REDEFINING ENDODONTICS

BIOCERAMIC TECHNOLOGY
THE "STATE-OF-THE-ART" IN ENDODONTIC OBTURATION HAS CHANGED!

Unlike conventional base/catalyst sealers, BC Sealer utilizes the moisture naturally present in the dentinal tubules to initiate its setting reaction. This highly radiopaque and hydrophilic sealer forms hydroxyapatite upon setting and chemically bonds to both dentin and to our bioceramic points (EndoSequence® BC Points™). BC Sealer is anti-bacterial during setting due to its highly alkaline pH and unlike traditional sealers, BC Sealer exhibits absolutely zero shrinkage!

Never before has an obturation system been able to make these claims. How does your current system compare?

<table>
<thead>
<tr>
<th>Feature</th>
<th>BC Sealer and Points</th>
<th>Your Current System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biocompatible and Osteogenic</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Chemical Bond of Sealer to Dentin</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Chemical Bond of Sealer to Filling Material</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Cost Effective (Considerably Less Expensive Than Carriers)</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Highly Antibacterial (+12 pH upon setting)</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Highly Radiopaque</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Hydrophilic</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Hydroxyapatite Producing</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Ideal Working and Setting Time</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>User Friendly (Premixed Syringable Sealer)</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>Zero Shrinkage of Sealer and Filling Material</td>
<td>✓</td>
<td>?</td>
</tr>
<tr>
<td>3-D Bonded Obturation at Room Temperature</td>
<td>✓</td>
<td>?</td>
</tr>
</tbody>
</table>

Order No. 501756000

EndoSequence™ BC Sealer™

1 BC Sealer
15 BC Tips™
1 Safety Data Sheet (SDS)

“Finally a sealer that is biocompatible, hydrophilic and antibacterial with no post-operative complications.”

Dr. Richard Herman Diplomat of the American Board of Endodontics
Adjunct Assistant Clinical Professor NOVA Southeastern University Post Graduate Endodontics

Composition: Calcium silicates, Calcium phosphate monobasic, zirconium oxide, tantalum oxide and thickening agents.
**HIGHLY ANTIBACTERIAL**

BC Sealer is alkaline (+12pH) making it highly antibacterial. A recent study showed that BC Sealer killed Enterococcus faecalis within 2 minutes of contact.

![Antibacterial (pH) Comparison (at 1 day)](image)


**EXCELLENT FLOW**

BC Sealer’s extremely small particle size and hydrophilic nature allow it flow into all aspects of the canal anatomy. A recent study proved that BC Sealer has a contact angle which is lower than all other sealers tested. This unique feature of BC Sealer improves its ability to bond to dentin and obturation materials and also improves its ability to effectively kill microbes throughout all aspects of the root canal system.

![Contact Angle Comparison (at 7 days)](image)


**SUPERIOR BIOCOMPATIBILITY**

BC Sealer is essentially a root repair material with a flowable consistency. The unique osteogenic properties of BC Sealer make it particularly effective on non-vital cases with extensive bone loss or apical periodontitis. A recent study showed BC Sealer to be much more biocompatible than AH Plus®.

![Cytotoxicity Comparison (at 24 hours)](image)


**SUPERIOR BONDING**

BC Sealer’s hydrophilic/hydroxyapatite producing formula and excellent flowability allow it bond readily to both dentin and to bioceramic filling materials (BC Points™). A recent study showed that BC Sealer has superior bond strength when compared to other popular sealers. The study varied the moisture content to determine its effect on bond strengths. BC Sealer outperformed all the other sealers at all moisture levels.

![Bond Strength Comparison in Different Moisture Conditions](image)

Source: Nagas E, Uyanik MO, Eymiri A, Cehetli ZC, Vallittu PK, Lasilva UI, Durmaz V. Dentin moisture conditions affect the adhesion of root canal sealers. JOE. 2011; 38 (2): 240-4
Unlike traditional points, EndoSequence® BC Points™ are subjected to a patented process of impregnating and coating each cone with bioceramic nanoparticles. The bioceramic particles found in BC Sealer bond with the bioceramic particles in BC Points™ to form a true gap-free seal. A recent study showed that BC Sealer, when used in conjunction with our impregnated and coated cones, actually increased the fracture resistance to a level comparable to that of teeth that have not undergone root-canal therapy.

It is universally accepted that microbes require food and space to survive and multiply. Therefore the primary goal of obturation should be to completely fill and seal the entire canal thereby eliminating any gaps (this includes the gap between the sealer and the filling material). The below SEMs visually confirm BC Sealer’s unprecedented ability to adapt to the surface of dentin and BC Points™.
BIOCERAMIC BONDED OBTURATION

Standard gutta percha can be used with BC Sealer™, but for a true, gap-free seal, BC Points™ are recommended. The benefit of using BC Sealer™ and BC Points™ is that three-dimensional bonded obturation can be achieved at room temperature. However, if a warm vertical technique is preferred it is recommended to use BC Points™ 150 Series along with BC Pellets™ at 150°C.

