[BIOMATERIALS]

**Straumann®** Biomaterials

# Master any challenge.

## Product portfolio

straumann

## 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.

# Straumann® Biomaterials. What challenge are you going to master today?

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

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.

# Straumann® Biomaterials portfolio Australia and New Zealand

STRAUMANN® EMDOGAIN®

Straumann® Emdogain®
Periodontal surgery

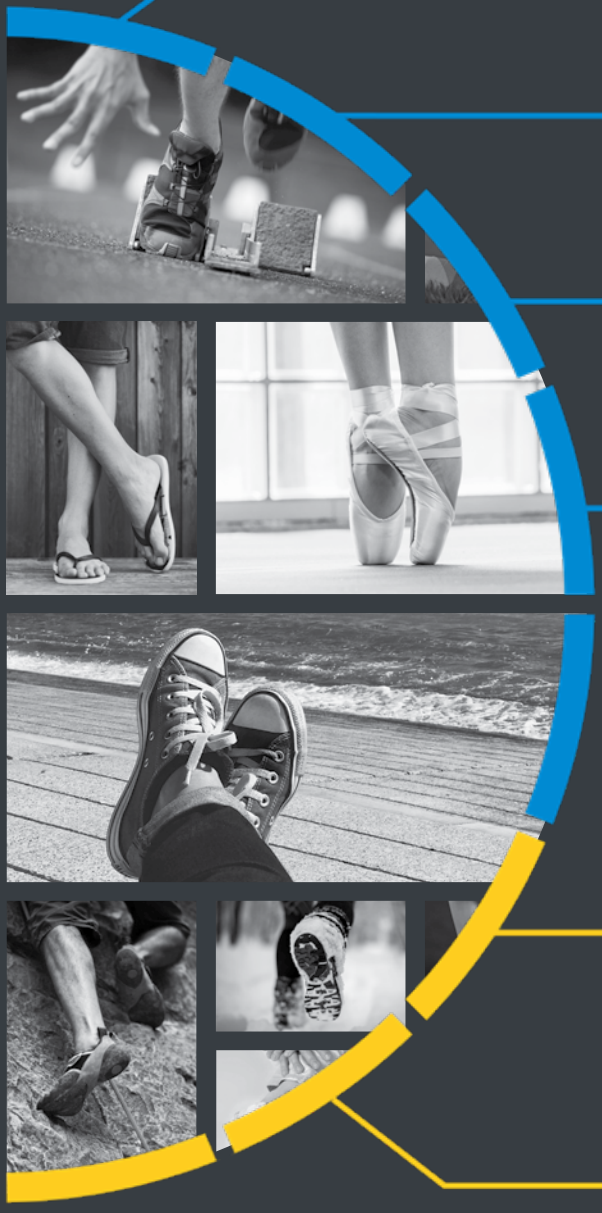
Straumann® Emdogain®
Wound healing

Straumann® Emdogain® FL
Flapless periodontal regeneration

SOFT TISSUE GRAFTS

mucoderm®
Native collagen matrix

Bovine | Porcine | Synthetic



## cerabone®
Pure natural bone mineral

## Straumann® XenoGraft
Non-sintered granules

## Straumann® XenoFlex
Collagenated xenograft cube

## Straumann® BoneCeramic™
Biphasic calcium phosphate granules

BONE GRAFTS

## Jason® membrane
Pericardium membrane

## Straumann® membrane Flex
Minimally crosslinked porcine peritoneum collagen membrane

MEMBRANES

# Content


## STRAUMANN® EMDOGAIN®

BONE GRAFTS

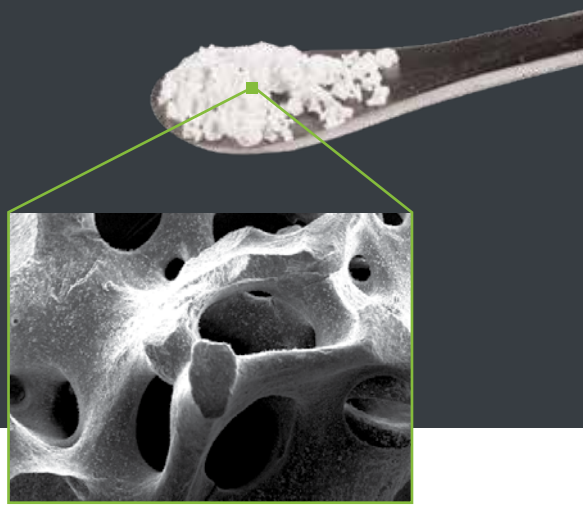
# cerabone®

## 1200 °C safety: pure natural bone mineral

Bovine

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

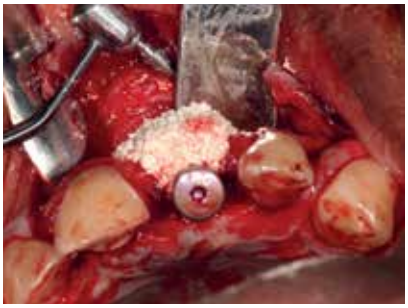
| | |
|---|---|
| **Safety + Purity** | The unique 1200 °C manufacturing process of cerabone® removes all organic components for maximum safety and leads to a 100 % pure natural bone mineral – by utilising heat and water only (free of chemical additives). Gamma-irradiation ensures final sterility of 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.

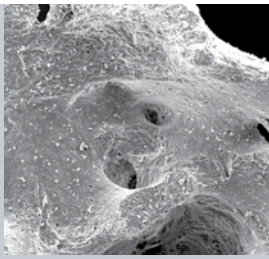
### Application
- Avoid compressing the particles during application. Non compacted particles leave space for blood vessel ingrowth and formation of new bone matrix.
- Fill the defect as completely as possible.
- Ensure maximum contact between the graft material and viable bone in a well vascularised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

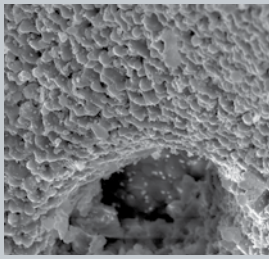
