

FROM SMART SYNTHETICS TO NATURAL BONE



RESORBA[®] Synthetic Bone

YOUR VIABLE OPTION



REPAIR AND
REGENERATE

www.admedsol.com

RESORBA® Synthetic Bone

Micro-Macroporous Biphasic Calcium Phosphate (MBCP®)



MBCP® Technology

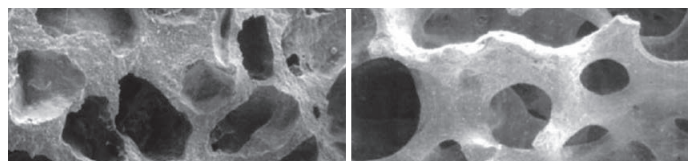


More than 30 years ago, Biomatlante*, an established developer and manufacturer of innovative surgical synthetic biomaterial technologies, elaborated a technique for the production of Biphasic Calcium Phosphate (HA/ β -TCP), with micro and macro porosity, and invented the Micro-Macroporous Biphasic Calcium Phosphate (MBCP®).

Calcium Hydroxyapatite (HA) is a major component of the mineral phase of human bones and teeth. Thanks to its chemical composition similar to the chemical phase of bone tissues, it is a biocompatible material known for bone growth stimulation. With its long-term stability HA provides a stable scaffold for cell adhesion while β -TCP, more soluble and with fast bio-reactivity, enhances the fast ingrowth of pluripotent regenerative cells.

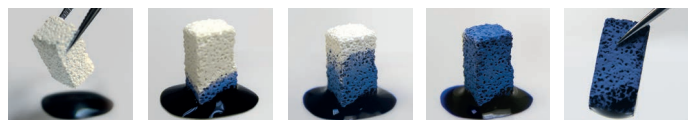
The calcium and phosphate ions released, stimulates the formation of Osteoid by the migrating Osteoblasts. This specific biphasic composition provides optimum performances for a gradual replacement of the substitute by the natural bone tissue without loss of volume.

The interconnected network of macropores and micropores provides a global porosity of minimum 70%, similar to cancellous bone. The total surface is colonized by body own cells. The total resorption time of the product depends on numerous factors such as the bone defect's size, its location, the surgical protocol, the health status of the patient.



RESORBA® Synthetic Bone

Human bone



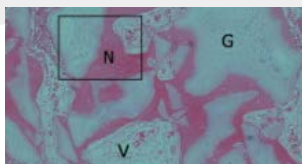
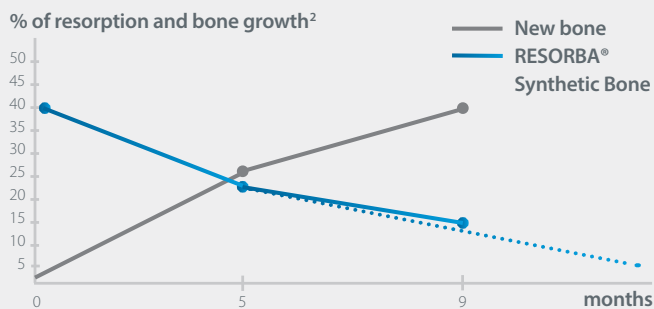
High specific surface area (SSA) for maximum permeability

*Biomatlante is a company of Advanced Medical Solutions.

