



Bioceramic Root Repair Material

Contraindications:

- Do not use EndoSequence Bioceramic Root Repair Material in patients with a known allergy to any of the product's ingredients. An allergic reaction may require re-treatment.

Precautions:

 Do not use after the expiration date

 Consult accompanying Safety Data Sheet (SDS)

 Do not re-use the disposable syringe tips (BC Tips).


- Discard the BC Tips after each application. Potential cross contamination may occur if single use syringe tips are reused or not properly cleaned before use.
- EndoSequence Bioceramic Root Repair Material and BC Tips are not designed to be sterilized. Failure to follow these instructions could distort the tips and/or damage the product resulting in procedural delays or user inconvenience.

Cleaning:

- Disinfect the exterior surfaces of the syringe and syringe cap (once it is tightly sealed onto the syringe) prior to storage to reduce the risk of cross-contamination.
 - The EndoSequence Bioceramic Root Repair Material syringe should be mantled with a hygienic single-use barrier sleeve for infection control for direct intra-oral use.
- Ensure there is continuous flow of material and the placement site is completely filled. Failure to do so may result in procedural delays.
 - Ensure that any bleeding is under control prior to placing the EndoSequence Bioceramic Root Repair Material as the material may wash out of the placement site and require re-treatment.


Storage:


 Keep Dry

 Store at room temperature

- Closely follow the recommended storage conditions. Failure to do so will cause the material to prematurely set resulting in re-treatment of material placement or user inconvenience. To avoid prematurely inducing the setting process closely follow these guidelines:
 - Use the cap to keep the jar or syringe tightly closed when the material is not in use. Keep the cap free of moisture.
 - Keep EndoSequence Bioceramic Root Repair Material tightly sealed in its pouch and store at room temperature in a dry area to avoid moisture contact.

Warnings:

 Irritant

 Do not use if package is damaged

- Use personal protective equipment to avoid contact of EndoSequence Bioceramic Root Repair Material with the skin, mucus membranes and eyes. Unset material may cause irritation.
- Do not use excessive force to apply the material into the root canal as this may cause patient sensitivity/discomfort or breakage of the syringe plunger.

- Always inspect the syringe prior to application into the site. Using a syringe with illegible reference markings could lead to overfilling or underfilling of the root canal site.
- EndoSequence Bioceramic Root Repair Material has not been tested on pregnant or nursing mothers.

- Procedural delays or user inconvenience may be experienced if the BC Tip is not inspected prior to use. If the material does not flow out of the syringe tip or if the syringe tip feels stiff, discard the tip and use a new one.
- Always check the expiration date of the product to prevent procedural delays or user inconvenience (e.g. material becomes brittle or will not set).
- Overfilling the root canal may lead to patient sensitivity, foreign body inflammation, maxillary sinus aspergillosis, paresthesia of anesthesia due to nerve impingement or may require surgical removal of the overfill.
- Carefully read package labeling to ensure use of the appropriate bioceramic material. Failure to do so may cause user or patient inconvenience.
- Multiple continuous applications of material using the syringe delivery system may cause hand fatigue.

Product Description:

EndoSequence Bioceramic Root Repair Material is a ready-to-use, premixed bioceramic material developed for permanent root canal repair and surgical applications. It is an insoluble, radiopaque and aluminum-free material based on a calcium silicate composition, which requires the presence of water to set and harden. EndoSequence Bioceramic Root Repair Material does not shrink during setting and demonstrates excellent physical properties.

EndoSequence Bioceramic Root Repair Material is packaged in a preloaded syringe (BC RRM and BC RRM Fast Set Putty) or in a jar (BC RRM Putty).

Indications For Use:

- Repair of Root Perforation
- Repair of Root Resorption
- Root End Filling
- Apexification
- Pulp Capping

Working Time:

No mixing is required. The setting reaction begins as soon as the material is placed in contact with a moist environment. The working time is more than 30 minutes.

Setting Time:

BC RRM and BC RRM Putty

Setting time is a minimum of 2 hours in normal conditions, but can take longer to set in extremely dry canals.