<table>
<thead>
<tr>
<th>EndoSequence BC Points™</th>
<th>Individual Packs (60/Pack)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tip ID</strong></td>
<td><strong>Tip Size</strong></td>
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<tr>
<td>White</td>
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</tr>
<tr>
<td>Yellow</td>
<td>20</td>
</tr>
<tr>
<td>Red</td>
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</tr>
<tr>
<td>Blue</td>
<td>30</td>
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<tr>
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<tr>
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<tr>
<td>Red</td>
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<tr>
<td>Blue</td>
<td>60</td>
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<tr>
<td>Green</td>
<td>70</td>
</tr>
<tr>
<td>Black</td>
<td>80</td>
</tr>
</tbody>
</table>

**BC Obturation Wheel (.04 Taper):**
- 15 ea. (sizes 15-60)
- BC Points (.04 Taper)
- Paper Points (.04 Taper)

Order No. 5019506U0

**BC Obturation Wheel (.06 Taper):**
- 15 ea. (sizes 15-50)
- BC Points (.06 Taper)
- Paper Points (.06 Taper)

Order No. 5019507U0

<table>
<thead>
<tr>
<th>EndoSequence BC Points™ 150 Series</th>
<th>Individual Packs (60/Pack)*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tip ID</strong></td>
<td><strong>Tip Size</strong></td>
</tr>
<tr>
<td>White</td>
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<tr>
<td>White</td>
<td>45</td>
</tr>
<tr>
<td>Yellow</td>
<td>50</td>
</tr>
</tbody>
</table>

**BC Pellets:**
- 100 Pellets

Order No. 5023074U0
**Endosequence® Root Repair Material (RRM™)**

EndoSequence® Root Repair Material (RRM™) is available in two specifically formulated consistencies (syringable paste or condensable putty) and contains many of the same characteristics as BC Sealer. The favorable handling properties, increased strength and shortened set time make RRM highly resistant to washout and ideal for all root repair and pulp capping procedures. Research and countless cases confirm that RRM is highly biocompatible and osteogenic.

**SUPERIOR HANDLING**
- Premixed-syringable paste or putty consistency
- Shortened Set Time (as short as 20 mins)
- Highly Resistant to Washout

**EXCELLENT HEALING**
- Highly Biocompatible
- Osteogenic
- Anti-bacterial (+12 pH)
- Non-Staining

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**ESBCRRM Intro Syringe**
1 1g Preloaded Syringe
7 Intra-Canal Tips
1 Instructions for Use (IFU)
1 Safety Data Sheet (SDS)

**Order No.** 5018264U0

**ESBCRRM Bulk Syringe Kit**
2 1.5g Preloaded Syringe
15 Intra-Canal Tips
1 Instructions for Use (IFU)
1 Safety Data Sheet (SDS)

**Order No.** 5018265U0

**ESBCRRM Putty**
1 .3g Jar
1 Instructions for Use (IFU)
1 Safety Data Sheet (SDS)

**Order No.** 5018266U0

**BC RRM-Fast Set Putty™**
1 .3g Preloaded Syringe
1 Instructions for Use (IFU)
1 Safety Data Sheet (SDS)

**Order No.** 5024200U0

“Endosequence Root Repair Material’s favorable properties, coupled with it’s ingenious moisture initiated setting reaction and efficient clinical application, represents a step forward in root repair and surgical retrofitting materials.”

- Dr. Allen Ali Nassah
  Microsurgical Endodontics, Boston, MA
  Clinical Instructor, Harvard School of Dental Medicine

Applications: Root Endo Filling (Retrograde fills), Repair of Root Perforation, Repair of Root Resorption, Apexification, Pulp Capping
Composition: Calcium silicates, Calcium phosphate monobasic, Calcium hydroxide, Zirconium oxide, Tantalum oxide, Filler and thickening agents
BIOACTIVE

The following SEM images illustrate the similarities between MTA and RRM. “Group A” shows the crystalline surfaces of MTA and RRM. Both surfaces are composed primarily of calcium, carbon and oxygen. More notably, “Group B” shows the extent of human gingival fibroblast adhesion to MTA and RRM (after 7 days of incubation). Notice the extensive matrix-like overlay on the surface of the RRM. These SEMs visually confirm that RRM is highly bioactive and efficiently promotes biomineralization.


EXCELLENT BIOCOMPATIBILITY AND MINERALIZATION ABILITY

The following graphs illustrate the biocompatibility and mineralization ability of RRM as compared to other commonly used root repair materials.

Cytotoxicity Comparison 3-Day Set Samples


ALP Activity Absorbance


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Since 1976, our absolute focus has been to develop products and provide services that support the practice of core operatory procedures. Today, Brasseler USA® is the premier dental instrumentation company in North America offering the most extensive selection of dental and surgical instrumentation under one brand.