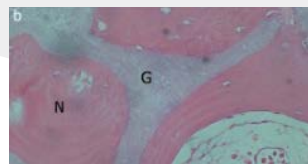
RESORBA® Synthetic Bone A SAFE CHOICE



Histological Findings



6 months after surgery
(sinus maxillary augmentation)
Macroporous biphasic calcium phosphate (MBCP®) particles (G) embedded in newly formed bone (N). Ample marrow space filled with loose connective tissue and abundant blood vessels (V)
(original magnification x100)²



10 months after surgery
(sinus maxillary augmentation)
Magnified view of grafted material (G) and vital bone (N) are in close contact and osteocytes are observed. The reversal line in newly formed bone is obvious
(original magnification x400)²

Key Features

- Maximum permeability
- 70% global porosity – similar to cancellous bone
- Easy to use
- Different shapes & ratio available
- Osteoconductive – provides a scaffold for new bone growth⁴
- Biphasic composition of HA and TCP provides optimum performances for a gradual replacement of the substitute by human bone

 30+ years of clinical experience

 More than 1 million units manufactured

Key Indications

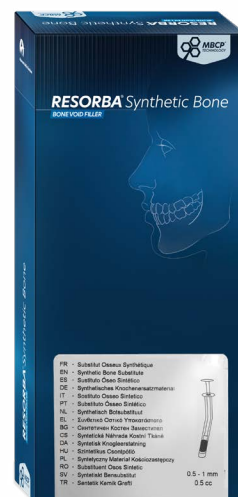
- Periodontal/Intrabony defects filling
- Ridge augmentation
- Implant preparation, placement in extraction sites
- Sinus lifts
- Cystic cavities filling

Therapeutic Suggestions

- Use as an autograft extender
- Implantology
 - Guided Bone Regeneration procedures (GBR)
 - Sinus-lift augmentation
 - Vertical ridge augmentation
 - Horizontal alveolar ridge augmentation
 - Alveolar regeneration – Extraction socket
- Periodontology
 - Intra-osseus pockets
 - Furcations

² Lee JH, Jung UW, Kim CS, Choi SH, Cho KS. Histologic and clinical evaluation for maxillary sinus augmentation using macroporous biphasic calcium phosphate in human. Clin Oral Implants Res. 2008;19(8):767-71.

⁴ Rodriguez C, Jean A, Mitja S, Daculsi G. Five Years Clinical Follow-Up Bone Regeneration with CaP Bioceramics. Key Engineering Materials. 2008;361-363:1339-42.



RESORBA® Synthetic Bone CLINICAL CASE



With kind permission of Juraj Brozović (DMD, PhD, Asst. Professor, Specialist in Oral Surgery)

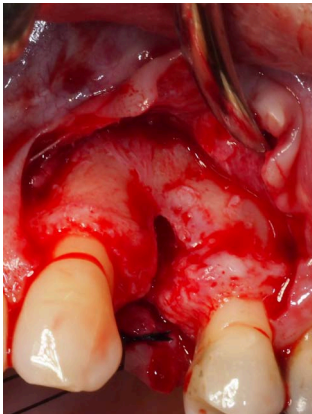
Lateral maxilla augmentation



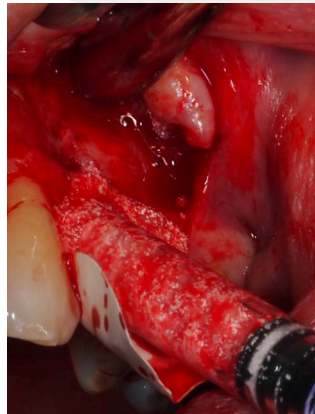
Initial state: A clearly visible alveolar ridge atrophy occurred after tooth extraction