### Particle size
Use of small granules gives better surface contouring, especially in the esthetic region. Use of large particles enables a better revascularisation of larger defects.

### 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.

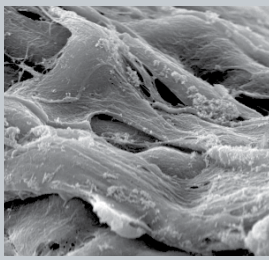
### Mixing with autologous bone
Mixing of cerabone® with autologous bone adds a biological activity (osteoinductive and osteogenetic properties of autologous bone) and supports faster regeneration and improved formation of new bone.



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-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® XenoGraft

## Non-sintered granules

Bovine

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. |
| **Spongy consistency after hydration** | 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.

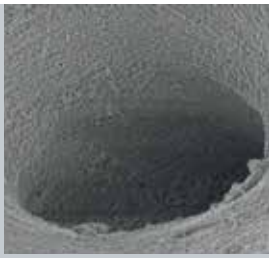
### Application
- Straumann® XenoGraft can be delivered to the surgical site with surgical currette or periosteal elevator after wetting with blood or saline solution.
- Ensure maximum contact between the graft material and well vascularized, bleeding bone surface to facilitate ingrowth of new blood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

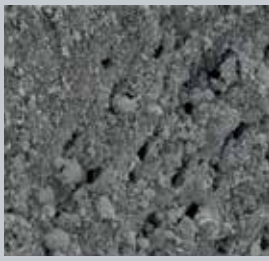
### Wound closure
Ensure that soft tissue coverage of the grafted site is complete and free of tension

### 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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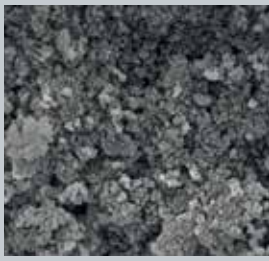
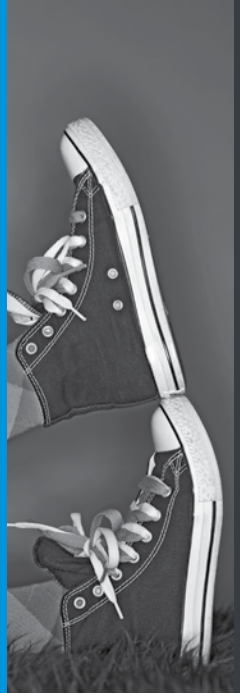

20,000 × magnification

### 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

Bovine

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).<br>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.<br>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.<br>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<br>Porcine collagen type I |
| **Composition** | 90 % Calcium phosphate (100 % pure hydroxyapatite, mineral phase)<br>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.

