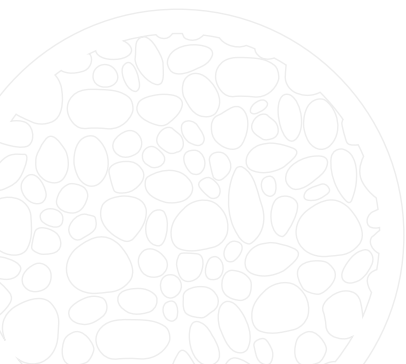




Product catalog Biomaterials

Valid from November 2021



Content

Introduction	2
Biomaterials for hard and soft tissue regeneration	2
Manufacturing process – MinerOss® X/XP and Mem-Lok® RCM/Pliable	3
Bone graft substitutes	4
MinerOss® X Cancellous and MinerOss® X Collagen	4
MinerOss® XP Cancellous	6
Collagen membranes	8
Mem-Lok® RCM – durable and long-lasting	8
Mem-Lok® Pliable – versatile and flexible	10
Reconstructive Tissue Matrix	12
NovoMatrix™	12
Wound dressings	14
BioPlug and BioStrip	14
Auxiliary products	15
Bone Fixation Screw Kit	15
Case studies	16
Horizontal and vertical augmentation in the lower jaw with MinerOss® XP	16
Soft tissue thickening with NovoMatrix™ – the pouch technique	17
Product overview	18
Science	22
References	23

Biomaterials

for hard and soft tissue regeneration

BioHorizons and Camlog are setting standards in hard and soft tissue regeneration with the bone substitute materials MinerOss® X Collagen and Granules and MinerOss® XP, the collagen membranes Mem-Lok® RCM and Mem-Lok® Pliable, and the NovoMatrix™ Reconstructive Tissue Matrix. These xenogeneic products are suitable for a broad spectrum of applications.

MinerOss® X is an anorganic bovine bone mineral matrix which is comparable to the mineral structure of human bone. MinerOss® X is available as a cancellous bone granulate or in block form combined with 5% collagen. Its complex trabecular architecture and natural consistency allow for ideal bone formation at the defect site. The MinerOss® X products are used for extraction sockets, for alveolar ridge enhancement, and for sinus augmentation. MinerOss® X Particulate is available in the sizes 0.25, 0.5, 1.0 and 2.0 grams. MinerOss® X Collagen blocks are available in three sizes.

MinerOss® XP is a highly porous, anorganic bone mineral of porcine origin used in bone grafting. Its high porosity provides optimal osteoconductivity and sufficient space for new bone formation [1].

The resorbable **Mem-Lok® RCM** collagen membrane is made from highly purified, type I collagen derived from bovine achilles tendon. Mem-Lok® is an effective barrier membrane preventing epithelial cells from migrating into the bone defect site to support new bone formation.

Mem-Lok® Pliable is a collagen membrane made from highly purified, porcine peritoneum. It has a high suture pull-out strength. Mem-Lok® Pliable resorbs in 12 to 16 weeks. Both membranes are offered in three sizes (15 x 20; 20 x 30 and 30 x 40 mm).

NovoMatrix™ is an acellular dermal matrix of porcine origin used for thickening soft tissue and covering recessions.

The biomaterials portfolio also includes collagen wound dressings. **BioPlug** and **BioStrip** absorb blood and other fluids to protect treated areas and to support optimal regeneration. They are mainly used to close extraction sockets and to cover smaller wounds.



Quality standards



Clinical proven



Novel solutions



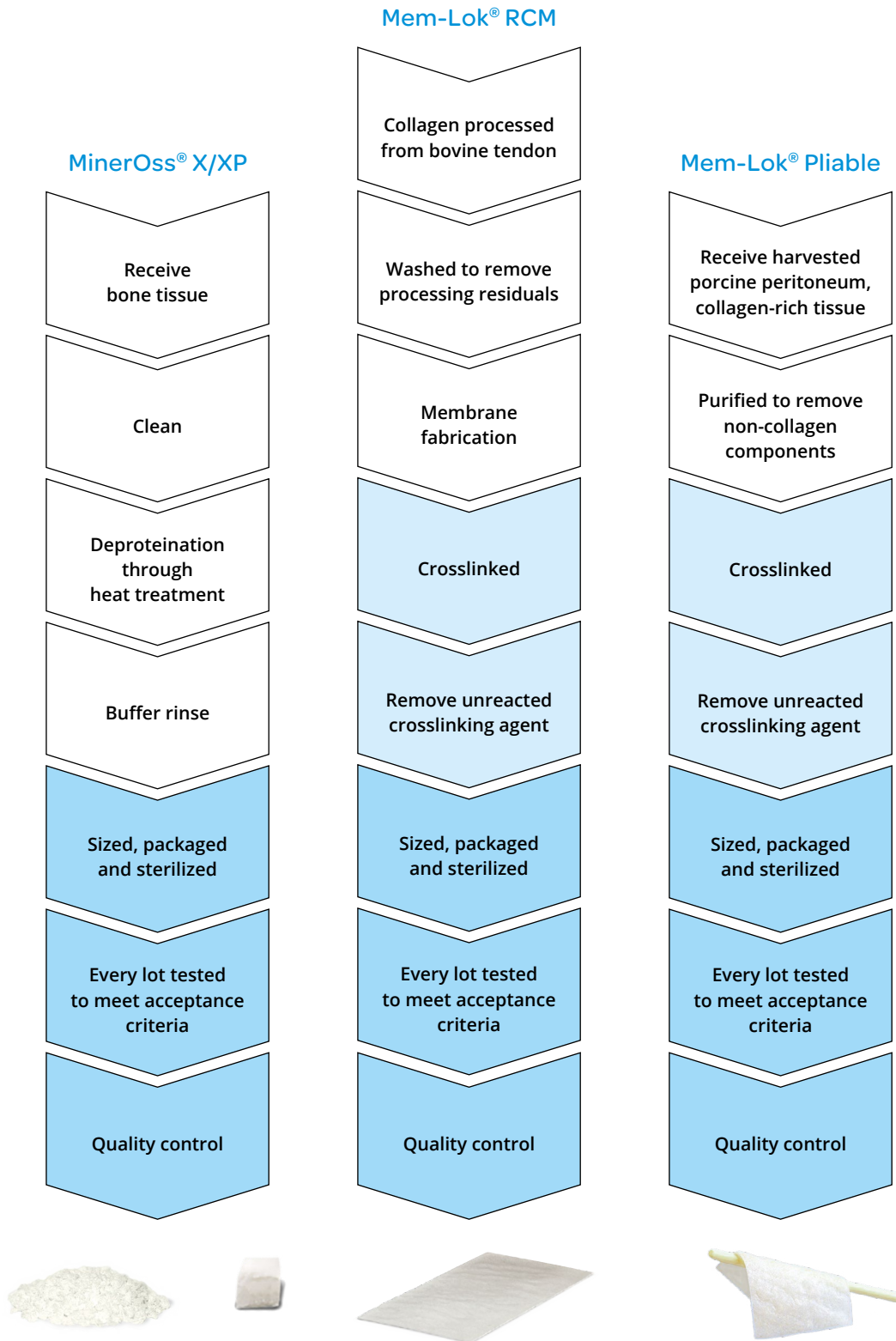
Partner of success

Manufacturing process

MinerOss® X/XP and Mem-Lok® RCM/Pliable

The main process steps during manufacture are listed below. Both the product and the production process comply with the required safety standards and requirements of the German regulations, the EU regula-

tions as well as those of the US health authorities (FDA) as well as the safety regulations required for xenogenic processing, including EN ISO 22442-1, EN ISO 22442-2 and EN ISO 22442-3.



Bovine xenogeneic bone graft substitutes

MinerOss® X Cancellous and MinerOss® X Collagen



The MinerOss® family of xenogeneic bone graft materials can be used in a wide variety of applications bone regeneration. It is methodically processed from bovine or porcine bone and extensively tested to eliminate potential antigenicity and to provide a favorable environment for new bone growth.*

MinerOss® X is an anorganic, bovine bone, mineral matrix available in a variety of options. Physically and chemically, the product is comparable

to the mineral structure of human bone. The formation and ingrowth of new bone at the implantation site of MinerOss® X is favored, due to its trabecular architecture, interconnecting macro and micro pores and its natural consistency. MinerOss® X Collagen is a combination of 95 % anorganic, cancellous, bovine bone and approximately 5 % bovine collagen. This block form allows for convenience during placement and is an ideal solution for many applications, including ridge preservation, minor bone augmentations and periodontal regeneration.

