ZIMMER BIOMET
Your progress. Our promise.

Endobon® Xenograft Granules With OsseoGuard® And OsseoGuard Flex® Barrier Membranes

Tissue Management Treatment Solutions

Bone Graft Substitute

- Bovine-derived hydroxyapatite that has been fully deproteinized by a two-step, high temperature process for safety.
- An essentially non-resorbable material that is ideally suited for regeneration of bone defects when effective space maintenance is required.
- Osseoconductive due to the interconnecting micro and macro pores for bony integration, which facilitate graft stability and vascular ingrowth[1].
- Packaged in easy to open dishes. Large volumes (5 ml and 8 ml) are individually packaged in 1 ml containers for sterility.

Endobon Xenograft Granules adhere to one another when hydrated for easy transfer to the defect.

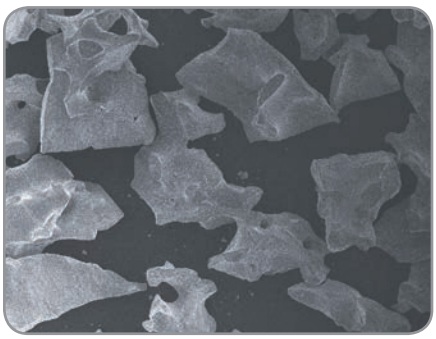
Manufacturer: Biomet France Sarl

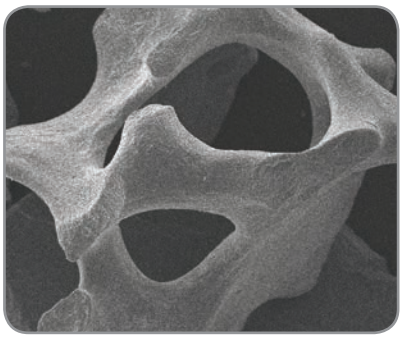
Small Granules

500–1000 µm particle size typically preferred for grafting smaller defects, such as in extraction sockets.

Large Granules

1000–2000 µm particle size typically preferred for grafting large defects, such as sinus elevations because less material is needed with larger-sized particles.





SEM images of Endobon Xenograft Granules at 20x and 100x showing the micro and macro pores in the particles.

Endobon Xenograft Granules Are Indicated For Dental And/Or Oral Surgical Procedures, Such As:

- Alveolar ridge augmentation/reconstruction
- Filling of bone defects after root resection, cystectomy and apicectomy
- Filling socket after tooth extraction
- Sinus elevation

1. Hing KA, Best SM, Bonfield W. Characterization of porous hydroxyapatite. J Mater Sci Mater Med. 1999 Mar;10(3):135-45.

Barrier Membranes

- Resorbable collagen membranes designed for optimal strength, resorption, handling and biocompatibility.
- Made of highly purified collagen from safe bovine sources.
- A proprietary manufacturing process provides both membranes with a long resorption profile (6–9 months); well suited for Guided Bone Regeneration (GBR) procedures.
- OsseoGuard Membranes provide a protective barrier against soft-tissue invasion of a defect space.
- Two different levels of flexibility for ease of use in various clinical scenarios.
- Ability to tack or suture if desired.
- Three sizes are supplied sterile and are in double peel pouches for different defect sizes.

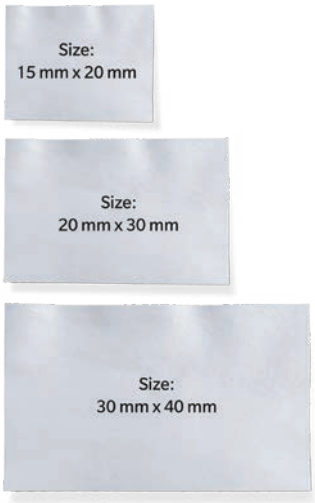
OsseoGuard

Slightly more rigid for space maintenance.

OsseoGuard Flex

Intact tissue membrane for a higher degree of flexibility.