BC RRM Fast Set Putty

Setting time is approximately 20 minutes. In extremely dry conditions the setting time may be longer.

Interactions:

The setting time of EndoSequence Bioceramic Root Repair Material is dependent upon the presence of moisture in the dentin. The amount of moisture necessary to complete the setting reaction is naturally present within the dentin. Therefore, it is not necessary to add moisture in the root canal prior to placing the material.

Directions For Use:

BC RRM:

- Prior to the application of EndoSequence Bioceramic Root Repair Material, thoroughly prepare and irrigate the root canal using standard endodontic techniques. Reference detailed instructions on reverse.
- Remove the syringe cap from the syringe. Securely attach a BC Tip with a clockwise twist to the hub of the syringe. The disposable tip is flexible and can be bent to facilitate access to the root canal.
- Insert the tip of the syringe into the root canal. Gently and smoothly dispense the material into the intended anatomic section of the root canal by compressing the plunger of the syringe.
- Dispense the material while withdrawing the BC Tip. Fill the intended root canal section completely; avoid the formation of air bubbles and overfilling.
- Remove excess material with a moist cotton pellet.
- After each application, remove the BC Tip from the syringe with a counterclockwise twist to the hub of the syringe and discard. Clean the outside of the syringe and remove any excess paste, place the syringe cap tightly onto the syringe hub, and place the syringe into the foil pouch and ensure to seal the pouch. Store the pouch in a dry area at room temperature.

BC RRM Putty & BC RRM Fast Set Putty:

- Prior to the application of EndoSequence Bioceramic Root Repair Material, thoroughly prepare and irrigate the root canal using standard endodontic techniques. Reference detailed instructions on reverse.
- Unscrew the cap from the jar or syringe.
- Remove the desired amount of material from the jar using a sterile instrument and place the material on a clean glass slab. When using EndoSequence Fast Set Putty gently and smoothly extrude the desired amount of material from the syringe by compressing the plunger.

Note: Only a small amount of material is necessary to be removed from the jar or syringe for each application.

- Immediately after removing the material screw the cap tightly back on the jar or syringe.
- Use a sterile plastic instrument (of your choice) to place the material into the intended anatomic section of the root canal and compress the material with the plastic instrument.
- Remove excess material with an appropriate sized spoon excavator or disposable microbrush.
- Place the jar or syringe into the foil pouch and be sure to seal the pouch. Store the pouch in a dry area at room temperature.

Instructions For Use

Indications For Use:

Pulp Capping:

Indirect

1. Indirect pulp caps have the best prognosis in cases of normal pulp or reversible pulpitis. Do not attempt an indirect pulp cap in cases of irreversible pulpitis.
2. Isolate the operative area with a rubber dam.
3. Prepare the cavity shape by removing any decay with a high-speed bur under a constant cooling water spray.
4. Before exposure occurs (0.5-1mm from the pulp), disinfect the internal surfaces of the cavity preparation and remove excessive moisture with a cotton pellet (do not air dry).
5. Place an adequate amount of EndoSequence Bioceramic Root Repair Material over the affected dentin near the pulp, extending onto normal dentin.
6. Remove excess with a spoon excavator or a micro brush.
7. Place a thin layer of glass ionomer cement over the repair material extending laterally onto clean dentin.
8. Once the glass ionomer is set, proceed to restore with a final restoration.

Direct

1. Once an exposure occurs, wash and disinfect the area thoroughly, control hemostasis, and prepare the exposure site for repair with EndoSequence Bioceramic Root Repair Material.
2. Place an adequate amount of the EndoSequence Bioceramic Root Repair Material over the perforation using a plastic instrument and remove excess with a curette and/or micro brush.
3. It is recommended to fill the entire cavity with a reinforced glass ionomer core material and observe the tooth for 4-6 weeks prior to final restoration with a composite material. The glass ionomer core can be used as a base during the subsequent visit.

Note: For deciduous teeth with substantial exposures, consider removing the pulp and following instructions 1-3 above.