Flexible for meeting clinical requirements


- In combination with Mem-Lok® RCM, MinerOss® X preserves ideal space and long-term cell occlusion for maximum bone volume

Matrix for osseointegration

- Diffraction patterns are close to the mature native bone diffraction pattern [2]
- High porosity which supports and enhances integration of new bone

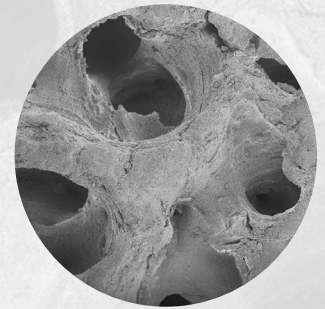
Dependable stability and strength

- Deproteinized and delipidized, gamma-sterilized
- Optimal calcium/phosphate balance comparable to human bone [3]

 CE identification of the products

 16 years on the market

* Data on file by Collagen Matrix

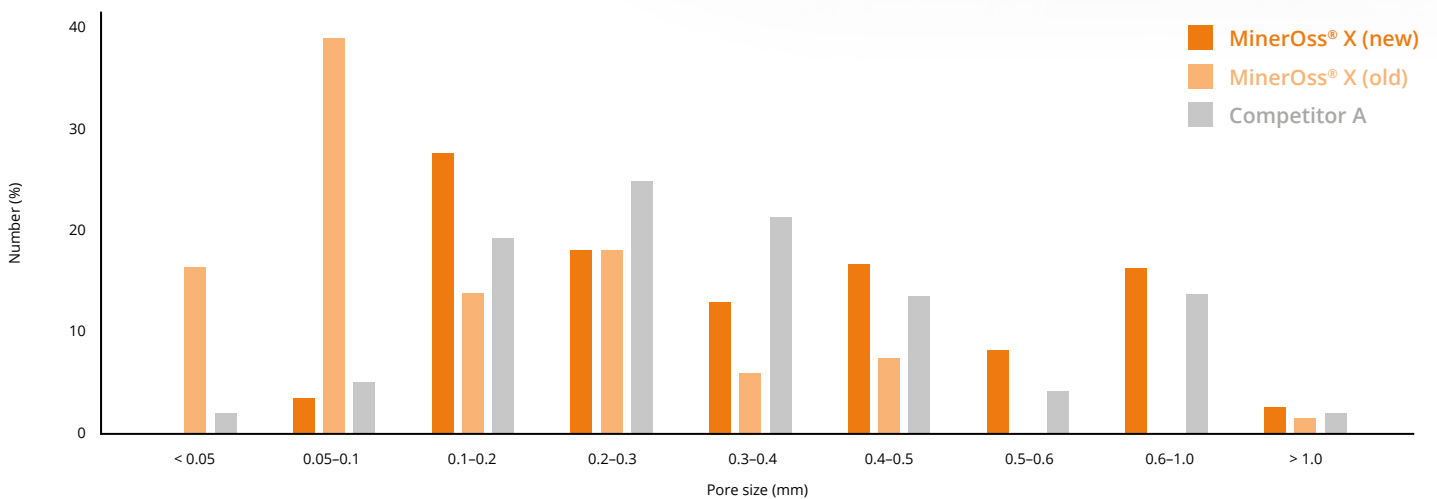


SEM: MinerOss® X macropores and micropores resemble human bone.

The basis for good regeneration: Bimodal pore structure [2]

The **micropores** ensure the high capillary action, and consequently the fast liquid uptake [4]. The interconnected **macropores** allow

blood cells and proteins to enter into particles enabling effective osseointegration [4].



Volume comparison [2]

	Volume Fill (ml/g)	
	Particle size 0.25-1.0 mm	Particle size 1.0-2.0 mm
MinerOss® X (new)	2.37 ± 0.17*	3.42 ± 0.24*
MinerOss® X (old)	1.99 ± 0.08*	2.15 ± 0.07**
Competitor A	2.13 ± 0.08 [‡]	2.91 ± 0.08 [‡]

Data on file by Collagen Matrix⁵

* Results represent an average of 15 measurements ± S.D.

** Results represent an average of 8 measurements ± S.D.

[‡] Results represent an average of 6 measurements ± S.D.

There is a statistically significant difference between groups (p < 0.05).

Porcine xenogeneic bone graft substitutes

MinerOss® XP Cancellous



MinerOss® XP is an anorganic porcine bone mineral matrix designed for bone grafting. Its high porosity results in an optimal osteoconductivity

and also provides adequate space for new bone buildup.

Intra and interparticle space [1]

- The highly porous structure of MinerOss® XP provides substantial space for the growth of new blood vessels and new bone.
- More intra and interparticular space is provided for osteoconduction and new bone formation than with comparable materials.

Rough surface [1]

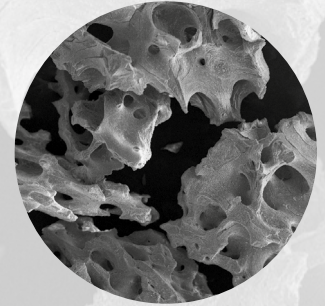
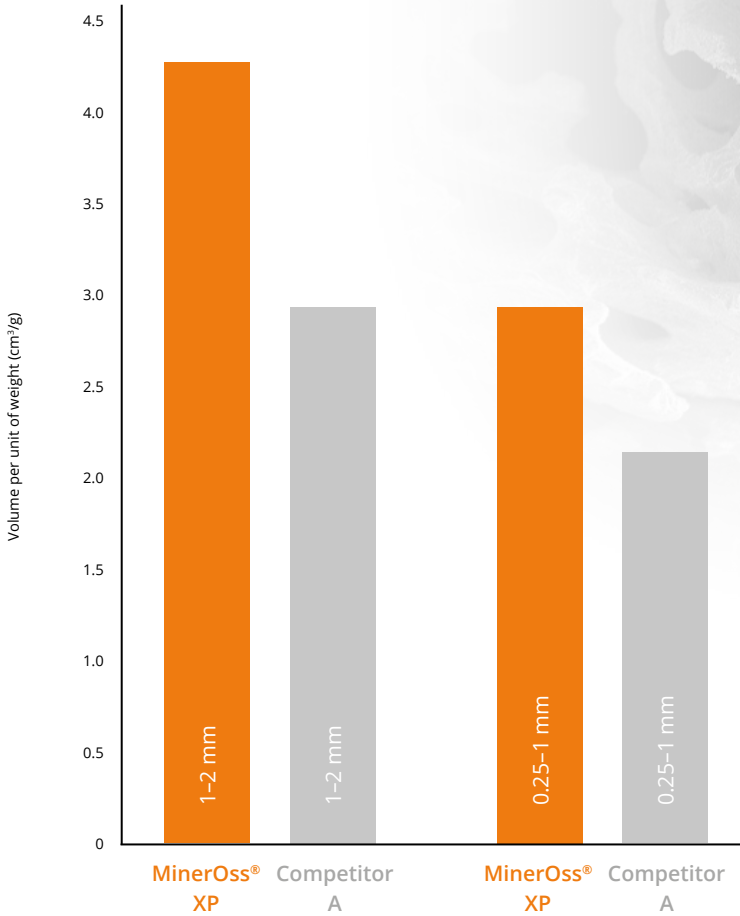
- Promotes cell adhesion and proliferation

Indication-related application options

	Periodontal defects	Extraction sockets	Horizontal ridge enhancement	Sinus augmentation	Vertical ridge enhancement	Dehiscence defects	Block graft	Immediate implantation
MinerOss® X Cancellous	✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓	✓ ✓	✓	✓
MinerOss® X Collagen	✓	✓ ✓	✓	✓		✓		
MinerOss® XP Cancellous	✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓	✓ ✓	✓	✓ ✓

✓ suitable ✓ ✓ well-suited ✓ ✓ ✓ very well-suited

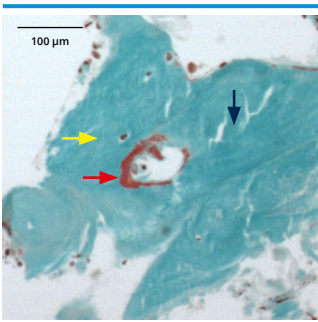
More space for newly formed bone [1]



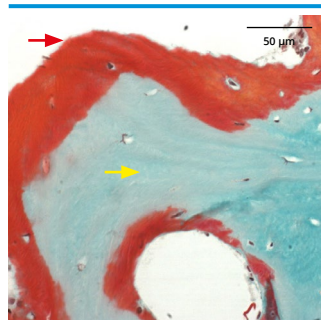
SEM: MinerOss® XP macropores and micropores resemble human bone.

