

EndoSequence BC Sealer and Hydraulic Condensation for Bonded Obturation

Traditional Endodontic obturation has relied upon the manipulation of gutta percha to “Minimize the Sealer Interface (MSI)”. This has been necessary given that traditional eugenol and resin based sealers have demonstrated poor physical and chemical properties. These properties include among others: a lack of biocompatibility, being hydrophobic, an inability to chemically bond to dentin, and the fact that they shrink upon setting. Not unlike previous techniques required for the use of amalgam restorations (dovetails and undercuts for retention), these traditional sealers have required mechanical manipulation of the gutta percha to minimize the poor physical and chemical qualities of the sealers.

Premixed bioceramic sealers demonstrate none of the negative properties associated with traditional sealers (above), so that it is no longer necessary to mechanically manipulate the gutta percha to overcome their limitations. **BC Sealer** is premixed, highly biocompatible (in fact osteogenic), antibacterial, chemically bonds to dentin (and BC gutta percha), exhibits no shrinkage, is highly radiopaque, is hydrophilic, and produces hydroxyapatite upon setting. So in addition to being easier to use, it does a better job in sealing the canal and producing the results you are looking for.

The **EndoSequence Bonded Obturation** technique takes full advantage of the unique properties of BC sealer (nanoparticle size and viscosity) to achieve a true hermetic seal of the root canal space. Effortless Synchronized Hydraulic Condensation can replace previous time consuming and technique sensitive procedures (lateral and vertical condensation) as the result of its advanced material science.

Clinical Technique

Similar to the ESX System there is a Basic and Advanced technique. The difference is determined by your ability to see the delivery of the sealer at the orifice of the canal. If you do not have a microscope (SOM) we recommend that you take advantage of the Basic Technique which takes a moment longer but is safer to use clinically. The advanced technique, which utilizes a microscope is the faster delivery system for this unique material. The result in either case is the same.....superior obturation with less effort!

Basic Technique

After instrumentation and fully disinfecting the canal choose an appropriate size gutta percha cone to match the last size instrument used to the apex. This selection may include a cone one size smaller if desired. If, in fact, the original canal was very

tight and the corresponding Master Gutta Percha (MGP) cone is an extremely close match, this close adaptation may not allow for the sealer to escape up along the side of the cone during cementation. In such cases, you may fit a cone one size smaller than the Master File (e.g. MF 35, use MGP 30) in order to ensure some space around the cone for venting of the sealer. Be sure to seat and confirm the fit of the one size smaller cone at your working length (WL). You want a size that will not be longer than your Working Length (WL) to avoid overfilling.

We recommend a .04 tapered canal preparation and BC coated .04 gutta percha cones. This will take full advantage of the minimal invasive concept of removing only enough dentin to accomplish the goal (disinfection) while producing an ideal taper for the hydraulic nature of the sealer. The use of the bioceramic coated cones will ensure the chemical bond of the BC sealer not only to the dentin but to the gutta percha cones as well. This in turn will produce a true hermetic seal.

After coating an appropriate instrument (hand or rotary) with the BC Sealer introduce the sealer into the canal(s). In either case the instrument should be used in a reverse rotation and keep short of the apex. Make sure all canal walls are coated with the sealer. The selected gutta percha cone is then coated (buttered) and slowly introduced into the canal. This should occur over a few seconds (3 to 4) to provide time for the coronal venting of the sealer and to minimize the possibility of excessive sealer extrusion apically. In addition, the slow advancement of the cone through the canal will prevent sealer accumulation under the cone preventing its full seating. Keep in mind that although BC Sealer is very biocompatible and even osteogenic there is no reason to overfill the canal if proper time and technique are followed. Be sure that you have fully advanced the cone to working length and take a trial fill X-ray to verify your result. Adjustments can be made from this trial fill radiograph since the sealer will take 4 hours to set and there's plenty of time for any needed adjustments.

Once completed, the excess gutta percha cone should be removed by using a heated instrument (EndoPro270, Touch N'Heat, etc.). This is easily done if the heated instrument is taken across the orifice and not into the orifice of the canal. Once accomplished, a cold plugger should be utilized to vertically condense the remaining gutta percha at the orifice. If you are treating multiple canals in the same tooth it is recommended to follow this technique for each canal individually until proficient. Thereafter, multiple canals can be obturated concurrently.

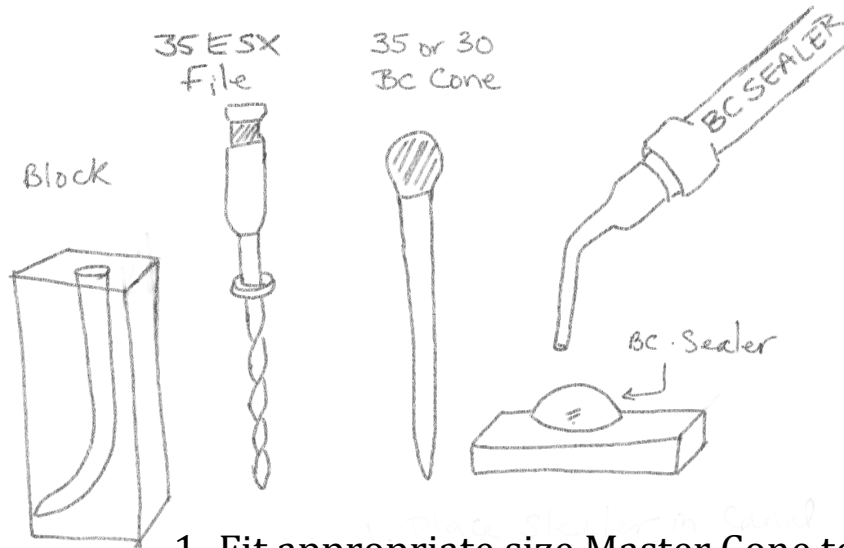
Advanced Technique

If you are using a microscope and have full visualization of the canal orifice, the BC sealer can be extruded directly from the syringe into the top one-third to one-half of the canal(s). Care should be taken not to use more sealer than is required (see above). Once the sealer has been introduced into each canal an appropriate instrument (hand or rotary) is used to advance the sealer to the working length or

1mm short. Follow the instructions above (same as Basic) to cement a coated cone to length.

Note: the tip of the syringe can be removed once the sealer is delivered into the canals (in either the Basic or Advanced Technique) and the dispensing tip used as a dipping reservoir for the sealer.

This simple trick is efficient while at the same time cost effective. Multiple research articles support the use of bioceramic sealers over traditional eugenol and resin based sealers.



1. Fit appropriate size Master Cone to full length (matching size or one size smaller than the Master File.)
2. Coat file with BC Sealer.
3. Use file to coat canal walls with BC Sealer.
4. Coat Master Cone with BC Sealer.
5. Cement Master Cone to full length (confirm full seating.)