Repair of Root Perforation:

1. Perforations have the best chance of success the sooner they are repaired. Repair the perforation as soon as it occurs or is noted.
2. After isolation with a rubber dam, the area surrounding the perforation should be thoroughly and carefully cleaned and disinfected.
3. Obtain adequate hemostasis from the perforation site and apply the EndoSequence Bioceramic Root Repair Material to the defect and seal all perforation margins.
4. Remove any excess with a spoon excavator, or a micro brush, and create a flush perforation cavosurface.
5. Take a radiograph to confirm an adequate seal. Add or remove EndoSequence Bioceramic Root Repair Material as needed.

a. Single Visit Perforation Repair (small defects):

If you plan to complete root canal therapy during the same visit, apply a thin layer of self-cure or dual cure glass ionomer cement over the EndoSequence Bioceramic Root Repair Material and extend it onto sound dentin (cover the perforation material completely). Do not use composite material over the unset EndoSequence Bioceramic Root Repair Material as it will be difficult to create a bond. After the glass ionomer cap has set, complete the root canal procedure.

b. Two Visit Perforation Repair (large defects):

If the perforation area is too large and safe coverage of the EndoSequence Bioceramic Root Repair Material cannot be obtained with glass ionomer in a single visit (gently pushing the EndoSequence Bioceramic Root Repair Material through the defect) gently place a moist cotton pellet over the EndoSequence Bioceramic Root Repair Material and seal the access opening. Remove the cotton during the second visit and complete the root canal procedure.

Repair of Internal Root Resorption:

For Perforating Internal Root Resorption defects requiring sealing of the perforation see "Repair of Root Perforation" directions. If the resorptive pattern is complex and the putty cannot be easily placed, consider backfilling the entire resorptive defect with BC RRM. For Non-Perforating Internal Root Resorption defects, consider simply obturating using EndoSequence BC Sealer and BC Points.

Repair of External Root Resorption:

Subcrestal Defects

Remove all affected cementum and dentin until all resorptive cells are removed. Condition the root surface as desired (citric acid etch.) Place EndoSequence Bioceramic Root Repair Material into the defect reestablishing the lost contours of the natural tooth and close the wound.

Supracrestal Defects

A glass ionomer compound is recommended in such cases.


Root End Filling:

1. Following apicoectomy and retropreparation clean and disinfect the retropreparation as usual.
2. Place an adequate amount of EndoSequence Bioceramic Root Repair Material into the retropreparation using a plastic instrument.
3. Condense or compress the material into the preparation from the bottom up to avoid trapping air until the preparation is completely sealed.
Note: An alternative method is to inject BC RRM into the retropreparation first followed by a cap of BC RRM Fast Set Putty™ to seal the top.
4. Remove or any excess material using a micro-brush or a curette.
5. Radiograph the placement of the material to ensure its placement is adequate.
6. If placement is inadequate add or remove EndoSequence Bioceramic Root Repair Material as necessary.
7. Close the surgical opening after confirming that the root end preparation has been sufficiently sealed.
8. EndoSequence Bioceramic Root Repair Material is intended as a definitive repair material.

Apexification (Apical Barrier):

1. Isolate the operative area with a rubber dam.
2. Open and debride the root canal, irrigate thoroughly and dry the root canal.
3. If further disinfection is required, consider Calcium Hydroxide therapy for a week.
4. Place EndoSequence Bioceramic Root Repair Material into the capital area of the root until an apical plug of at least 3-5mm in depth is created.
5. Radiograph the placement of the material to ensure an adequate plug has been established.
6. Fill the remaining root canal space.
 - a. To fill in the same visit, consider using BC RRM to backfill the remaining portion of the canal.
 - b. To fill with gutta percha during a subsequent visit, place a provisional in the access and revisit in a week to fill the remaining portion of the canal with EndoSequence BC Sealer and BC Points.
7. Restore the access opening with your restorative material of choice.
8. EndoSequence Bioceramic Root Repair Material will remain as permanent part of the root canal apexification repair.



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