Performs when primary closure has not been achieved.[2*]



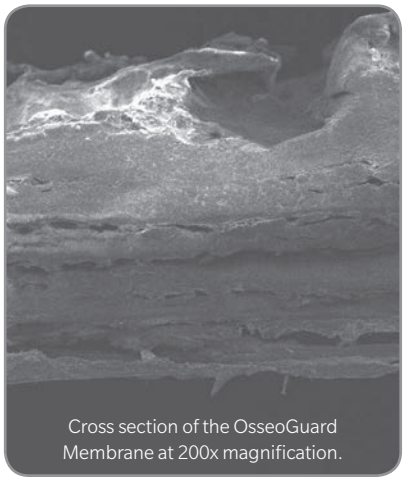
Manufacturer: Collagen Matrix, Inc., Oakland, NJ

Indications:

- Extraction sockets
- Localized ridge augmentation
- Alveolar ridge reconstruction
- GBR in dehiscence defects
- GTR in periodontal defects

* Clinical experience with OsseoGuard Flex has shown that the membrane shows no signs of inflammation or infection in cases where primary closure has not been achieved. The exposed area is healed by soft tissue covering the exposure within a few weeks while the membrane maintains its barrier function.

2. Clinical cases on file with Zimmer Biomet Dental



Cross section of the OsseoGuard Membrane at 200x magnification.

- The OsseoGuard Membrane is designed for combined strength, resorption and handling.
- Made of highly purified Type I collagen, derived from bovine Achilles tendon.

This provides:

- Combined strength to support suturing and good handling characteristics.
- A long resorption profile (6–9 months) suited for the healing time required in many GBR procedures.[3]

Manufacturer: Collagen Matrix, Inc., Oakland, NJ

Posterior Mandible Recent Extraction Defects

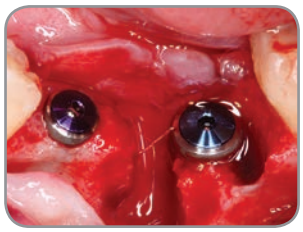


Fig. 1: Clinical appearance of the surgical site at the time of implant placement four weeks after tooth extraction.

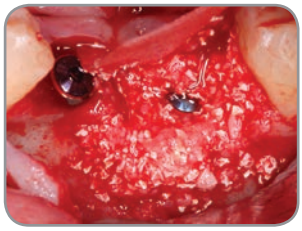


Fig. 2 & 3: The osseous defects were grafted with autogenous bone and Endobon Xenograft Small Granules. The surgical site was covered with an OsseoGuard 20 x30 mm Resorbable Collagen Membrane.

Fig. 4: The surgical site was closed with sutures.

Fig. 5: Clinical appearance one month post-implant placement. Good epithelialization of the soft tissue is observed.

Fig. 6: Three months post-implant placement, the soft tissue has healed completely. The implants are ready for second stage surgery and healing abutment connection.

Fig. 7: Placement of the definitive restoration five months post-surgery.

Fig. 8: Clinical appearance nine months post-surgery. Note the healthy soft tissues.

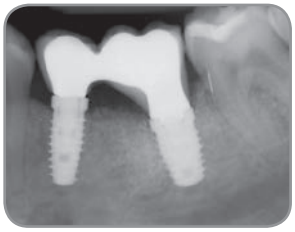
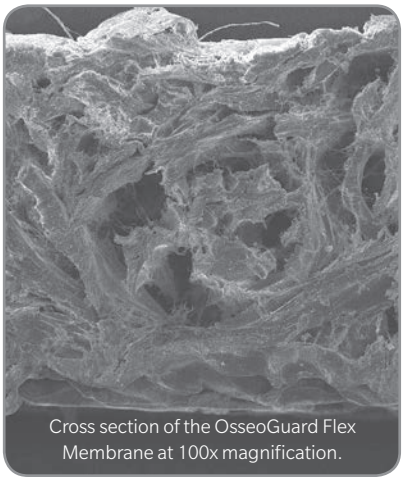


Fig. 9: Periapical radiograph taken nine months post-surgery. Note the regenerated bone and graft integration.

Clinical Images Provided By: Dr. Francisco Enrile, Huelva, Spain.

3. Yuen D, Ulreich JB, Zuclich G, Homg-Ban L, Li S. Prediction of in vivo stability of a resorbable, reconstituted type I collagen membrane by in vitro methods. Society for Biomaterials, 2000.

OsseoGuard Flex Membrane



Cross section of the OsseoGuard Flex Membrane at 100x magnification.

Image illustrates the strength of the OsseoGuard Flex Membrane.

- The OsseoGuard Flex Membrane performs when primary closure has not been achieved.[2*]
- The OsseoGuard Flex Membrane is designed for combined strength and drapability, resorption and handling.
- Made from highly purified intact bovine dermis tissue composed of Type I and Type III collagen.

