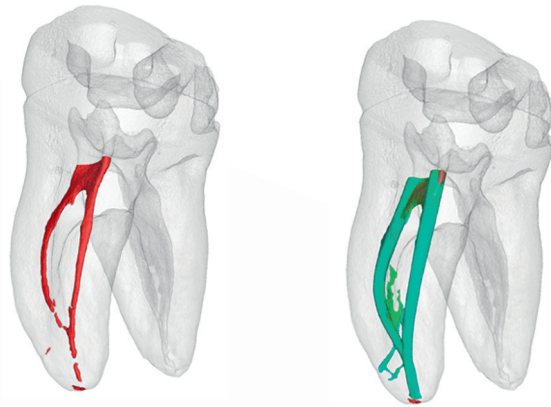


# TOTAL FILL<sup>®</sup>

Premixed Bioceramic Endodontic Materials



# TOTAL FILL<sup>®</sup> BC SEALER<sup>™</sup>

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

Unlike conventional base/catalyst sealers, TotalFill<sup>®</sup> BC Sealer<sup>™</sup> 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 (TotalFill<sup>®</sup> BC Points<sup>™</sup>). 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?

	BC Sealer & BC Points	Your Current System
Biocompatible and Osteogenic	✓	?
Chemical Bond of Sealer to Dentin	✓	?
Chemical Bond of Sealer to Filling Material	✓	?
Cost Effective (Considerably Less Expensive Than Carriers)	✓	?
Highly Antibacterial (+12 pH upon setting)	✓	?
Highly Radiopaque	✓	?
Hydrophilic	✓	?
Hydroxyapatite Producing	✓	?
Ideal Working and Setting Time	✓	?
User Friendly (Premixed Syringeable Sealer)	✓	?
Zero shrinkage of Sealer and Filing Material	✓	?
3-D Bonded Obturation at Room Temperature	✓	?



“ These products represent a major advance in bonded root filling restorations. A high pH during setting, biocompatibility when set and dimensional stability are important advantages over traditional root canal sealers. ”

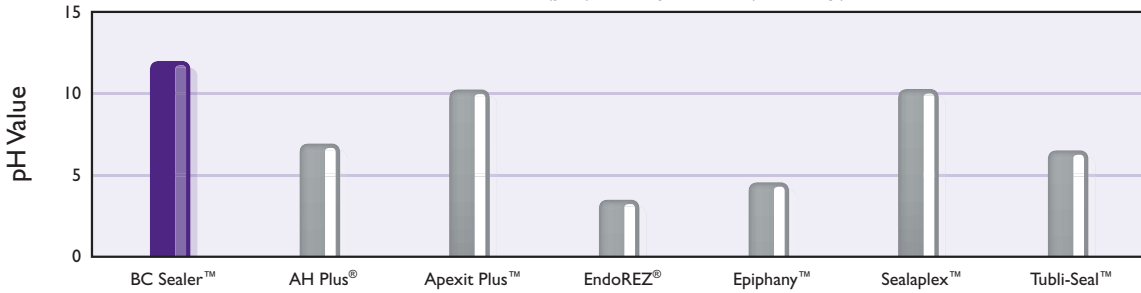
- Dr. Martin Trope  
Clinical Professor, University of Pennsylvania

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

## HIGHLY ANTIBACTERIAL

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

Antibacterial (pH) Comparison (at 1 day)