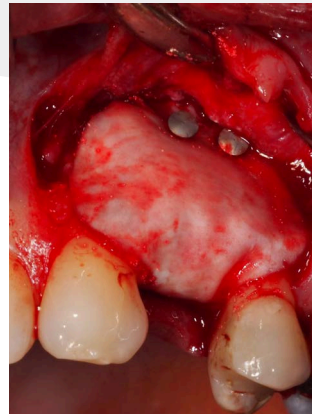
RESORBA® Synthetic Bone PUTTY syringe



Open and exposure of the defect site



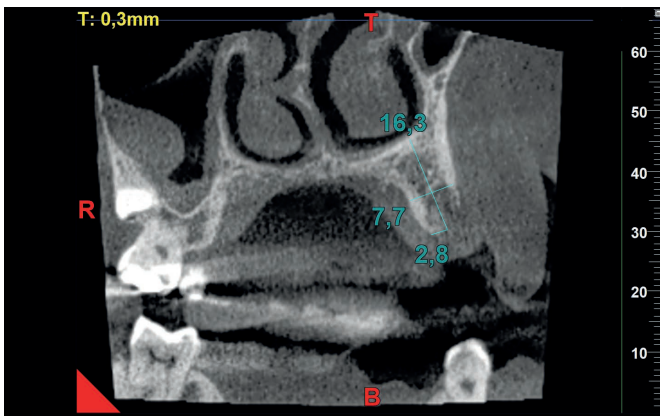
Inserting RESORBA® Synthetic Bone after having been previously mixed with autologous bone



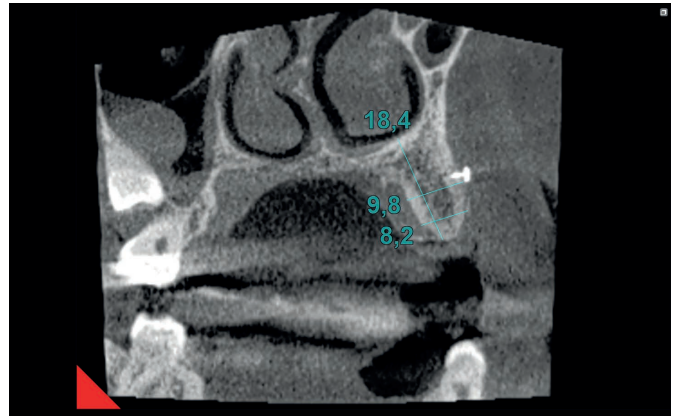
Coverage of the defect with RESORBA® RESODONT Forte (32 x 25 mm)



Tension-free wound closure with RESORBA® GLYCOLON® 6/0, DSM11



CT scan of the initial state



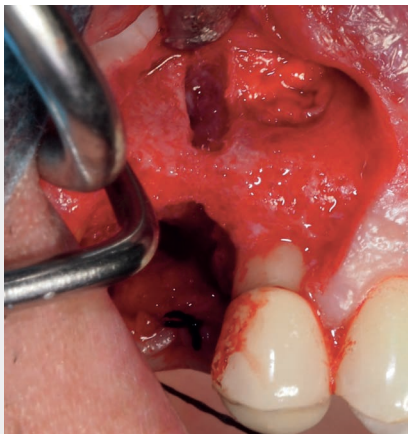
Post-op CT at 5 months follow-up

RESORBA® Synthetic Bone CLINICAL CASE



With kind permission of Juraj Brozović (DMD, PhD, Asst. Professor, Specialist in Oral Surgery)

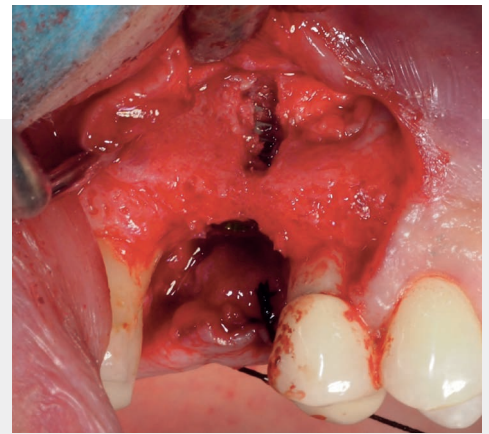
Fenestration management after apicectomy



