehensive portfolio in oral regeneration. Our unique biologics, complete GBR portfolio and innovative custom solutions are designed to help you master the challenges you might face in your daily practice.

BIOMATERIALS

STRAUMANN® EMDOGAIN®



STRAUMANN® EMDOGAIN®

Periodontal Surgery



STRAUMANN® EMDOGAIN®

Wound Healing



STRAUMANN® EMDOGAIN® FL

Flapless Regeneration



MUCODERM®

Native collagen matrix



STRAUMANN® MEMBRANE FLEX

Peritoneum membrane



STRAUMANN® PERMAMEM®

High-density PTFE membrane



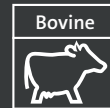
JASON® MEMBRANE

Pericardium membrane

SOFT TISSUE
GRAFTS

MEMBRANES





STRAUMANN® XENOGRIFT
Non-sintered granules



STRAUMANN® XENOFLEX
Collagenated xenograft cube



CERABONE®
Pure natural bone mineral



STRAUMANN® BONECERAMIC™
Biphasic calcium phosphate granules



BONE CRAFTS

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BONE GRAFTS

STRAUMANN® XENOGRAFT



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 curette 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.

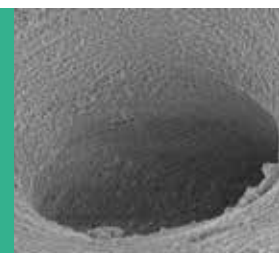
A minimum healing period of six months is recommended before re-entry to ensure stable integration of particles.

Combining with Allograft

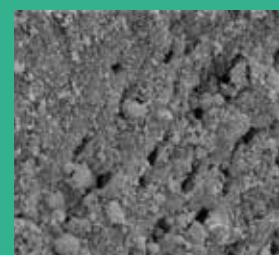
Combining of Straumann® XenoGraft with allogeneic bone combines the advantages of both materials; the biological potential of allograft and the long-term stability of Straumann® XenoFlex lead to fast regeneration of vital, strong bone.

Combining with autologous bone

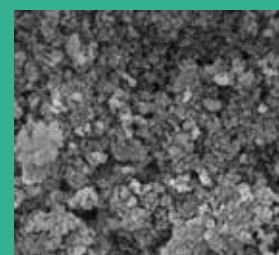
Combined use of Straumann® XenoGraft with autologous bone bring about a biological activity (osteo-inductive and osteo-genetic properties of autologous bone) and may support faster regeneration and improved formation of new bone.



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		

BONE GRAFTS

STRAUMANN® XENOFLEX



Collagenated xenograft cube

Straumann® XenoFlex is a biomimetic 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	<p>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).</p> <p>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.</p>
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	<p>After hydration Straumann® XenoFlex changes to a slightly spongy consistency enabling excellent handling and defect application.</p> <p>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.</p>
Easy handling and application	<p>Straumann® XenoFlex can be easily cut to the needed size and shape in dry and wet condition.</p> <p>The product can be placed into defect in one piece using tweezers shortening operation time.</p>



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.

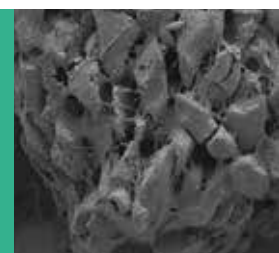
A minimum healing period of six months is recommended before re-entry to ensure stable integration of particles.

Combining with Allograft

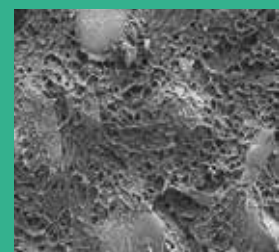
Combining of Straumann® XenoFlex with allogeneic bone combines the advantages of both materials; the biological potential of allograft and the long-term stability of Straumann® XenoFlex lead to fast regeneration of vital, strong bone.

Combining with autologous bone

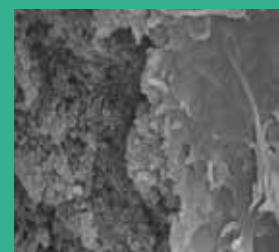
Combined use of Straumann® XenoFlex with autologous bone bring about a biological activity (osteo-inductive and osteo-genetic properties of autologous bone) and may support faster regeneration and improved formation of new bone.



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

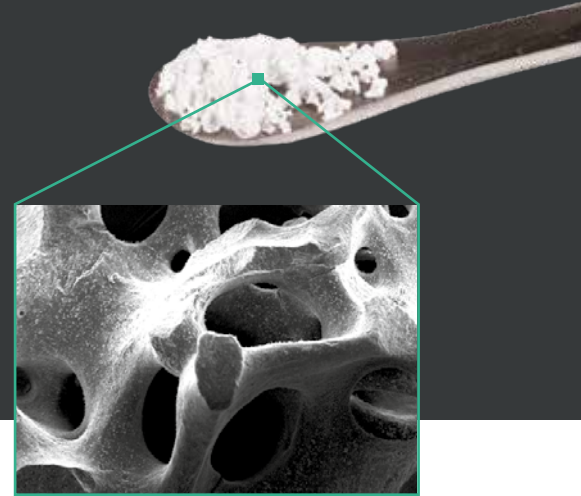
CERABONE®



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

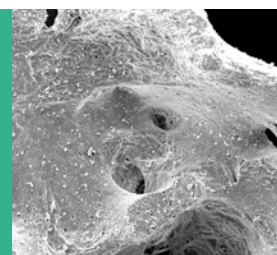
Use of small granules gives better surface contouring, especially in the esthetic region. Use of large particles enables a better revascularization of larger defects.