This provides:

- Flexibility to drape over the defects.
- A long resorption profile (6–9 months) suited for the healing time required in many GBR procedures.[4]
- The ability to aid in gingival healing even when left exposed in a posterior molar extraction site.[5**]

Manufacturer: Collagen Matrix, Inc., Oakland, NJ

Maxillary Molar Post-Extraction Defects

Clinical images originally published by Dr. Robert del Castillo. †

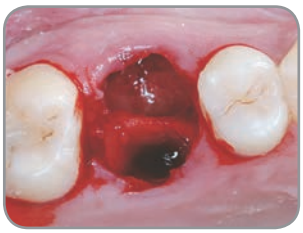


Fig. 1: Extraction socket of first maxillary molar.

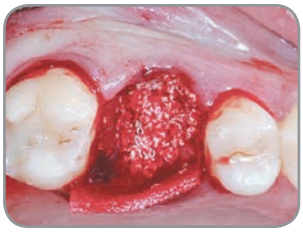


Fig. 2: Extraction socket grafted with Endobon Xenograft Small Granules and covered with an OsseoGuard Flex Membrane.

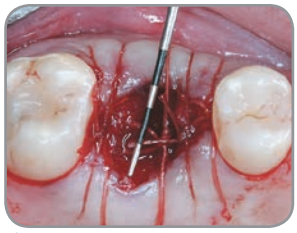


Fig. 3: The edges of the membrane were positioned under the soft tissue and secured with resorbable sutures.

Fig. 4: Healing was uneventful. The soft tissue was epithelializing over the OsseoGuard Flex Membrane two weeks postoperatively.

Fig. 5: The site was completely covered four weeks after the extraction.

Fig. 6: At four months postoperatively, a radiograph of the graft site showed excellent containment of the graft material.

Fig. 7: At four months postoperatively, the socket was healed and ready for implant placement.

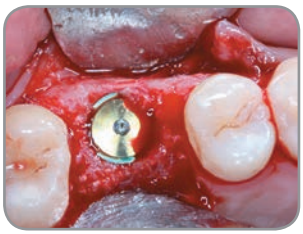


Fig. 8: A 6.0 mm diameter Zimmer Biomet Dental Implant with a 5.0 mm platform was placed four months postoperatively.

Fig. 9: The implant was left sub-merged for two months of healing.

** Primary closure is recommended. If exposed, resorption time will be shorter.

4. Yuen D, Ulreich JB, Zuclich G, Homg-Ban L, Li S. Prediction of in vivo stability of a resorbable, reconstituted Type 1 collagen membrane by in vitro methods. Society for Biomaterials, 2000.
5. del Castillo R†. Grafting of an extracted maxillary first-molar socket using a new, flexible resorbable collagen membrane for ridge preservation in advance of implant placement. Inside Dentistry, October 2011.94-96.

† Dr. del Castillo has a financial relationship with Zimmer Biomet Dental resulting from speaking engagements, consulting engagements and other retained services.

Anterior Ridge Augmentation

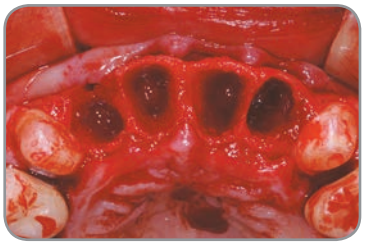


Fig. 1: Extraction sockets of the four maxillary incisors and immediate implant placement.

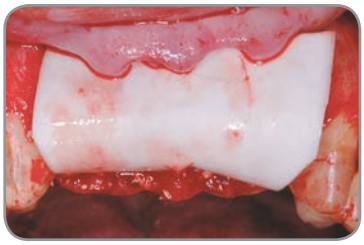


Fig. 2: Grafting with Endobon Xenograft Small Granules covered by an OsseoGuard Resorbable Collagen Membrane.

Fig. 3: The soft-tissue flaps were closed and sutured.

Fig. 4: Clinical appearance of soft tissue showing excellent soft-tissue healing after four months.

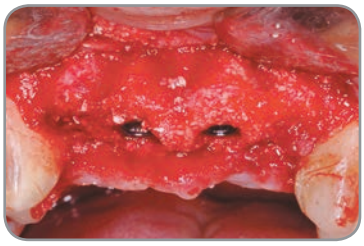


Fig. 5: Clinical appearance of the regenerated site at four months after removing the remnants of the membrane.

Fig. 6: Occlusal view after four months.

Post-Extraction Defects in the Aesthetic Zone

Fig. 7: Post-extraction defects in the maxilla right central and lateral incisor area.

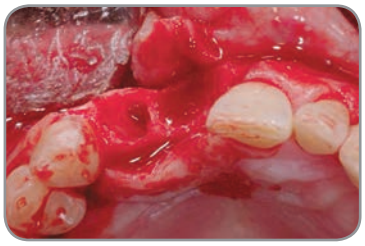


Fig. 8: Occlusal view of the extraction site defects.