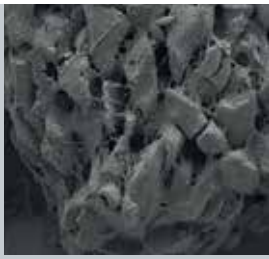
### Application
- Straumann® XenoFlex may be cut to the needed size in dry form or after hydration in blood or saline solution (using tweezers and scissors).
- Ensure maximum contact between the graft material and well vascularized, bleeding bone surface to facilitate ingrowth of new blood vessels and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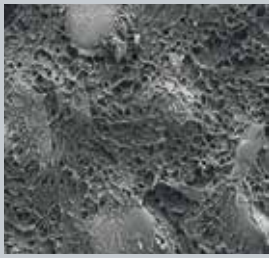
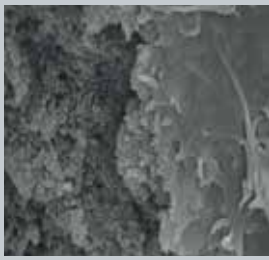
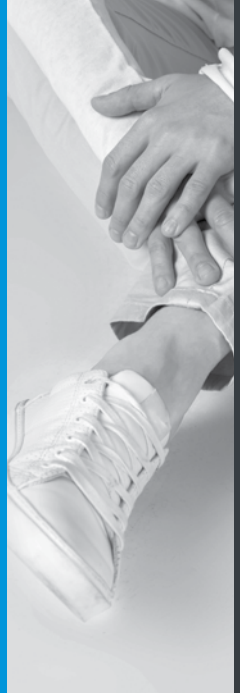

100 × magnification


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 | |



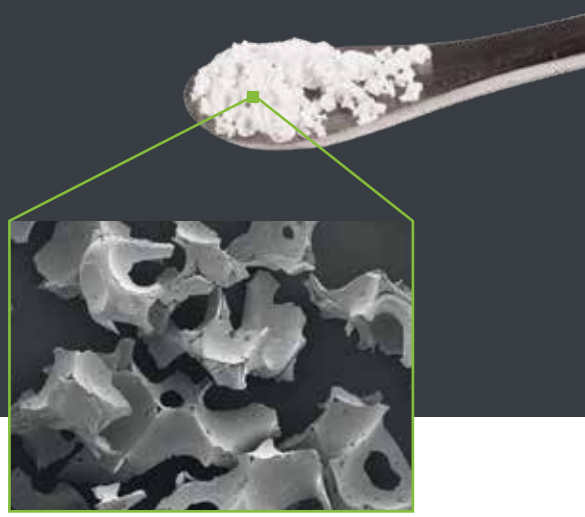
BONE GRAFTS

# Straumann® BoneCeramic™

## Biphasic calcium phosphate granules

Synthetic

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

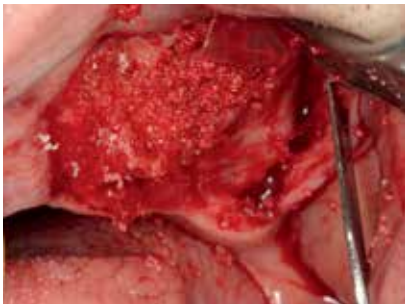
| | |
|---|---|
| **Safety and biocompatibility** | The chemical process technology used in the production of Straumann® BoneCeramic™ ensures<br>• reproducibility<br>• batch to batch consistency<br>• biocompatibility<br>Because of its 100 % synthetic composition any risk of infection or disease transmission can be excluded. |
| **Optimised morphology** | Optimised 90 % porosity encourages vascularisation, 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:<br>60 % hydroxyapatite (HA) as a strong matrix for long-term bone volume preservation:<br>• 60 % HA prevents excessive resorption and preserves the bone volume.<br>• 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, vascularisation and osteoblast migration.<br>Straumann® BoneCeramic™ serves as a scaffold for bone deposition during the bone formation process.<br>The slow resorption rate of HA prevents excessive resorption and maintains the stability of the augmentate volume.<br>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 vascularised area.