Of the compared materials, MinerOss® XP provides more intra and interparticle space for osteoconduction and formation of new bone [1].

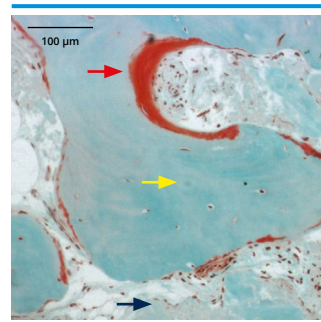
Histologic evaluation of bone healing of adjacent alveolar sockets grafted with bovine xenogeneic bone graft materials and MinerOss® XP six months post-op – integration and bone healing [6]



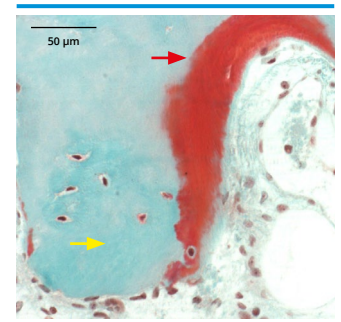
Histologic section of extraction socket grafted with bovine bone graft material (Trichrome stain X 10):
blue arrow = bone graft material;
yellow arrow = vital bone;
red arrow = newly formed bone (osteoid)



Histologic section of extraction socket grafted with bovine bone graft material (Trichrome stain X 20):
yellow arrow = vital bone;
red arrow = newly formed bone (osteoid)



Histologic section of extraction socket grafted with porcine bone graft material MinerOss® XP (Trichrome stain X 10):
blue arrow = bone graft material;
yellow arrow = vital bone;
red arrow = newly formed bone (osteoid)



Histologic section of extraction socket grafted with porcine bone graft material MinerOss® XP (Trichrome stain X 20):
yellow arrow = vital bone;
red arrow = newly formed bone (osteoid)

Bovine collagen membrane

Mem-Lok® RCM – durable and long-lasting



Mem-Lok® RCM is manufactured from highly purified, type I bovine collagen. Clinicians can be confident that Mem-Lok® RCM will serve as an effective barrier membrane for bone regeneration. Mem-Lok® RCM supports graft stabilization and bone growth by providing soft tissue

support and space maintenance over a predictable timeframe. It is manufactured to ensure predictable resorption rates. Due to its *in-vivo* stability, it enables easy handling in demanding indications.

Special handling characteristics [3]

- Membrane only 0.3 mm thick, yet rigid
- Easy to use due to dimensional stability
- Easy placement since membrane is not side-specific
- Potentially reduced treatment time thanks to easy fixation
- Minimal hydration for optimal bio-adaptability

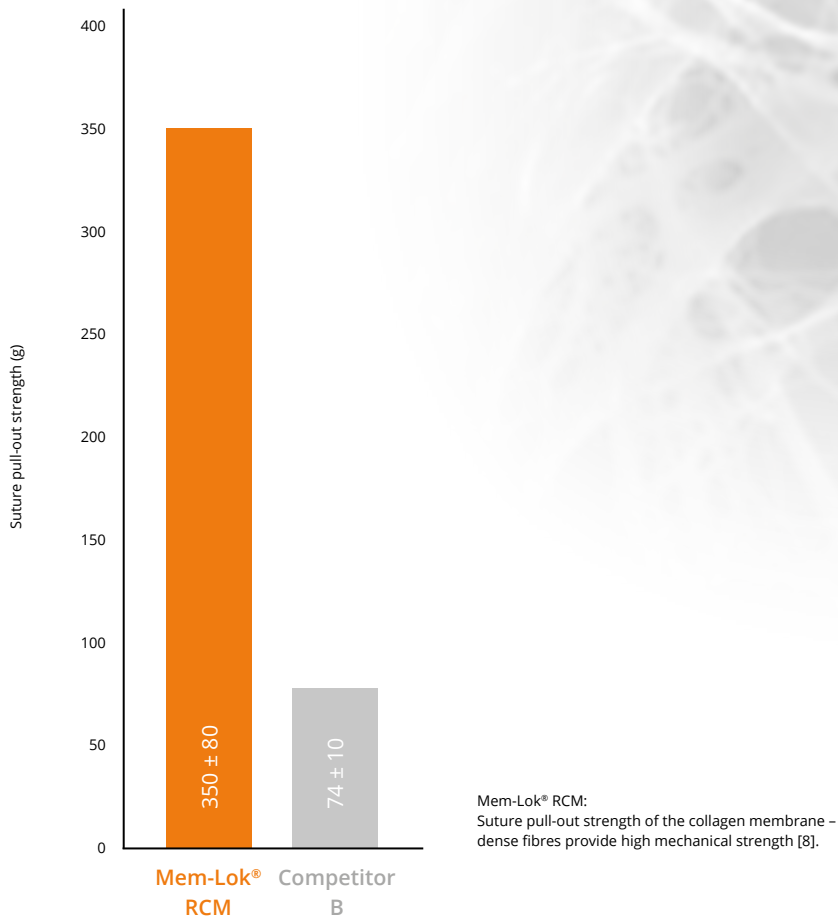
Flexible, to meet clinical needs

- Combined with MinerOss® X and/or MinerOss® XP, Mem-Lok® RCM maintains ideal space and long-term cell occlusion for maximum bone volume
- Permeability permits the exchange of essential nutrients during healing
- Easily adapts to whole range of bone defects

Properties

- Cell-occlusive for supporting bone regeneration
- Protecting the graft area from undesirable soft tissue infiltration during the initial healing phase
- Predictable resorption after 26 to 38 weeks [7] eliminates the need of a removal surgery

High mechanical strength [8]



Indication-related application options

	Periodontal defects	Extraction sockets	Horizontal ridge enhancement	Sinus augmentation	Vertical ridge enhancement	Dehiscence defects	Block graft	Immediate implantation
Mem-Lok® RCM	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ *	✓ ✓ ✓		✓
Mem-Lok® Pliable	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ *	✓ ✓		✓

✓ suitable ✓ ✓ well-suited ✓ ✓ ✓ very well-suited

* The Mem-Lok® RCM membrane is preferred. In case of larger defects, the non-resorbing (form-stable) membrane is required.

Porcine collagen membrane

Mem-Lok® Pliable – versatile and flexible



Mem-Lok® Pliable is a strong, conformable, collagen membrane made of highly purified, porcine tissue. Mem-Lok® Pliable offers flexibility and strength. It is easy to handle and simple to fixate. This barrier membrane supports soft tissue and stabilizes the grafting area. Meticulously manufactured from highly purified, intact, porcine collagen and minimally

cross-linked, it is biocompatible and predictably resorbable. It is smoothly adaptable to defects and contours and can easily be repositioned. Due to its high suture pullout strength, it can be firmly anchored to the surrounding tissue. The risk of secondary infection due to BSE (bovine spongiform encephalopathy) is excluded.

