Step-by-Step Cemented Bridge

4. Using Abutments

Internal Hex. Implant System

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BONDBONE®


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BONDBONE® is a novel synthetic bone grafting material, a breakthrough in the field of dental bone regeneration, that allows easy handling and reduces procedure time. BONDBONE® can be used on its own, or mixed with a variety of other bone grafting materials, to answer the needs for a wide range of augmentation procedures. Visit our website to see more MIS regenerative solutions and downloadable materials: www.mis-implants.com
**BONDBONE® - Bonding Graft Material**

BONDBONE is a novel synthetic bone grafting material, considered to be a breakthrough in the field of dental bone augmentation. BONDBONE is comprised of bi-phasic calcium sulfate; well-established and widely documented for its biocompatibility, osteoconductivity and bioresorbability. Bi-phasic calcium sulfate takes advantage of both dihydrate and hemihydrate phases - the hemihydrate phase is moldable and cementable while the dihydrate phase is highly rigid, with a resorption rate equivalent to that of natural bone growth. BONDBONE is fast setting and is not affected by the presence of blood and saliva. It is available in a powder form, in 1cc and 0.5cc drivers. BONDBONE can be mixed with other granular bone augmentation products, creating an outstanding composite graft. On its own, BONDBONE provides an excellent solution for small defects and socket preservation procedures. In addition, BONDBONE can be used as a resorbable barrier over other bone grafting materials.

**Advantages**

BONDBONE functions as an excellent binder when mixed with other granular augmentation materials. It allows easy handling and prevents particle migration, for more predictable outcomes. The unique porosity of BONDBONE integrates micro-pores, to allow the infiltration of bone growth factors and angiogenesis, and macro-pores, to facilitate cell proliferation. BONDBONE contains pure calcium sulfate. It completely resorbs leaving behind natural regenerated bone.

**Working concept**

The initial pliable paste hardens in two to three minutes, allowing excellent handling time. Once BONDBONE is mixed with saline, the setting process is activated. Setting allows the *in situ* formation of a rigid structure that is highly crystalline despite the intervening harsh environment of blood, proteins and saliva.
Preparation Step

The following items are required for BONDBONE®
to be utilized as a composite graft:

- BONDBONE™ driver
- Granular bone graft material in mixing dish
- Spatula
- Dry gauze pads
- Medical syringe with sterile saline solution

All components and materials must be sterilized prior to use.
Step 1.

A. Preparation.

Hold the driver vertically.

B. Driver head.

Disconnecting driver head.

Twist and pull up to disconnect the head of the driver.

Note:
Make sure to disconnect the entire head of the driver, not just the closure cap.
C. The composite blend.

Add BONDBONE to the mixture by pushing the piston towards the dish. Use a volume ratio of 2 parts BONDBONE to 1 part granules (1cc BONDBONE to 0.5cc granules).

Note:
Make sure that the ratio of BONDBONE to other granules used is 2:1 in volume. In addition, since BONDBONE is always measured in volume units (cc) while other materials may be measured in weight units (grams), make sure you are using the same measuring method.
Step 2.

A. Mixing.

Use a spatula to mix the dry ingredients thoroughly.

B. The composite blend.

Make sure to mix the blend until completely homogenous.
Step 2
Step 3.

A. Hydrating.

Components:

- Medical syringe with sterile saline solution
- Granular bone graft material in sterile mixing dish
- Spatula

Gradually add saline to completely saturate the blend. Use 0.8cc-1cc sterile saline for each 1.5cc of composite graft (1cc BONDBONE + 0.5cc granules).

B. Mixing.

Add saline.

Use a spatula to mix the blend thoroughly to a homogeneous, creamy texture.

Note:
First, add 0.8cc saline. Use the remaining 0.2cc afterward, if needed.
C. **Composite blend.**

A composite blend with a glossy appearance is obtained.

The mixture is ready when a homogeneous, glossy paste is obtained.

**Note:**
Make sure the material is entirely saturated. Add extra saline gradually, to avoid over-saturating the blend.
Step 4.

A. Absorbing.

Absorb excess saline by applying a dry gauze pad on the surface of the mixture. Do not use pressure.

B. Ready composite.

The composite is ready when it is well mixed and has a putty-like consistency and matte appearance.

Components:

- Dry gauze pads
- Granular bone graft material in sterile mixing dish

Note:

Make sure not to use excess pressure during saline absorption to avoid over-drying. In case the material becomes too dense, add saline and mix it again. If excess saline remains, the material will not reach its matte appearance.
Step 5.