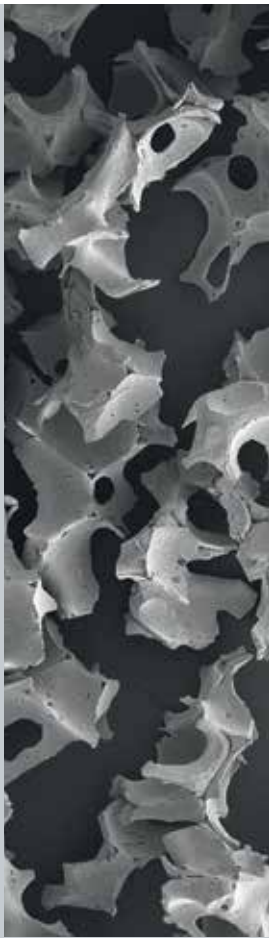
### Covering
When working with particulate bone regeneration materials, the augmentation site should always be covered with a barrier membrane to ensure undisturbed osseous regeneration and to prevent migration of the particles into the oral cavity.

### 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 revascularisation 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) | |

MEMBRANES

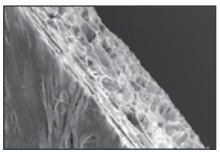
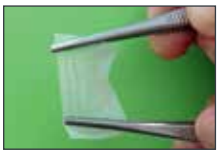
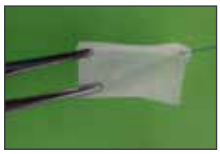
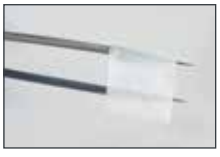
# Jason® membrane

## Pericardium membrane

Porcine

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

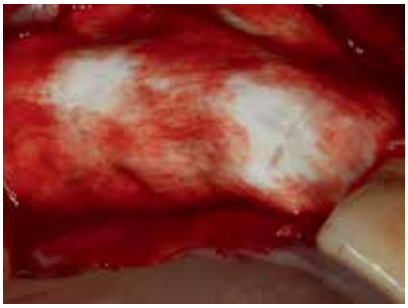
| | |
|---|---|
| **Native collagen structure preserved during the production process** | High tensile strength due to the biomechanical properties of the pericardium. Allows a wide range of fixation methods, including pinning and suturing, despite the low thickness of only ~ 0.15 mm.    |
| **Slow degradation time due to the natural honeycomb-like and multi-layered collagen structure with an increased content of collagen type III** | 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
15806 Zossen
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

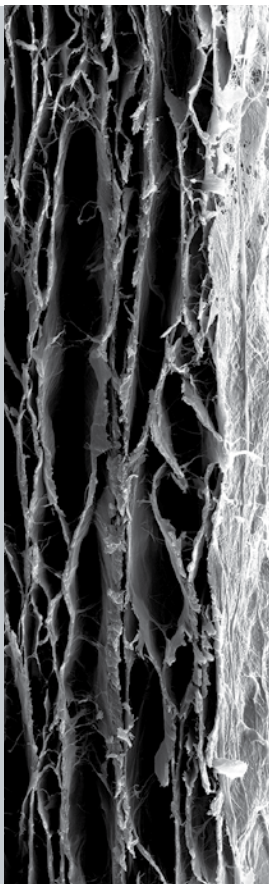
The Jason® membrane exhibits a remarkable multi-directional tear resistance. Therefore, it can easily be pinned, sutured or even screwed without rupturing. But the excellent adhesion of the membrane to the bony walls makes additional fixation unnecessary in most cases.