Special handling characteristics [5]

- Not side-specific
- Can be placed dry or hydrated
- Does not adhere to gloves or instruments
- Easily repositionable for precise placement
- Simple, easy fixation
- Single layer, intact collagen
- Cell occlusive
- High tear strength

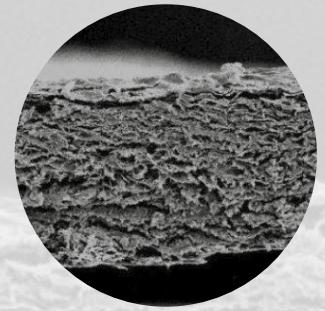
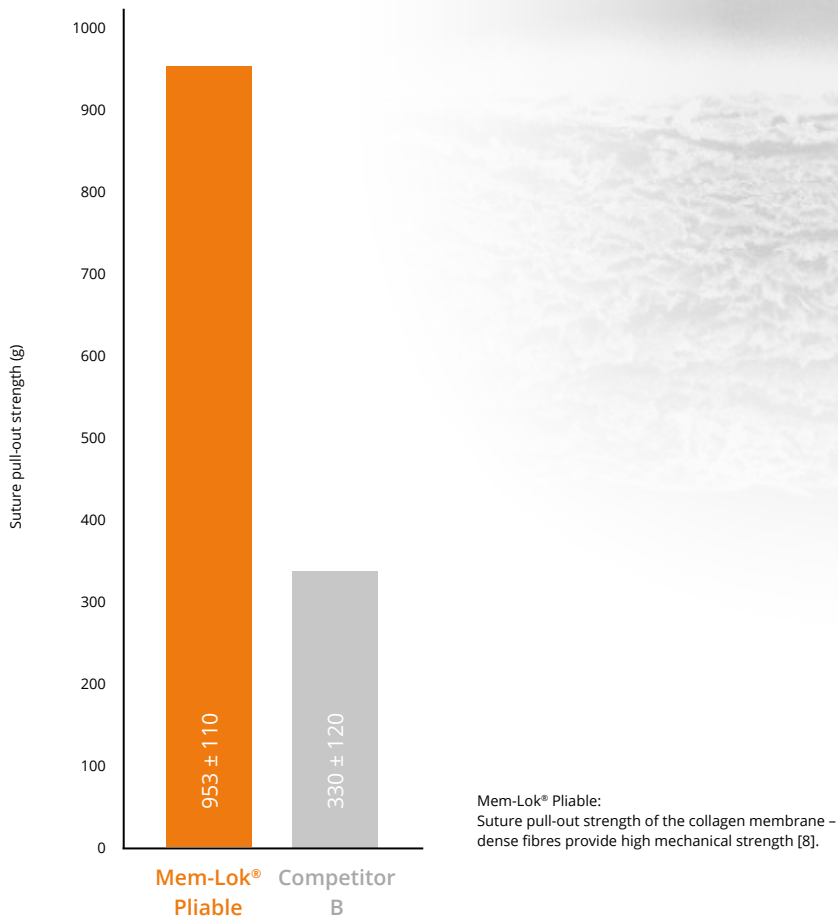
Dependable strength

- Proven biomechanical strength safeguards fixation
- In pre-clinical testing, suture pullout strength was three times higher than a comparable collagen membrane [5].

Supports wound healing [5]

- Reduced degree of inflammation and foreign body response confirmed in pre-clinical testing at early timepoints
- Protects the graft area from undesirable soft-tissue infiltration during initial healing phase
- Enables nutrient transfer
- Predictable resorption in 12 to 16 weeks
- Due to slower resorption rate of the compared materials, Mem-Lok® Pliable provides greater initial stability during the crucial weeks of early healing

High mechanical strength [5]



SEM Mem-Lok® Pliable Membrane: not side-specific; dense, uniform single layer [2]

Indication-related application options

	Periodontal defects	Extraction sockets	Horizontal ridge enhancement	Sinus augmentation	Vertical ridge enhancement	Dehiscence defects	Block graft	Immediate implantation
Mem-Lok® RCM	✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓	✓ ✓ *	✓ ✓ ✓		✓
Mem-Lok® Pliable	✓ ✓ ✓	✓ ✓	✓ ✓	✓ ✓ ✓	✓ *	✓ ✓		✓

✓ suitable ✓ ✓ well-suited ✓ ✓ ✓ very well-suited

* The Mem-Lok® RCM membrane is preferred. In case of larger defects, the non-resorbing (form-stable) membrane is required.

Reconstructive tissue matrix

NovoMatrix™



NovoMatrix™ is an acellular dermal matrix derived from porcine tissue. In surgical application, the tear-resistant and easy-to-handle [9,10] matrix is an excellent alternative to autologous connective tissue grafts (CTG). There is no need for an intraoral surgical donor site, which reduces morbidity for the patient.

Owing to the manufacturing process, the matrix is free of donor cells. At the same time, the structure of the source tissue remains virtually

unchanged, thus supporting the ingrowth of cells and micro-vessels. Proprietary tissue processing enables optimal cell repopulation and revascularization through gentle preparation, resulting in esthetic soft tissue regeneration [11]. NovoMatrix™ is supplied pre-hydrated in a patented aqueous phosphate-buffered solution containing matrix stabilizers and can therefore be used promptly without requiring extensive rehydration [12].

Optimal for the following indications [12]

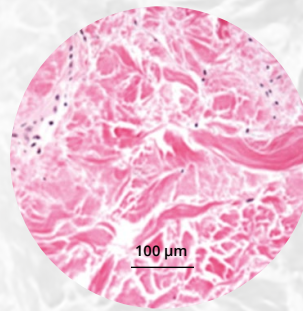
- Increase in attached tissue around teeth and implants
- Reconstruction of the alveolar ridge for prosthetic restoration
- Guided tissue regeneration in recession defects for root coverage

Product characteristics of NovoMatrix™

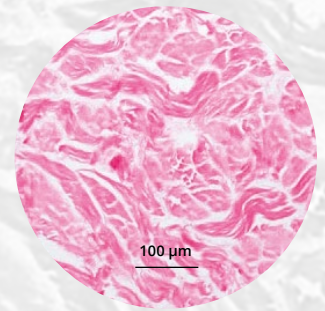
- The LifeCell™ tissue preparation process results in rapid revascularization.
- Consistent tissue thickness at all times
- Pre-hydrated – ready-to-use out of the package following a 2-minute soak in sterile saline or lactated Ringer's solution [12]
- Store at -8 °C to +30 °C [12]

Advantages of NovoMatrix™ application

- **Shorter surgery time**
The ready-to-use collagen matrix shortens surgery time by eliminating the need for a second donor site [13].
- **Lower patient morbidity**
Avoiding a donor site on the palate eliminates the post-operative pain associated with a second procedure [13–15].
- **Excellent tissue integration**
The application of NovoMatrix™ supports rapid revascularization, cellular repopulation and minimal inflammatory reactions [11, 16–18].
- **Natural tissue and color structure**
The application of NovoMatrix™ demonstrates irritation-free healing and very good adaptation of the color and tissue structure to the natural surrounding tissue [19].
- **Rapid and complication-free healing of soft tissue**
The application of NovoMatrix™ supports a positive immunological reaction as well as tissue integration and regeneration [11, 17, 18, 20].

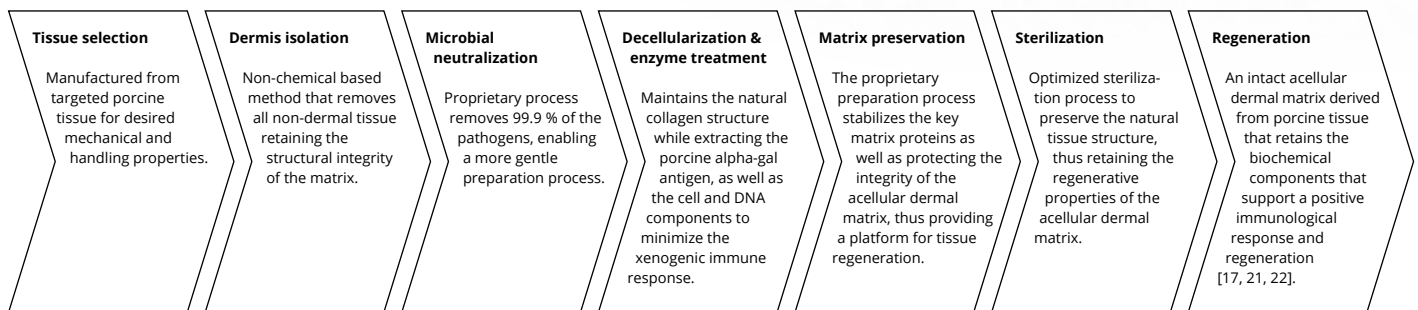


Histological structure of human dermis



Histological structure of NovoMatrix™

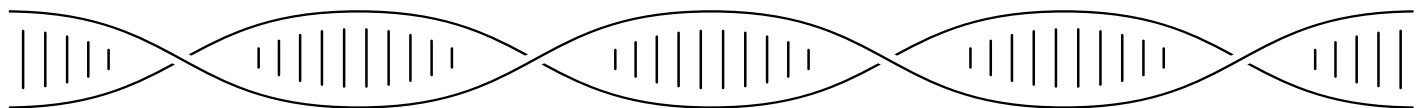
Success factor processing methods



LifeCell™ – over 25 years of experience

For over two decades LifeCell™ has been developing innovative products for a wide range of applications. With over 2.5 million grafts to date, 25 years of experience in tissue processing and an ongoing commitment

to innovation, LifeCell™ has joined forces with BioHorizons and Camlog to bring NovoMatrix™, the next generation soft-tissue augmentation material to dentistry.