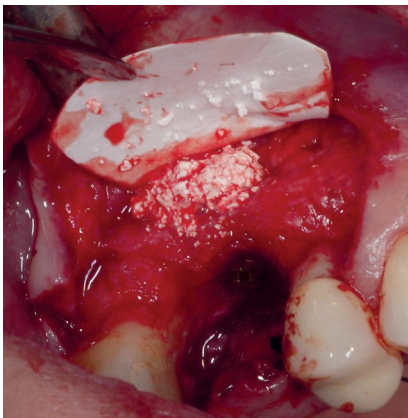
Initial state: Defect cavity after apicectomy has been performed



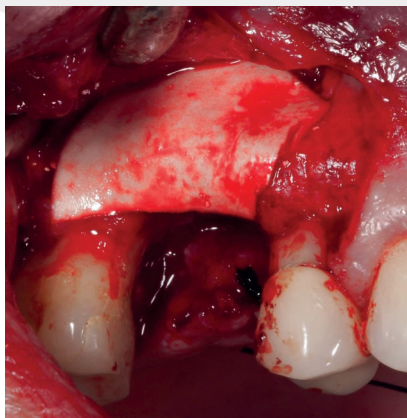
Inserting the implant screw



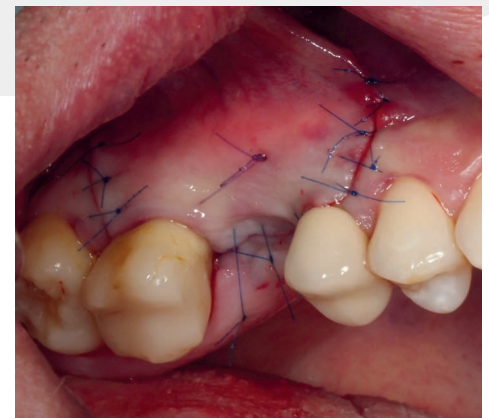
Visible bone loss arisen due to surgery



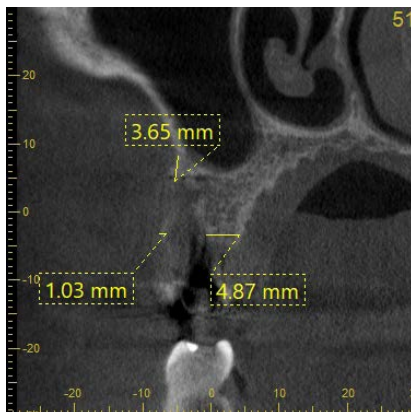
RESORBA® Synthetic Bone (0.5 – 1.0 mm granules) has been inserted



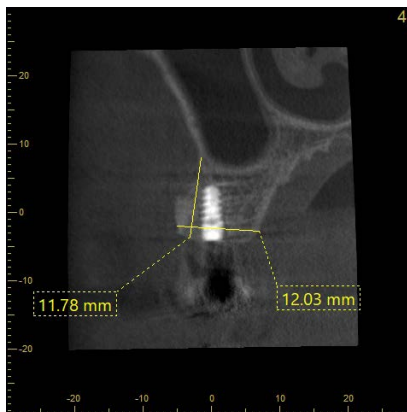
Coverage of the defect with RESORBA® RESODONT Forte (32 x 25 mm)



Tension-free wound closure with RESORBA® RESOPREN® 6/0, DRTM12



CT scan of the initial state



Post-op CT scan at 6 months follow-up



Granules in a syringe

RESORBA® Synthetic Bone

Mixing with
autologous bone

In cases where enhanced neovascularization and increased early bone formation is needed, as with grafting outside the ridge contour, RESORBA® Synthetic Bone can be used as an autograft extender.

The mixture with autogenous bone chips, due to its growth factors content, adds osteoinductive and osteogenic properties to the osteoconductive stability of RESORBA® Synthetic Bone.



Publications



1. Eight Year Clinical Follow-Up of Sinus Grafts with Micro-Macroporous Biphasic Calcium Phosphate Granules

"After 6–8 months, sinuses that had been filled with MBCP® granules displayed enough bone ingrowth to support dental implants. Moreover, the bone architecture remained suitable for mechanical stability over time. Strikingly, no significant loss of bone height was observed after eight years."