### 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

## Minimally crosslinked porcine peritoneum collagen membrane

Porcine

Made from intact porcine peritoneum, Membrane Flex is a reliable and strong collagen membrane for everyday cases. It offers exceptional flexibility and biomechanical strength, and resorbs predictably. What's more, it naturally conforms to defects and contours. Once in place, it can be firmly anchored to surrounding tissue, with minimal risk of tearing or detachment.*

## FEATURES AND BENEFITS

| | |
|---|---|
| **Desirable handling characteristics** | Not side specific.<br>Can be placed dry or hydrated.<br>Even when hydrated, does not adhere to gloves or instruments.<br>Can be easily repositioned for precise placement.<br>Takes sutures or tacks with ease. |
| **High tensile strength** | Proven biomechanical strength enhances fixation assurance.* |
| **Predictable & controlled resorption** | Protects the graft area from unwanted soft tissue infiltration during the initial phase of healing.<br>Resorbs predictably over 3 to 4 months as new host collagen is simultaneously regenerated.* |
| **Highly purified porcine peritoneum and minimal crosslinking** | The intact tissue of porcine peritoneum provides inherent strength which is further minimally crosslinked, leading to predictable resorption and desirable handling characteristics. |

*Data on file with manufacturer

## PROCESSING ASSURES COMPATIBILITY

Porcine peritoneum, collagen-rich tissue harvested

Purified to remove non-collagenous components

Solution for each batch tested prior to cross-linking

Cross-linked with a low concentration aldehyde-based solution

Rinsed with purified water

Dried and sized

100 % pre-package visual inspection

Packaged in double pouch and sterilized with gamma radiation

100 % of packaging tested to ensure seal security

Every lot tested to meet acceptance criteria

## PROPERTIES

| Attribute | Description |
|---|---|
| **Origin** | Porcine peritoneum |
| **Composition** | Types I and III collagen |
| **Structure** | Minimally cross-linked with glutaraldehyde |
| **Thickness** | 0.3 – 0.5 mm |
| **Degradation time** | 12 – 16 weeks |
| **Storage temperature** | Room temperature (15 – 30 °C) |
| **Shelf life** | 3 years |

Courtesy of Prof. Carlos Nemcovsky

## INTENDED USE

- Simultaneous use of guided bone regeneration (GBR)-membrane and implants
- Augmentation around implants placed in immediate extraction sockets
- Augmentation around implants placed in delayed extraction sockets
- Localized ridge augmentation for later implantation
- Alveolar ridge reconstruction for prosthetic treatment
- Filling of bone defects after root resection, cystectomy or removal of retained teeth
- Guided bone regeneration in dehiscence defects
- Guided tissue regeneration procedures in periodontal defects

### 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 | |

## APPLICATION AND HANDLING

### Rehydration
Can be placed dry or hydrated. Even when hydrated, the membrane does not adhere to gloves or instruments. If the clinician prefers the handling characteristics of the hydrated collagen, the membrane can be hydrated in sterile water or saline solution for approximately five minutes prior to final placement.

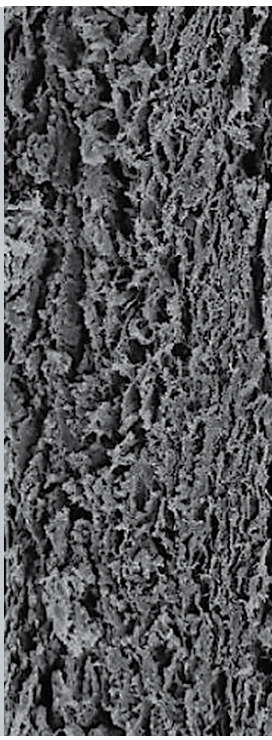
### Shaping
Can be trimmed to the size and shape of the defect in the dry or wet state using sharp, sterile scissors.

### Placement
Not side specific, and either side can be placed facing the bone. The membrane easily drapes over defects and naturally conforms to contours. It can be easily repositioned for precise placement if necessary.

Straumann® Membrane Flex should overlap the walls of the defect by at least 2 mm to allow complete bone contact and to prevent gingival connective tissue invasion below the material.

### Fixation
Fixation may be indicated to avoid displacement due to loading or mobilization. It takes sutures or tacks with ease. It can be affixed by resorbable tacks, or sutured in place using absorbable sutures and a noncutting needle.

### Exposure
The mucoperiosteal flap is sutured over the collagen membrane and the wound should be closed completely to avoid accelerated resorption due to membrane exposure. The membrane is expected to be resorbed in approximately 12 to 16 weeks.