1986

Foundation of the LifeCell™ Corporation

2000

BioHorizons begins distribution of AlloDerm™ RTM for dentistry (U.S.)

2005

AlloDerm™ RTM for guided bone regeneration (U.S.)

2019

NovoMatrix™ Reconstructive Tissue Matrix for applications in dentistry (EU)*



Further information, videos and clinical case studies at www.biohorizonscamlog.com/novomatrix

* NovoMatrix™ is cleared for sale in the European Union.

Bovine collagen wound dressings

BioPlug and BioStrip



BioPlug and BioStrip are wound dressings made from bovine collagen. They are designed to absorb blood or fluids and to protect the wound, thus supporting optimal healing. Collagen supports the formation of the blood coagulum and contributes to a rapid stabilization of the wound

area [23]. Because of their haemostyptic effect, collagen wound dressings are used for the stabilization of extraction sockets and biopsy sampling points as well as in the treatment of smaller wounds.

BioPlug – applications include

- Extraction sockets
- Biopsy sites

- Fully resorbable in 10 to 14 days
- 10 units per pack
- Packaged sterile

BioStrip – applications include

- Closure of grafted sites
- Dressing of minor wounds

Indication-related application options

	Pressure sores of dentures	Canker sores (non-infected and viral)	Periodontal surgery wounds	Sutures	Burns	Extraction sites	Surgical wounds	Traumatic wounds
BioPlug	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓
BioStrip	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓

✓ suitable ✓ ✓ well-suited ✓ ✓ ✓ very well-suited

Auxiliary products

Bone Fixation Screw Kit



Indicated for use in fixation of cortical onlay grafts and meshes and for membrane tenting used in Guided Bone Regeneration (GBR). The kit is compact and conveniently organized for efficient retrieval of instruments

and screws. Includes cortical bone drills for both latch-type and friction-grip (FG) handpieces.

Das Bone Fixation Screw Kit includes

- Flexible micro mesh
- Screwdriver body
- Comprehensive instrument set
- Autoclavable screw block with lid
- 24 screws:
 - 6 Micro screws, 1.4 x 8.0 mm
 - 6 Micro screws, 1.4 x 10.0 mm
 - 6 Mini screws, 2.0 x 10.0 mm
 - 6 Mini screws, 2.0 x 12.0 mm

Instruments available for reordering

- Micro screwdriver shaft for screwdriver body
- Micro screwdriver shaft for latch-type handpieces
- Micro drill bit for latch-type handpieces, 1.0 mm
- Mini screwdriver shaft for screwdriver body
- Mini screwdriver shaft for latch-type handpieces
- Mini drill bit for latch-type handpieces, 1.6 mm
- Mini drill bit for handpieces with friction-grip shaft (Ø 2.35 mm), 1.6 x 67.0 mm
- Screwdriver body

Screws available for reordering

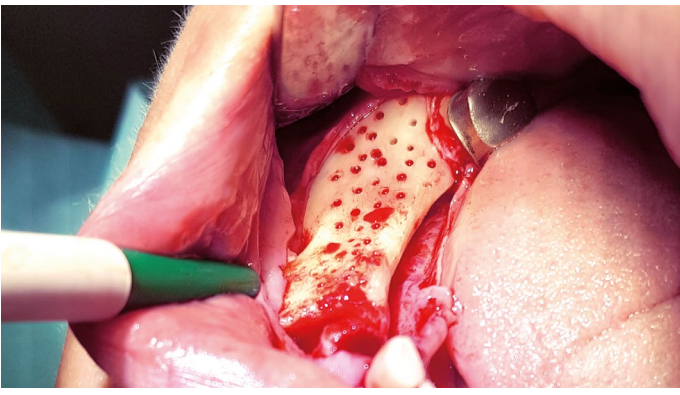
- Micro screws, 1.4 x 4.0 mm (pack of 6)
- Micro screws, 1.4 x 6.0 mm (pack of 6)
- Micro screws, 1.4 x 8.0 mm (pack of 6)
- Micro screws, 1.4 x 10.0 mm (pack of 6)
- Micro screws, 1.4 x 12.0 mm (pack of 6)
- Mini screws, 2.0 x 8.0 mm (pack of 6)
- Mini screws, 2.0 x 10.0 mm (pack of 6)
- Mini screws, 2.0 x 12.0 mm (pack of 6)
- Mini screws, 2.0 x 14.0 mm (pack of 6)

Mesh available for reordering

- Micro mesh for Guided Bone Regeneration 24 x 35 mm; 0.1 mm thick

Case studies

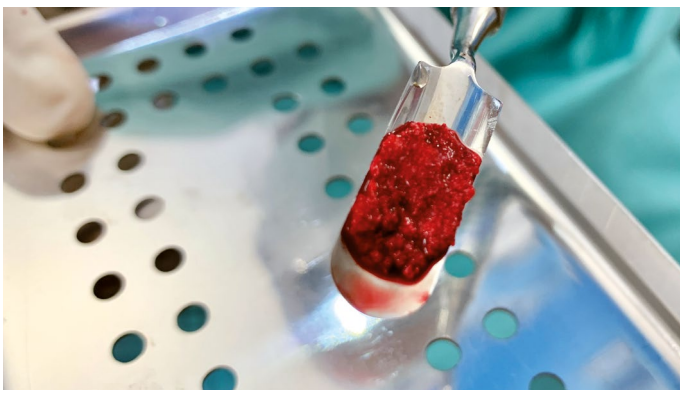
Horizontal and vertical augmentation in the lower jaw with MinerOss® XP*



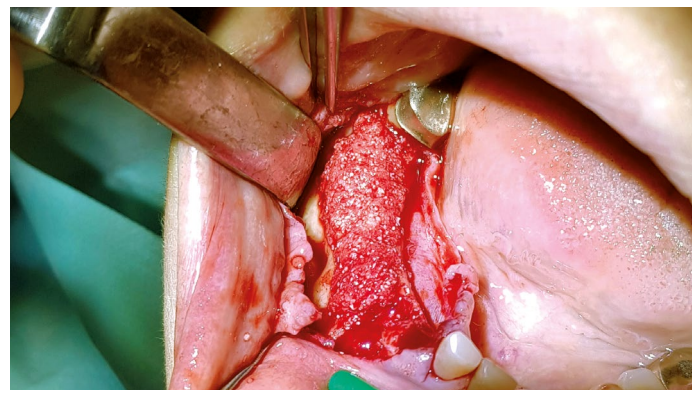
The interdental gap in the 4th quadrant was to be reconstructed with the aid of implants. To create a sufficiently stable implant bed, both horizontal as well as vertical bone augmentation was essential. After exposure of the alveolar bone, it was "freshened".



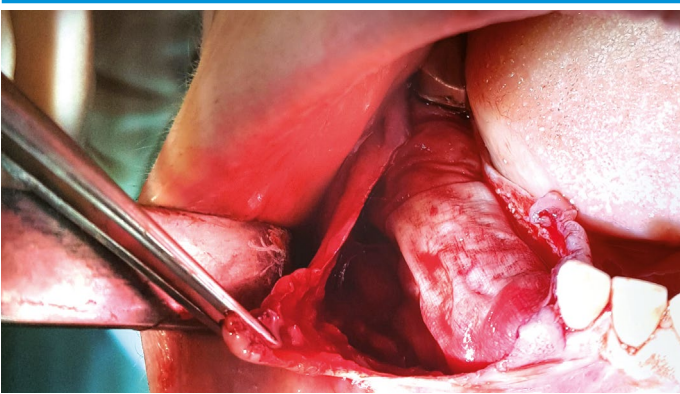
The bone substitute material (MinerOss® XP) was mixed with blood from the surgical site and wetted with liquid L-PRF. Autologous blood therapy not only supports wound healing and tissue regeneration, but also simplifies handling when inserting the bone particles.



