

Regenerate Naturally Preserve Longer

Feature	Benefit
Clot Stabilization	Morsels have a transient hemostatic effect that promotes healing and clot stabilization
Antimicrobial	Morsels release ions that provide a local transient antimicrobial effect and a bacteriostatic effect on several strains of bacteria
Radioopaque	Morsels can be visualized on the radiograph as having a denser appearance to the adjacent bone
Osteostimulation	Morsels exhibit enhanced bone regeneration rates compared to xenograft substitutes due to a unique phenomenon: Osteostimulation
Storage & Shelf Life	Morsels do not require special storage conditions. It can be stored at room temperature. 4-year shelf life.



NovaBone Dental Morsels is a crystalline composite composed of oxides of calcium, sodium and phosphorous in a silica base. The particle size ranges from 500 - 1000. The pore size ranges from 50 - 100 with a pore volume of above 60%.

Morsels are available in cups and are perfect for use with hand instruments and for mixing with blood or PRF. Use of Biomodifiers like PRF is suggested when using Morsels to facilitate faster bone integration into the matrix.

Sizes & Availability			
EU0820	0.5g Cups		2/bx
EU0821	1.0g Cups		2/bx
EU0822	1.5g Cups		2/bx

Launched for Orthopedic use in 2007 and Dental in 2011, Dental Morsels are sold through a network of distributors world-wide. For sizes and availability please contact your local NovaBone distributor.



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Dental Morsels

Synthetic Macroporous Bone Graft Matrix

Simulate & Stimulate Bone!

Synthetic Equivalent

NovaBone Dental Morsels offers a combination of physical characteristics (macroporosity) and ionic release (osteostimulation). This differentiates NovaBone Dental Morsels from other products with similar appearance, including allografts and xenografts. Being synthetic, NB Dental Morsels eliminates all concerns about disease transmission or immune responses.

Osteostimulation

NovaBone Dental Morsels, in addition to NovaBone Dental Putty, not only acts as an osteoconductive scaffold, but also imparts an osteostimulatory effect. Release of Si from the morsels is the key to signal and recruit bone precursor cells to the defect site and stimulate osteoblast differentiation and proliferation.

Gaisser DM, Katta SA, Greenspan DC, NovaBone Mechanisms of Osteostimulation, White Paper, NovaBone, Alachua, FL

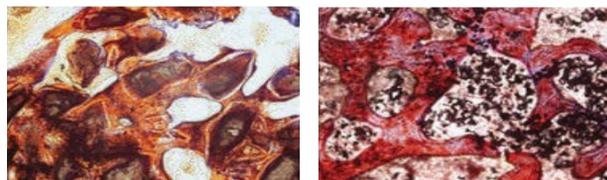
Slow & Sustained Resorption

NovaBone Morsels are crystalline and composed of naturally occurring elements in the body. They are macroporous with pore sizes ranging from 50-100 microns. The average particle size varies 500-1000 microns. The variation in crystallinity and particle sizes has been engineered to provide adequate stability at the defect site. The controlled porosity aids in slow resorption and transformation into bone over a period of 12-18 months.

Histology & Histomorphometry

NovaBone Dental Morsels demonstrate consistent resorption characteristics. The sheep study used as an example below demonstrates good bone regeneration at both the 6 & 12 week time periods. Histology sections at both time period show graft particles surrounded by bone. At 6 weeks, the residual graft content is higher as corroborated in histomorphometric data. Bio-Oss sites demonstrated slower resorption characteristics and lesser new bone at both time periods.

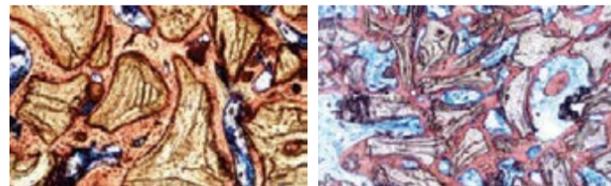
NovaBone Dental



After 6 weeks

After 12 weeks

Bio-Oss



After 6 weeks

After 12 weeks

	NB Morsels		Bio-Oss	
	6wk	12wk	6wk	12wk
% New Bone	29.50	54.90	18.06	23.01
% Residual Graft	37.50	23.30	66.72	57.98

Comparison of NovaBone Morsels to Bio-Oss in sheep lumbar spine; data on file

NovaBone Dental Morsels are approved for use in dental osseous defects including periodontal, implant surgical related, sinus elevations, and ridge augmentations. Fenestration and Dehiscence defects are commonly encountered in implant practice in NovaBone Dental Morsels, with the ideal morphological and resorption characteristics, provides a matrix for bone to grow and integrate with the graft substitute. A couple of examples are presented below:

Dehiscence Case Study:

(Case Courtesy: Dr. Sudhindra Kulkarni)

Male patient presented with a history of traumatic tooth extraction. After flap reflection when the bone deficiency was noted and a GBR with simultaneous implant placement was considered. After implant placement the bone defect was grafted with NovaBone Dental Morsels and covered with a collagen membrane. Four months post-operatively the implant was loaded and a final restoration was given a month later. At both times the bone volume was maintained adequately and a six month recall visit radiograph demonstrated good bone levels.



Dehiscence Defect



Placement of Dental Morsels



Collagen Membrane Placed



Six Month Post-Op

Fenestration Case Study:

(Case Courtesy: Dr. Narayan Venkataraman)

A 58 yr old female patient presented with a failed endodontic treatment that necessitated extraction of the involved tooth. A fenestration defect in the apical 1/3 was discovered during the sounding of the socket. An implant was placed and a conservative buccal flap was raised to visualize the fenestration. NovaBone Dental Morsels were mixed with blood prior to placement at the site. A PRF membrane was placed over the graft prior to suturing. A four month follow up showed that the tissue levels and contours were well maintained. A ten month follow up radiograph demonstrates normal trabecular pattern.

NovaBone Morsels mixed easily with either blood or autogenous bone. Bone level maintenance and tissue healing noticed in both cases were good.



Fenestration Defect



Placement of Dental Morsels



Clinical Picture - 4 months



Radiograph - 10 months