Mixing with maxgraft® (allograft)

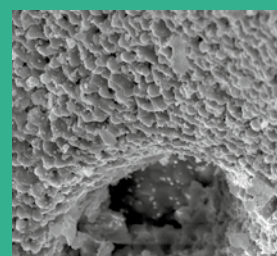
Mixing of cerabone® with allogeneic bone (maxgraft®) combines the advantages of both materials; the biological potential of maxgraft® and the long-term stability of cerabone® lead to fast regeneration of vital, strong bone.

Mixing with autologous bone

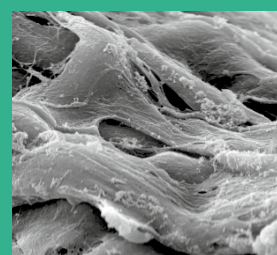
Mixing of cerabone® with autologous bone adds a biological activity (osteoinductive and osteogenetic properties of autologous bone) and supports faster regeneration and improved formation of new bone.



Three-dimensional pore-network



Hydrophilic, 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-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)	

BONE GRAFTS

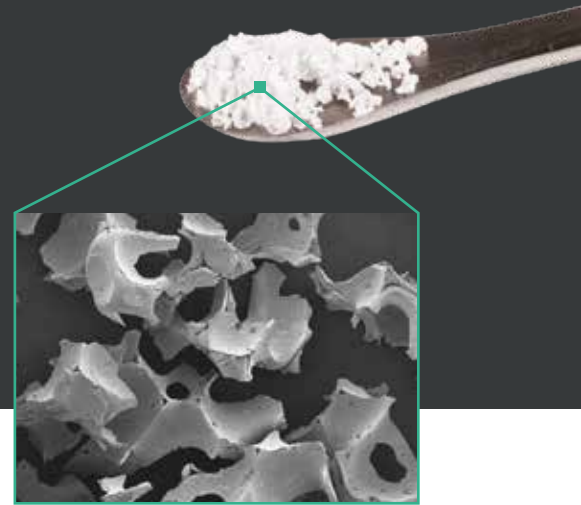
STRAUMANN® BONECERAMIC™

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	<p>The chemical process technology used in the production of Straumann® BoneCeramic™ ensures</p> <ul style="list-style-type: none"> → reproducibility → batch to batch consistency → biocompatibility <p>Because of its 100 % synthetic composition any risk of infection or disease transmission can be excluded.</p>
Optimized morphology	<p>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.</p>
Homogenous composition	<p>Biphasic calcium phosphate in homogenous composition:</p> <p>60 % hydroxyapatite (HA) as a strong matrix for long-term bone volume preservation:</p> <ul style="list-style-type: none"> → 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	<p>The morphology of Straumann® BoneCeramic™ facilitates osteoconductivity, vascularization and osteoblast migration.</p> <p>Straumann® BoneCeramic™ serves as a scaffold for bone deposition during the bone formation process.</p> <p>The slow resorption rate of HA prevents excessive resorption and maintains the stability of the augmentate volume.</p> <p>Fast resorbing β-tricalcium phosphate (β-TCP) allows for regeneration of vital bone during healing time.</p>



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 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 μ m
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

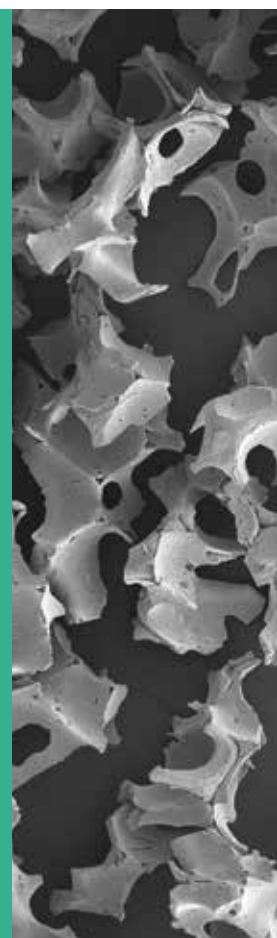
The appropriate healing time is patient- and site-dependent and has to be decided by the clinician based on the assessment of the patient's individual situation. A healing period of six months is recommended before re-entry to ensure stable integration of particles.