SOFT TISSUE GRAFTS

# mucoderm®

## Porcine 3D collagen graft

Porcine

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 revascularisation and soft tissue integration, including color and texture.

## FEATURES AND BENEFITS

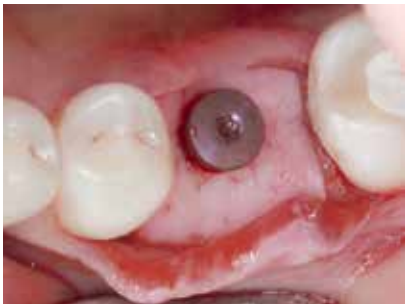
| | |
|---|---|
| **Safety and biocompatibility** | The particular, certified multi-stage cleaning process of mucoderm® effectively removes all non-collagenous proteins and cells as well as potential immunogens, bacteria and viruses. Hence, mucoderm® is an absolutely safe and pure collagen type I and 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 revascularisation.[2,3] |
| **High tensile strength** | Due to the structural stability, mucoderm® can be<br>• sutured, pinned or screwed<br>• easily cut to the required size and shape<br>• 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:<br>• Remodels completely into patient's own tissue within 6–9 months.<br>• 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 alternating sides (mesh-graft-technique) and pulling both ends to extend it.

### Exposure

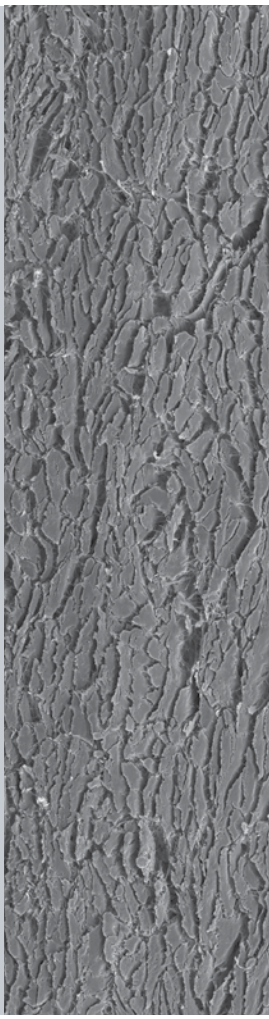
The indication determines whether mucoderm® must be covered or may be left exposed. Exposure of mucoderm® should always be avoided in treatment of recession defects. It has to be ensured that the repositioned flap fully covers the matrix. Complete coverage of the matrix ensures ingrowth of blood vessels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

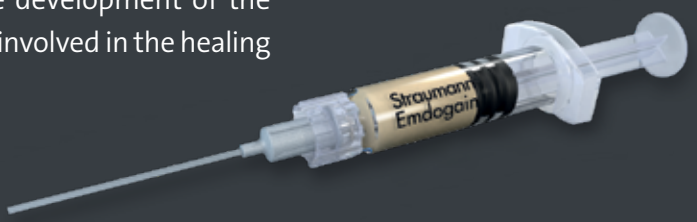
STRAUMANN® EMDOGAIN®

# Straumann® Emdogain®

## Periodontal surgery and oral wound healing

Porcine

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:<br>• significantly improved clinical parameters in intra-osseous defects compared to open flap debridement procedures alone[12]<br>• 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<br>• When used in oral surgical procedures in general, Emdogain® accelerates wound closure[15], and reduces post surgical pain and swelling[16]<br>• 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

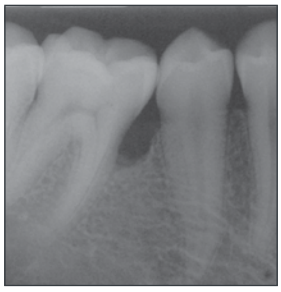
Periodontitis is associated with a loss of tooth-supporting tissues which is irreversible and the main reason for tooth loss if left untreated. Emdogain® is the golden standard when it comes to inducing the regeneration of lost periodontal tissues in a safe, easy and predictable way. Long-term clinical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

### Emdogain® in wound healing

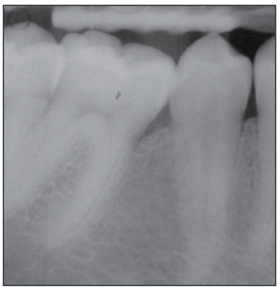
As esthetics, comfort and efficiency become more and more important when it comes to implant dentistry, Emdogain® is the solution you have been searching for. Emdogain® allows accelerated healing, minimising discomfort for your patients through less swelling, less pain and faster recovery. Further it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