Seong KC, Cho KS, Daculsi C, Seris E, Guy D. Eight-Year Clinical Follow-Up of Sinus Grafts with Micro-Macroporous Biphasic Calcium Phosphate Granules. *Key Engineering Materials*. 2014;587:321-4.

2. Histologic and clinical evaluation for maxillary sinus augmentation using macroporous biphasic calcium phosphate in human

"These results show that MBCP® can be used as a grafting material for sinus floor augmentation, whether combined with other bone graft materials or not, and lead to a predictable prognosis for dental implants in the posterior maxillary area where there is insufficient vertical height for fixture installation."

Lee JH, Jung UW, Kim CS, Choi SH, Cho KS. Histologic and clinical evaluation for maxillary sinus augmentation using macroporous biphasic calcium phosphate in human. *Clin Oral Implants Res*. 2008;19(8):767-71.

3. The safety and efficacy of an injectable bone substitute in dental sockets demonstrated in a human clinical trial

"The BCP® granules appeared in direct contact with mineralized bone tissue, thereby supporting bone growth. A gradual substitution of the filler by bone tissue was observed thus preserving the height of the alveolar bone crest."

Weiss P, Layrolle P, Clergeau LP, Enckel B, Pilet P, Amouriq Y, et al. The safety and efficacy of an injectable bone substitute in dental sockets demonstrated in a human clinical trial. *Biomaterials*. 2007;28(22):3295-305.

4. Five Years Clinical Follow up Bone Regeneration with CaP Bioceramics

"This data confirm the resorbability on time of MBCP® and the scaffold effect of the HA content and high osteoconduction property. These two properties involved a balance resorption and bone ingrowth at the expense of the micro macroporous bioceramics."

Rodríguez C, Jean A, Mitja S, Daculsi G. Five Years Clinical Follow-Up Bone Regeneration with CaP Bioceramics. *Key Engineering Materials*. 2008;361-363:1339-42.

5. Clinical Performance of Moldable Bioceramics and Resorbable Membrane for Bone and Mucosa Regeneration in Maxillofacial Surgery

"The highly kinetic process of resorption/absorption and bone in growth was achieved within a few months. The bone ingrowth was architected and well vascularized."

Guy D, Elodie S, Verner C, Kimakhe S. Clinical Performance of Moldable Bioceramics and Resorbable Membrane for Bone and Mucosa Regeneration in Maxillofacial Surgery. *Biomaterials and Medical Applications*. 2017;1(2).

Product Description

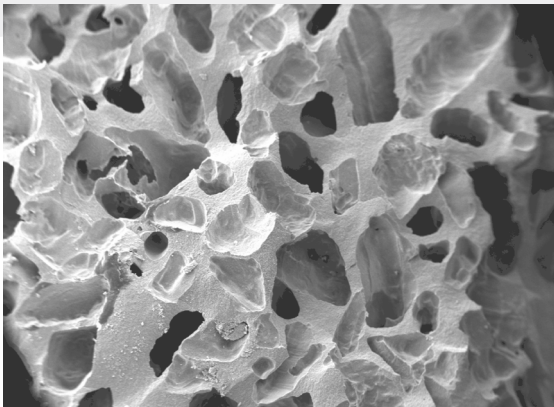
Two different ratio available

60/40 (60% slow resorbing Hydroxyapatite and 40% highly soluble Tricalciumphosphate) can be used for all bone augmentations in the oral cavity. The HA is granting a long term volume stability of the graft, the TCP is triggering the new bone formation. We recommend for bigger defect to mix with autologous bone.