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)	

**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.

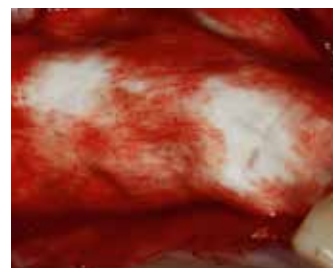
FEATURES AND BENEFITS

Native collagen structure preserved during the production process	<p>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.</p> <div data-bbox="582 911 798 1057"> </div> <div data-bbox="828 911 1043 1057"> </div> <div data-bbox="1074 911 1289 1057"> </div>
Slow degradation time due to the natural honey-comb-like and multi-layered collagen structure with an increased content of collagen type III	<p>The resulting prolonged barrier function makes the membrane the recommended choice particularly for large augmentative procedures.</p>
Low thickness of only 0.15 mm	<p>Facilitates soft tissue manipulation, particularly in challenging thin biotypes.</p> <div data-bbox="582 1415 798 1561"> </div>
Easy handling and application	<p>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.</p> <div data-bbox="582 1749 798 1895"> </div>



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

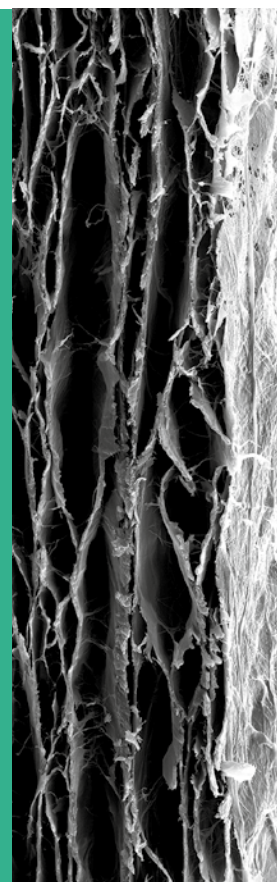
The Jason® membrane exhibits a remarkable multi-directional tear resistance. Therefore, it can easily be pinned, sutured or even screwed without rupturing. But the excellent adhesion of the membrane to the bony walls makes additional fixation unnecessary in most cases.

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

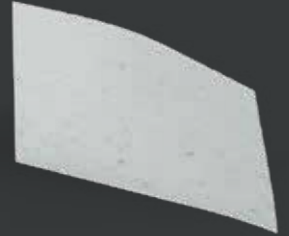
STRAUMANN® MEMBRANE FLEX™

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

*Data on file with manufacturer



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

Literature:
Li et al., Materials Science, 2015

PROPERTIES

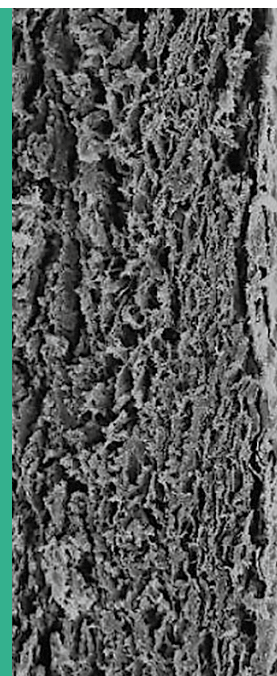
Attribute	Description
Origin	Porcine peritoneum
Composition	Types I and III collagen
Structure	Minimally cross-linked with glutaraldehyde
Thickness	0.5 mm
Degradation time	12–16 weeks
Storage temperature	Room temperature (15–30 °C)
Shelf life	3 years



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

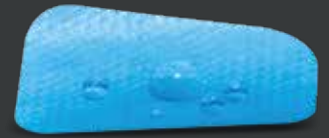
PERMAMEM®

Synthetic

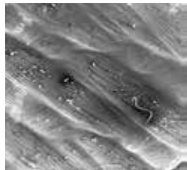


High-density PTFE membrane

permamem® is an exceptionally thin, non-resorbable, biologically inert and biocompatible membrane made of high-density poly-tetrafluoro-ethylene (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	<p>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.</p> 
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	

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 an absolutely safe and pure collagen type I and III matrix. 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.



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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 alternating 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	

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
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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 ≥ 9mm



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

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

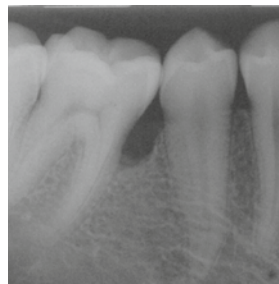
Periodontitis is associated with a loss of tooth-supporting tissues which is irreversible and the main reason for tooth loss if left untreated. Emdogain® is the golden standard when it comes to inducing the regeneration of lost periodontal tissues in a safe, easy and predictable way. Long-term clinical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

Emdogain® in wound healing

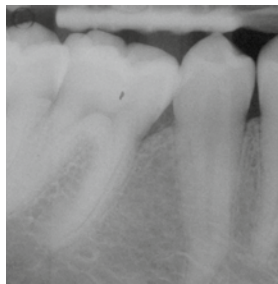
As esthetics, comfort and efficiency become more and more important when it comes to implant dentistry, Emdogain® is the solution you have been searching for. Emdogain® allows accelerated healing, minimizing discomfort for your patients through less swelling, less pain and faster recovery. Further it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

Master any challenge.

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