A. Preparing driver.

Use the empty BONDBONE driver as a delivery vehicle for the composite. Draw the piston to line 1 marked on the driver.

B. Loading driver.

Load the driver with the composite putty using a circular motion.

Components:

- BONDBONE driver
- Granular bone graft material in sterile mixing dish

Note:

Make sure to pull the piston to line 1, otherwise the putty will not reload into the driver.

Note:

As an alternative placement technique, a spatula may be used to place the composite putty into the grafting site.
Step 6.

A. Applying BONDBONE.

Apply the BONDBONE composite graft into the required site by pushing the piston and ejecting the composite graft.

B. Filling with BONDBONE.

The bone defect must be entirely filled with composite graft in order to obtain good contact with natural bone.

Components:

- BONDBONE driver
Step 7.

A. **Shaping the graft.**

- Shape as needed to fit the site.

B. **Setting the graft.**

- Condense and dry the composite graft.

Components:

- Sterile dry gauze pads

**Note:**

- Make sure that the time elapsed since the material encountered saline does not exceed 2-3 minutes.
Step 8. Wetting.

Components:
- Dry gauze pads
- Medical syringe with sterile saline solution

A. Wet the gauze pad.

B. Wet the graft.

Place the wet gauze pad against the graft. Remove the pad after 2 minutes. Proceed with soft tissue coverage and wound closure.
C. **Completed bone graft.**

The bone defect should be slightly overfilled. If additional material is required, add another layer by repeating the procedure from step 1. A newly applied layer of non-set material will bond to the recently placed hardened graft.
STAND-ALONE
GRAFT MATERIAL
Preparation Step

The following items are required when using BONDBONE® as a “stand-alone” graft:

- **Dry gauze pads**
- **Medical syringe and needle with sterile saline solution. 21-27G (1.25"-1.5")**
- **BONDONE driver**

All components and materials must be sterilized prior to use.
Step 1.

A. Preparation.

Push the piston to line 1 marked on the driver.

B. The driver cap.

Twist and pull to remove the outer cap of the driver.

Note:
Make sure you have removed the outer cap of the driver and not the entire head.
Step 2.

Activation.

A.

Hold the driver and the syringe horizontally. Insert the syringe needle through the driver head and inject the saline into the BONDBONE driver.
- Inject until 2-3 drops of saline drip out.
- Do not block the driver aperture.

Use 0.5cc sterile saline for each 0.5cc BONDBONE driver; use 1cc sterile saline for each 1cc BONDBONE driver.

Note:
Make sure the material is entirely saturated. Add saline if necessary until liquid surplus drips out of the driver head. The needle should be long enough to reach the piston (over 31mm).
Step 3.

A. **Ejecting liquid.**

B. **Compress the putty.**

Components:

- **BONDBONE driver**

**A.**

Hold the driver head handles firmly and gently push the piston towards line 2 to express excess liquid.

**B.**

Make sure to push the piston gently towards line 2. Pressure should be applied until resistance is felt.
C. Removing the driver head.

Remove the head.

Hold the driver horizontally and remove the head with a twisting, pulling movement.
Step 4.

A. **Absorbing.**

**Components:**
- BONDBONE driver
- Dry gauze pads

Absorbing the excess liquid.

Hold the driver vertically and place the aperture on a dry gauze pad for 3-5 seconds. Do not depress or apply pressure to the piston.

**Note:**
The step is necessary to obtain the optimal viscosity.
Step 5.

A. **Application.**

Apply the BONDBONE paste into the site by pushing the piston and ejecting the paste.

B. **Application.**

The bone defect must be entirely filled with paste in order to obtain good contact with the natural bone.

**Components:**

- BONDBONE driver
Step 6.

A. **Shaping.**

Shape as necessary before applying a dry pad.

B. **Condensing.**

Apply a dry gauze pad for 3-5 seconds and condense the paste, using moderate pressure. Do not pack too tightly.

**Components:**

- Dry gauze pads

**Note:**

Make sure that the time elapsed since the material encountered saline does not exceed 2-3 minutes.
Step 7.  

A. **Wetting.**

Wet a sterile gauze pad with sterile saline.

B. **Wetting. Do not pack too tightly.**

Place the gauze pad on the graft. Remove the gauze pad after approximately 2 minutes. Proceed with soft tissue coverage and wound closure.

**Components:**
- Dry gauze pads
- Sterile dish
C. **Completed bone graft.**

The bone defect should be slightly overfilled. If additional grafting material is required, prepare a new BONDBONE mix, and affix a new layer on top of the existing graft.

For additional information and downloadable materials, please visit our website: www.mis-implants.com
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