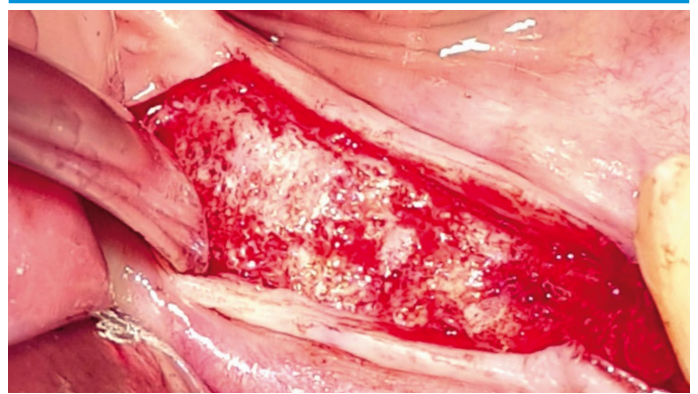
Saturation with liquid L-PRF was performed with a raspator, by slightly lifting the mixture of blood and bone substitute material from all sides. This resulted in the shape of a "block", which stabilized and coagulated after a short period of time.



These malleable sticky "blocks" could be applied easily to the deficient alveolar bone and modeled. The advantage of this procedure is that a larger area can be augmented as the bone substitute particles are incorporated in the coagulum.



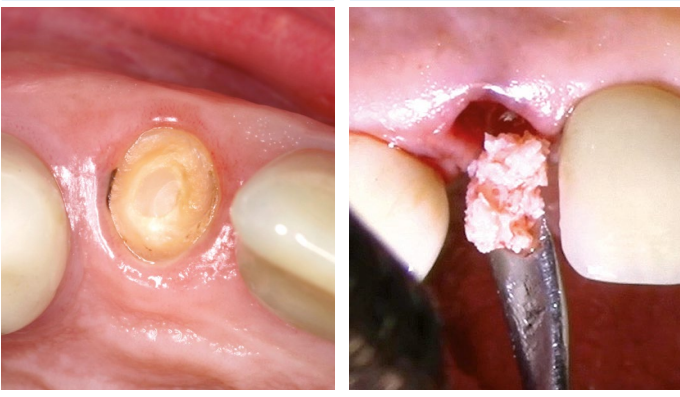
A resorbable barrier membrane (Mem-Lok® Pliable) was inserted. This has a service life of up to 16 weeks and prevents epithelial cells from growing into the augmentation.



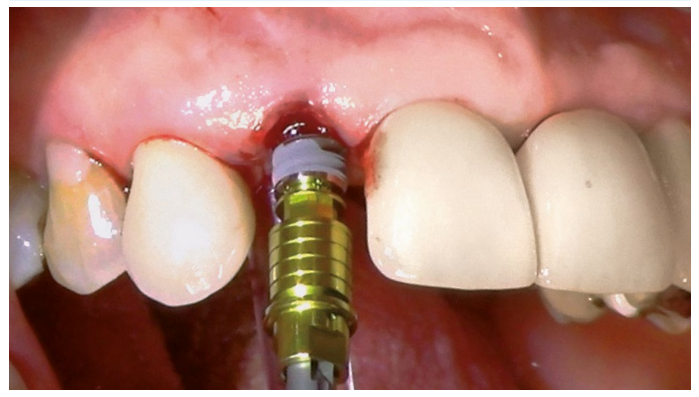
At the time of implant placement (four months after the augmentative measures), the alveolar bone had been clearly widened and was stable. The healthy, newly formed bone tissue formed the perfect basis for reconstruction with implants.

* Dr. Sangeeta Pai, Oldenburg

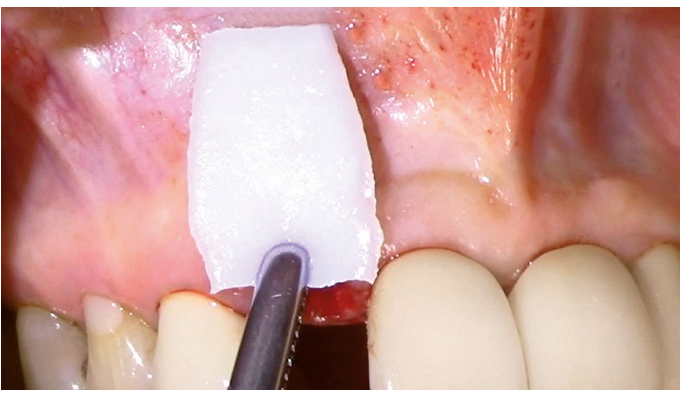
Soft tissue thickening with NovoMatrix™ – the pouch technique*



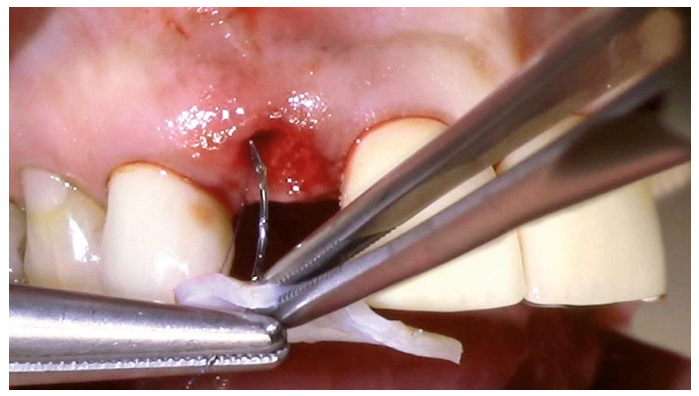
Initial situation: referral for an immediate restoration due to root remnants which were not worth preserving. After removal of the root and cleaning of the alveolus, bone replacement material was inserted to stabilize the facial lamella.



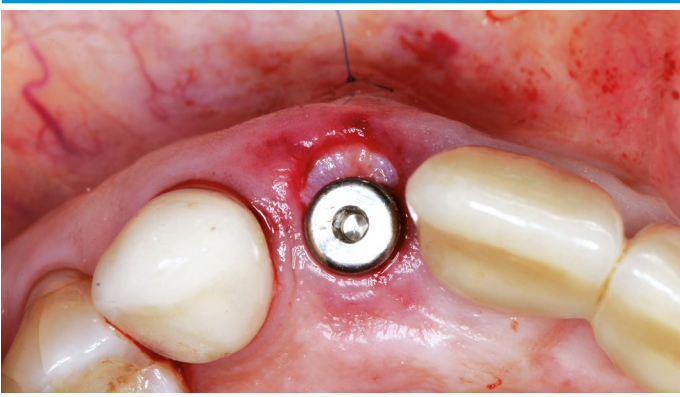
A CAMLOG® PROGRESSIVE-LINE Implant was placed prosthetically oriented into the palatal alveolar wall. At over 30 Ncm, primary stability was sufficient for the planned immediate restoration.



To thicken the vestibular mucosa and achieve attached soft tissue, NovoMatrix™ was cut to fit the defect size.



Using the crestal access, a pouch was prepared up to the mobile mucosa without a vertical incision. The NovoMatrix™ was pierced and pulled into the cavity using a suture.



The tear-resistant matrix was fixed deep in the vestibulum with a button suture and adapted to the alveolar bone. A gingiva former supported the tissue up to insertion of the temporary immediate restoration.



Six weeks after the surgical procedure, the peri-implant tissue was stable and the surgical site had almost completely healed. The definitive, palatally screw-retained hybrid abutment crown could be placed.