## TREATMENT

*Courtesy of Prof. Carlos Nemcovsky*

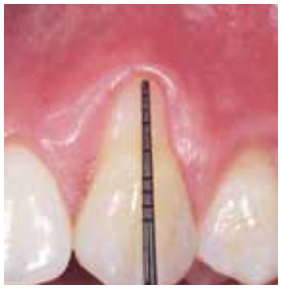


Before treatment
with Straumann® Emdogain®

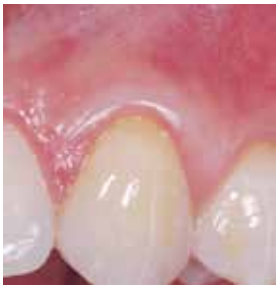


20 years after treatment
with Straumann® Emdogain®

*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<br>3 × Straumann® PrefGel® 0.6 ml | 075.114W |
| 3 × Straumann® Emdogain® 0.7 ml<br>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 |

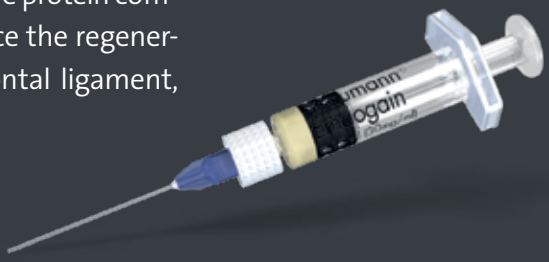
STRAUMANN® EMDOGAIN®

# Straumann® Emdogain® FL

## Flapless periodontal regeneration

Porcine

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.



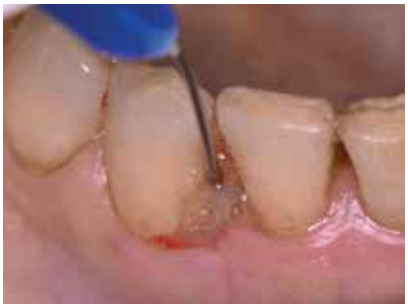
## FEATURES AND BENEFITS

| | |
|---|---|
| **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

### Expertise 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]

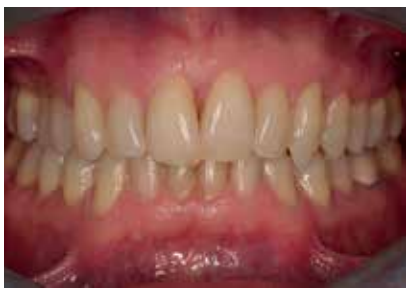
### Patient comfort

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

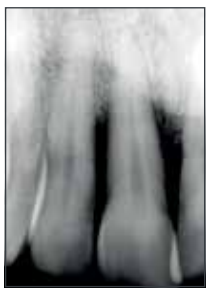
## TREATMENT

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

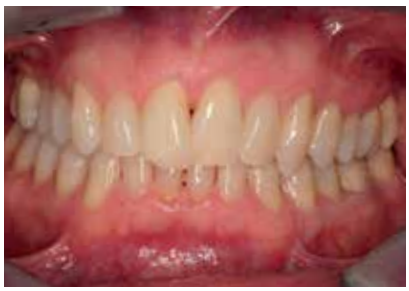
*Pictures with courtesy of Dr. Orest G Komarnyckyj DDS, Phoenix AZ, USA*



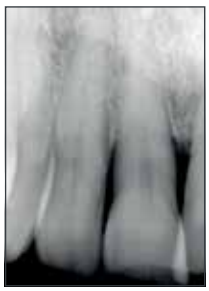
Left frontal incisor before treatment



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<br>1 × PrefGel® 0.6 ml<br>2 × cannulas | 075.130 |
| **Emdogain® FL 0.3 ml** | |
| 1 × Emdogain® FL 0.3 ml<br>1 × PrefGel® 0.6 ml<br>2 × cannulas | 075.131 |

# Master any challenge.


**REFERENCES**

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