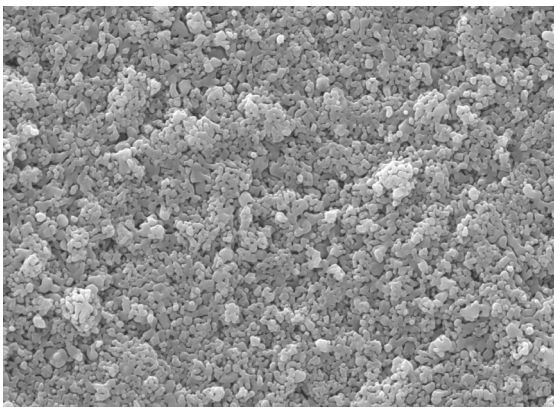
20/80 (20% slow resorbing Hydroxyapatite and 80% highly soluble Tricalciumphosphate) can be used in cases when fast new bone formation is wished in smaller defects, e.g. in single tooth alveolar ridge defects or Sinus Lifts. Smaller defects normally do not require to mix with autologous bone.

Macropores & micropores

Macropores are a network of interconnected spaces that promote the biological infiltration and cellular colonization by osteoblasts and osteoclasts



Micropores are the intercrystalline spaces where dissolution and recrystallisation occurs



Order Information



Products and reference numbers

RESORBA® Synthetic Bone 60% HA/40% β-TCP mix

REF	Particle Size	Content / Box
SB0401G25	0.5 mm – 1.0 mm	1 vial, 0,25 cc
SB0401G50	0.5 mm – 1.0 mm	1 vial, 0,5 cc
SB9901G01	0.5 mm – 1.0 mm	1 vial, 1,0 cc
SB9901G02	0.5 mm – 1.0 mm	1 vial, 2,0 cc
SB0302G01	1.0 mm – 2.0 mm	1 vial, 1,0 cc
SB9902G02	1.0 mm – 2.0 mm	1 vial, 2,0 cc

RESORBA® Synthetic Bone – Granules in a syringe 60% HA/40% β-TCP mix

REF	Particle Size	Content / Box
SB0401GS50	0.5 mm – 1.0 mm	1 syringe, 0,5 cc
SB0401GS01	0.5 mm – 1.0 mm	2 syringes, 0,5 cc each

RESORBA® Synthetic Bone 20% HA/80% β-TCP mix

REF	Particle Size	Content / Box
SB0701M+G25	0.5 mm – 1.0 mm	1 vial, 0,25 cc
SB0701M+G50	0.5 mm – 1.0 mm	1 vial, 0,5 cc
SB0701M+G01	0.5 mm – 1.0 mm	1 vial, 1,0 cc
SB0701M+G02	0.5 mm – 1.0 mm	1 vial, 2,0 cc
SB0702M+G01	1.0 mm – 2.0 mm	1 vial, 1,0 cc
SB0702M+G02	1.0 mm – 2.0 mm	1 vial, 2,0 cc
SB0702M+G05	1.0 mm – 2.0 mm	1 vial, 5,0 cc

RESORBA® Synthetic Bone – Granules in a syringe 20% HA/80% β-TCP mix

REF	Particle Size	Content / Box
SB0701M+GS50	0.5 mm – 1.0 mm	1 syringe, 0,5 cc
SB0701M+GS01	0.5 mm – 1.0 mm	2 syringes, 0,5 cc each

RESORBA® Synthetic Bone – PUTTY

REF	Content / Box
SB1102PU025DE	1 syringe, 0,5 mL
SB1103PU350DE	1 syringe, 1,0 mL



Manufacturer:

Biomatlante SA, ZA Les Quatre Nations, 5 rue Edouard Belin, 44360 Vigneux de Bretagne, France

Bone void filler. Medical device: class III.

Notified body: TÜV SÜD Product Service GmbH n°0123

Read carefully the instructions for use and labels before use.



RESORBA[®] MORE THAN 80 YEARS OF EXPERIENCE. ARE YOU IN?

Also benefit from a world-leading independent developer and manufacturer of innovative and technologically advanced products for the global advanced wound care, surgical and wound closure markets. admedsol.com

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