* Dr. Roman Beniashvili, Schorndorf

Product overview

Bone graft substitutes



MinerOss® X Cancellous (bovine bone graft substitute)

Larger volumes

Art. No.	Weight / Volume	Particle size
MINX-CAN0.25GR	0.25 g / 0.6 cm ³	250–1000 µm
MINX-CAN0.5GR	0.5 g / 1.2 cm ³	250–1000 µm
MINX-CAN1.0GR	1.0 g / 2.4 cm ³	250–1000 µm
MINX-CAN2.0GR	2.0 g / 4.7 cm ³	250–1000 µm
MINX-CAN0.25GRL	0.25 g / 0.9 cm ³	1000–2000 µm
MINX-CAN0.5GRL	0.5 g / 1.7 cm ³	1000–2000 µm
MINX-CAN1.0GRL	1.0 g / 3.4 cm ³	1000–2000 µm
MINX-CAN2.0GRL	2.0 g / 6.8 cm ³	1000–2000 µm

New



MinerOss® X Cancellous Syringe (Applicator)

Art. No.	Volume	Particle size
MINX-SYR0.5	0.5 cm ³	250–1000 µm

MinerOss® X Collagen (1 block 95 % MinerOss® X granulate + 5 % bovine collagen)

Art.-Nr.	Product size
MINX-COLLAGEN-SM	6 x 7 x 8 mm
MINX-COLLAGEN-MED	8 x 9 x 9 mm
MINX-COLLAGEN-LG	10 x 11 x 12 mm



MinerOss® XP Cancellous (porcine bone graft substitute)

Art. No.	Volume	Particle size
MINXP-CAN0.5SM	0.5 cm ³	250–1000 µm
MINXP-CAN1.0SM	1.0 cm ³	250–1000 µm
MINXP-CAN2.0SM	2.0 cm ³	250–1000 µm
MINXP-CAN4.0SM	4.0 cm ³	250–1000 µm
MINXP-CAN1.0LG	1.0 cm ³	1000–2000 µm
MINXP-CAN2.0LG	2.0 cm ³	1000–2000 µm



MinerOss® XP Cancellous Syringe (Applicator)

Art. No.	Volume	Particle size
MINXP-SYR0.5	0.5 cm ³	250–1000 µm

Collagen membranes



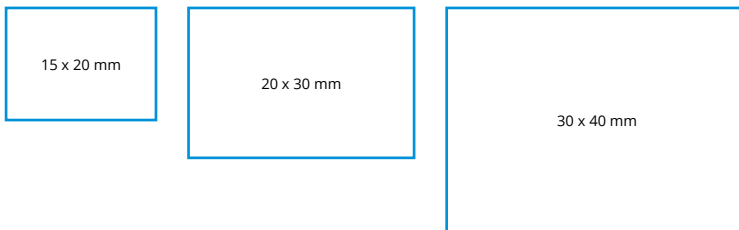
Mem-Lok® RCM (bovine collagen membrane)

Art. No.	Product size
RCM-ML1520	15 x 20 mm
RCM-ML2030	20 x 30 mm
RCM-ML3040	30 x 40 mm



Mem-Lok® Pliable (porcine collagen membrane)

Art. No.	Product size
PBLE-ML1520	15 x 20 mm
PBLE-ML2030	20 x 30 mm
PBLE-ML3040	30 x 40 mm

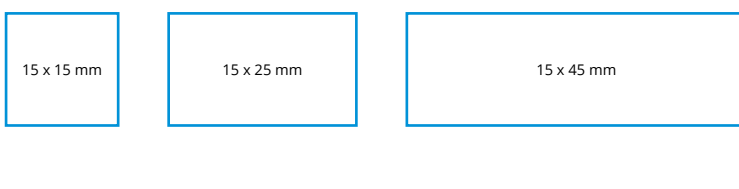


Reconstructive tissue matrix



NovoMatrix™ (porcine, acellular dermal matrix)

Art. No.	Product size
NOV1515	15 x 15 mm
NOV1525	15 x 25 mm
NOV1545	15 x 45 mm
NOV2545	25 x 45 mm



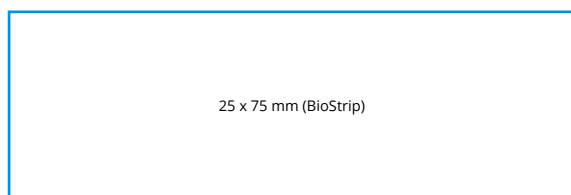
Product overview

Collagen wound dressings



BioPlug and BioStrip (bovine collagen wound dressings)

Art. No.	Product size	Pack size
BIOPLUG	10 x 20 mm	Pack of 10
BIOSTRIP	25 x 75 mm	Pack of 10



Auxiliary products

Bone Fixation Screw Kit

Art. No.	Contents
160-900	Micro mesh, screwdriver body, instrument set, screw block, screws



Instruments

Art. No.	Article
BS-MCSSFT-HND	Micro screwdriver shaft for screwdriver body
BS-MCSSFT-ANG	Micro screwdriver shaft for latch-type handpieces
BS-1MCDB-ANG	Micro drill bit for latch-type handpieces, 1.0 mm
BS-MNSSFT-HND	Mini screwdriver shaft for screwdriver body
BS-MNSSFT-ANG	Mini screwdriver shaft for latch-type handpieces
BS-16MMDB-ANG	Mini drill bit for latch-type handpieces, 1.6 mm
BS-16X67MDB-STR	Mini drill bit for handpieces with friction-grip shaft (Ø 2.35 mm), 1.6 x 67.0 mm
BS-SDRIVER	Screwdriver body



Screws

Art. No.	Article	Pack size
BSV-14X4	Micro screws, 1.4 x 4.0 mm	Pack of 6
BSV-14X6	Micro screws, 1.4 x 6.0 mm	Pack of 6
BSV-14X8	Micro screws, 1.4 x 8.0 mm	Pack of 6
BSV-14X10	Micro screws, 1.4 x 10.0 mm	Pack of 6
BSV-14X12	Micro screws, 1.4 x 12.0 mm	Pack of 6
BSV-2X8	Mini screws, 2.0 x 8.0 mm	Pack of 6
BSV-2X10	Mini screws, 2.0 x 10.0 mm	Pack of 6
BSV-2X12	Mini screws, 2.0 x 12.0 mm	Pack of 6
BSV-2X14	Mini screws, 2.0 x 14.0 mm	Pack of 6

Mesh

Art. No.	Article
BS-MMESH	Micro mesh for Guided Bone Regeneration 24 x 35 mm; 0.1 mm thick

Implant pass

The implant pass documents that the patient received high-quality BioHorizons biomaterials from a highly trusted source: BioHorizons Camlog. In addition, it gives important information on behavior following implantation and on care of the prosthetic restoration.



Science

It's the cells that make the decision

Functionality of biomaterials results from their optimal biological interactions with tissue cells. Bone is a structure difficult to duplicate. Research in tissue engineering, especially in nano topography, can lead to improved biomaterials. There are numerous biomaterials available, some of natural origin, others of synthetic origin. When choosing a biomaterial, many factors come into play next to functionality. From a biological point of view, the ideal biomaterial should promote formation of a stable blood coagulum. It should be functional, biocompatible, and it should favor healing processes.

Autogenous bone is still the gold standard in grafting. However, it is linked to higher costs, longer treatment times and it requires an additional surgical procedure possibly leading to increased donor site morbidity. This needs to be considered when carrying out augmentation procedures. Therefore, the possibility of reducing potential complications is an important factor. Easy handling of the materials is of advantage for the clinician. Aside from these decisive factors, it must not be forgotten that bone augmentation surgery is often performed as a part of dental implant surgery. Therefore, different biological aspects should be considered when choosing biomaterials.

Comparative studies have shown that different biomaterials can be safely used [7]. The needs and preferences of the treating clinician play as important a role as the indication, the requirements of the patient, as well as time and costs. In the end, selection of the appropriate biomaterial must be made with the knowledge of its properties and its clinical outcome. The goals are always predictable results and clinical success.

Conclusion: Prior to using a biomaterial, it is recommended to balance and consider the biological interaction between the biomaterial and the endogenous cells [24] – it's the cells that make the decision.