Fig. 9: Facial view of dehiscence defects after implant placement.

Fig. 10: Occlusal view of implants and defects.

Fig. 11: Grafting with Endobon Xenograft Small Granules covered by an OsseoGuard Resorbable Collagen Membrane.

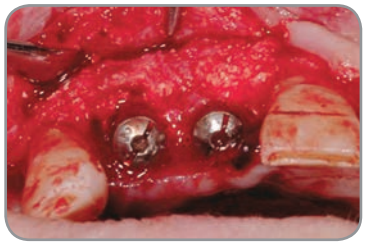


Fig. 12: Regeneration at four months after removing the remnants of the membrane.

Clinical Images Provided By: Dr. Xavier Vela[†], Barcelona, Spain

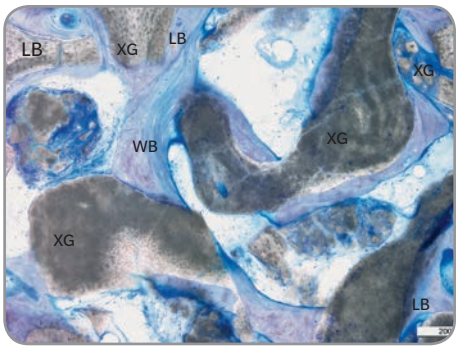
[†] Dr. Xavier Vela has a financial relationship with Zimmer Biomet Dental resulting from speaking engagements, consulting engagements and other retained services.

Histological Study

Histological Study of Endobon Xenograft Granules in Sinus Floor Augmentation

"The Clinical and Histological Efficacy of Xenograft Granules for Maxillary Sinus Floor Augmentation"

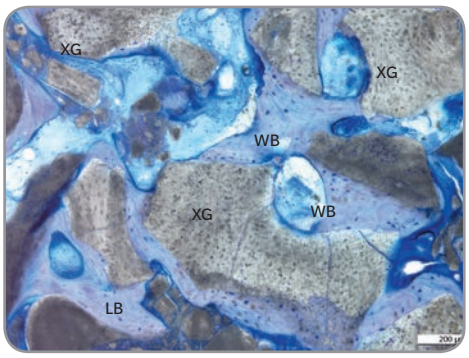
A study led by Dr. Myron Nevins† at the Harvard School of Dentistry published in The International Journal Of Periodontics & Restorative Dentistry (2011Jun;31(3):227-235), highlights the positive results that clinicians achieved when using Endobon Xenograft Granules in patients requiring sinus augmentation procedures prior to implant placement.



At six months postoperatively, the following observations were made:

- Bone formation at the osteotomy site ranging from 16.2% to 43.6% was observed in all patients.
- Histologic evaluation showed Endobon Xenograft Granules to be integrated and surrounded by woven bone and in close contact with the particles.
- No inflammatory cells were present and there were no signs of Xenograft resorption.
- Evidence was observed of woven bone undergoing remodeling and maturing to well-organized lamellar bone.

Some areas of the newly formed bone were undergoing remodeling, maturing from woven bone (WB) to well-organized lamellar bone (LB). XG: Xenograft Granules.



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† These clinicians have current or past financial relationships with Zimmer Biomet Dental resulting from speaking engagements, consulting engagements and other retained services.

Ordering Information

OsseoGuard And OsseoGuard Flex Barrier Membranes

Size (mm)	OsseoGuard Membrane	OsseoGuard Flex Membrane
15 x 20 mm	OG1520	OGF1520
20 x 30 mm	OG2030	OGF2030
30 x 40 mm	OG3040	OGF3040

Shelf Life: 3 Years

Manufacturer: Collagen Matrix, Inc., Oakland, NJ

Endobon Xenograft Granules

Volume (ml)	Small Granules 500–1,000 µm	Large Granules 1,000–2,000 µm
0.5 ml	ROX05	N/A
1 ml	ROX10	N/A
2 ml	ROX20	ROXLG20
5 ml	N/A	ROXLG50
8 ml	N/A	ROXLG80

Shelf-Life: 18 Months

Manufacturer: Biomet France Sarl.

Want To Facilitate Re-Growth Of Bone And Soft Tissue? Consider Zimmer Biomet Dental Regenerative Options.

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Zimmer Biomet Dental
Global Headquarters
4555 Riverside Drive
Palm Beach Gardens, FL 33410
Tel: +1-561-776-6700
Fax: +1-561-776-1272