References

- [1] Data on file, Shu-Thung Li, Ph. D. et al.: Isolation and Characterization of a Porous Carbonate Apatite From Porcine Cancellous Bone. Science, Technology, Innovation, Aug. 2014: 1–13.
- [2] Shu-Tung Li, Hui-Chen Chen and Debbie Yuen: Comparison of a New Natural Bovine Bone Mineral (Carbonate Apatite Anorganic Bone) to Currently Marketed NuOss™ and Bio-Oss®: In Vitro and In Vivo Evaluations. Collagen Matrix, Inc., Oakland, New Jersey 07436.
- [3] Gonshor A, Chris L Tye: Evaluation of Anorganic Bovine Bone Mineral in Post-extraction Alveolar Sockets: A Case Series. Journal of Osseointegration, March 2010; 1(2).
- [4] I. Sopyana, M. Melb, S. Rameshc, K.A. Khalidd: Porous hydroxyapatite for artificial bone applications. Science and Technology of Advanced Materials 8 (2007); 116–123.
- [5] Data on file, Li ST, Yuen D, Martin D, Lee NS: A comparative study of a new porcine collagen membrane to BioGide®. Science, Technology, Innovation. February 1–5, 2015.
- [6] Renzo Guarnieri et al.: Histologic evaluation of bone healing of adjacent alveolar sockets grafted with bovine- and porcine-derived bone: a comparative case report in humans. Regenerative Biomaterials, 2017, 1–4 doi: 10.1093/rb/rbx002.
- [7] Data on file, Debbie Yuen et al.: Prediction of in vivo stability of a resorbable, reconstituted type I collagen membrane by in vitro methods. World Biomaterials Congress Transactions, Sixth World Biomaterials Congress Transactions. Collagen Matrix Inc., Franklin Lakes, NJ 07417 USA
- [8] Yuen D, Junchaya et al.: A resorbable, reconstituted type I collagen membrane for guided tissue regeneration and soft tissue augmentation. Society for Biomaterials. 2000; 1228.
- [9] Data on file, Allergan. NovoMatrix™ – Mechanical testing, Preclinical Data.
- [10] Data on file, Allergan. INT/0204/2018.
- [11] Suárez-López Del Amo F, Rodríguez JC, Asa'ad F, Wang HL. Comparison of two soft tissue substitutes for the treatment of gingival recession defects: an animal histological study. J Appl Oral Sci., 2019;27:e20180584.
- [12] Reference manufacturer's Instructions for Use (IFU) package insert.
- [13] Griffin T, Cheung W, Athanasios Z, Damoulis P. Postoperative Complications Following Gingival Augmentation Procedures. J Periodontology 2006;77:2070-2079.
- [14] Aguirre-Zorzano LA, García-De La Fuente AM, Estefanía-Fresco R, Marichalar-Mendía X. Complications of harvesting a connective tissue graft from the palate. A retrospective study and description of a new technique. J Clin Exp Dent. 2017;9(12):e1439-45.
- [15] Tavelli L, Asa'ad F, Acunzo R, Pagni G, Consonni D, Rasperini G. Minimizing Patient Morbidity Following Palatal Gingival Harvesting: A Randomized Controlled Clinical Study. The International Journal of Periodontics & Restorative Dentistry 38(6):e127-e134 · November 2018.
- [16] Harper JR, McQuillan DJ. Extracellular wound matrices: a novel regenerative tissue matrix (RTM) technology for connective tissue reconstruction. Wounds. 2007;19(6):163-168.
- [17] Sandor M, Leamy P, Assan P, et al. Relevant in vitro predictors of human acellular dermal matrix-associated inflammation and capsule formation in a nonhuman primate subcutaneous tissue expander model. Eplasty. 2017;17:e1-e21.
- [18] Xu H, Wan H, Sandor M, et al. Host response to human acellular dermal matrix transplantation in a primate model abdominal wall repair. Tissue Eng Part A. 2008;14(2):2009-2019.
- [19] Van Orten A. Peri-implant thickening of soft tissue – stable and functional. Implantologie Journal 5 | 2020.
- [20] Sandor M, Xu H, Connor J, et al. Host response to implanted porcine-derived biologic materials in a primate model of abdominal wall repair. Tissue Eng Part A. 2008;14(12):2021-2031.
- [21] Data on file, Allergan. LRD2011-08-015.
- [22] Data on file, Allergan. LRD2013-02-004.
- [23] Nuytens BP et al.: Platelet adhesion to collagen. Thromb Res. 2011 Jan; 127.
- [24] Scott J, Roberts et al.: The combined bone forming capacity of human periosteal derived cells and calcium phosphates. Biomaterials 32, 2011; 4393–4405.

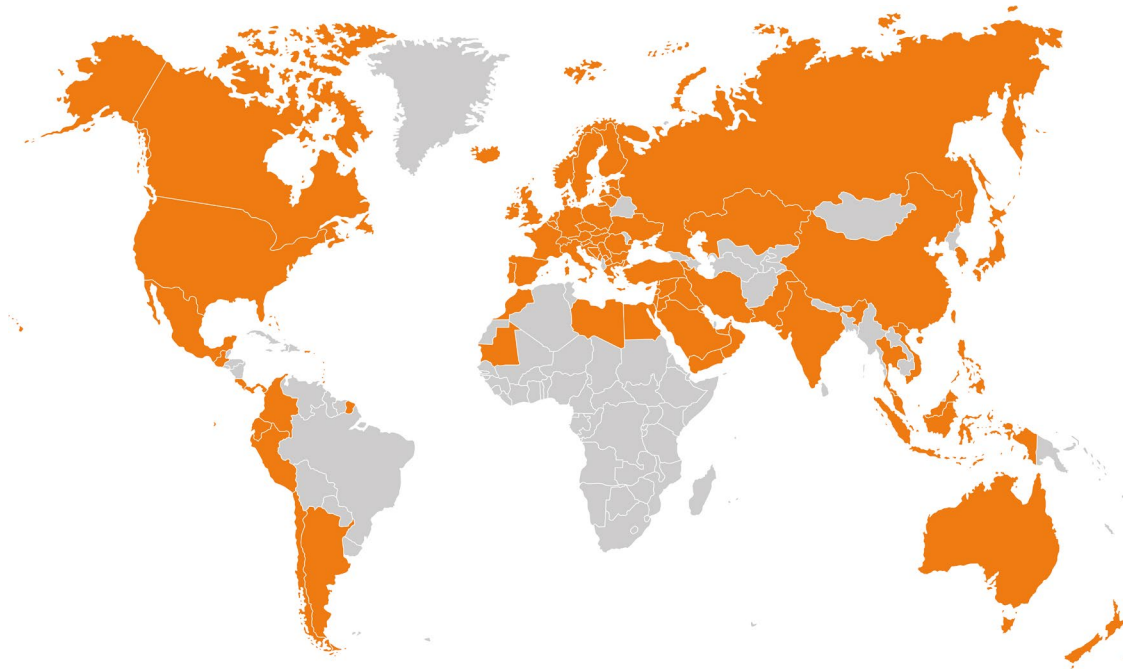
Validity: Upon its release, this literature supersedes all previously published versions.

Availability: BioHorizons continually strives to improve its products and therefore reserves the right to improve, modify, change specifications or discontinue products at any time.

Customer number:

Distributors

For further information about the distributors in 90 countries, please visit www.biohorizons.com



Headquarters

CAMLOG Biotechnologies GmbH | Margarethenstr. 38 | 4053 Basel | Switzerland
Phone +41 61 565 41 00 | Fax +41 61 565 41 01 | info@camlog.com | www.camlog.com

MinerOss® X, MinerOss® XP, Mem-Lok® RCM and Mem-Lok® Pliable are manufactured by Collagen Matrix, Inc. BioPlug and BioStrip are manufactured by NovaBone Products, LLC. AlloDerm™ is a trademark of LifeCell™ Corporation, an Allergan affiliate. CAMLOG® is a registered trademark of CAMLOG Biotechnologies GmbH. BioHorizons®, MinerOss® and Mem-Lok® are registered trademarks of BioHorizons. NovoMatrix™ is a trademark of BioHorizons. They may, however, not be registered in all markets. As applicable, BioHorizons products are cleared for sale in the European Union under the EU Medical Device Directive 93/42/EEC and the human tissues and cells Directive 2007/47/EC. We are registered to ISO 13485:2016, the international quality management system standard for medical devices, which supports and maintains our product licenses with Health Canada and in other markets around the globe. Original language is English. ©BioHorizons. All rights reserved. Not all products shown or described in this literature are available in all countries.