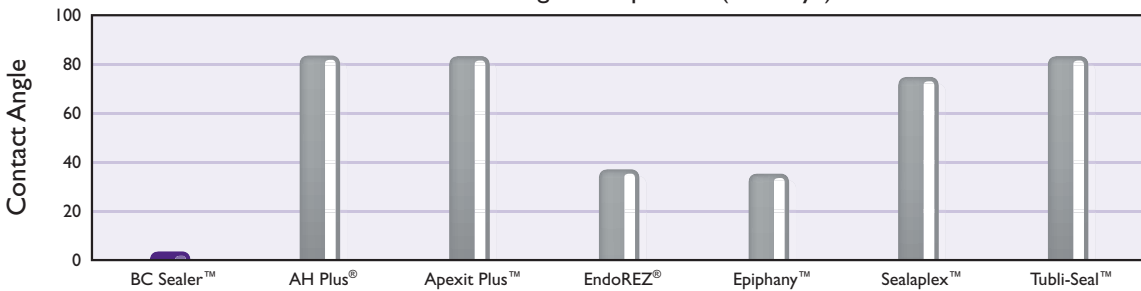


Source:  
Zhang H, Shen Y, Ruse ND, Haapasalo M. Antibacterial activity of endodontic sealers by modified direct contact test against *enterococcus faecalis*. *JOE*. 2009; 35(7): 1051-5

## EXCELLENT FLOW

TotalFill® 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 TotalFill® BC Sealer™ has a contact angle which is lower than all other sealers tested. This unique feature of TotalFill® 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)

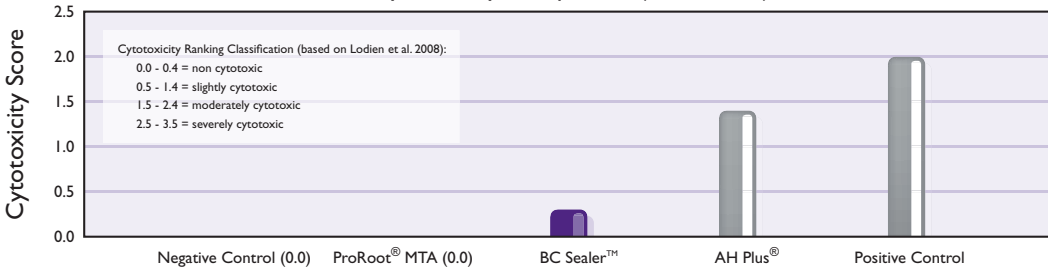


Source:  
Zhang H, Shen Y, Ruse ND, Haapasalo M. Antibacterial activity of endodontic sealers by modified direct contact test against *enterococcus faecalis*. *JOE*. 2009; 35(7): 1051-5

## SUPERIOR BIOCOMPATIBILITY

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

Cytotoxicity Comparison (at 24 hours)

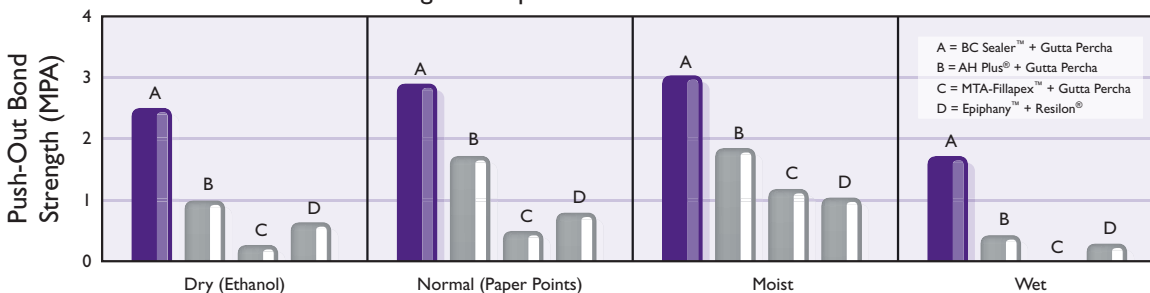


Source:  
Zhang W, Li Z, Peng. Ex vivo cytotoxicity of a new calcium silicate-based canal filling material. *International Endodontic Journal*. 2010; 43(9): 769. DOI:10.1111/j.1365-2591.2010.01733.

## SUPERIOR BONDING

TotalFill® 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 TotalFill® 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. TotalFill® BC Sealer™ outperformed all the other sealers at all moisture levels.

Bond Strength Comparison in Different Moisture Conditions



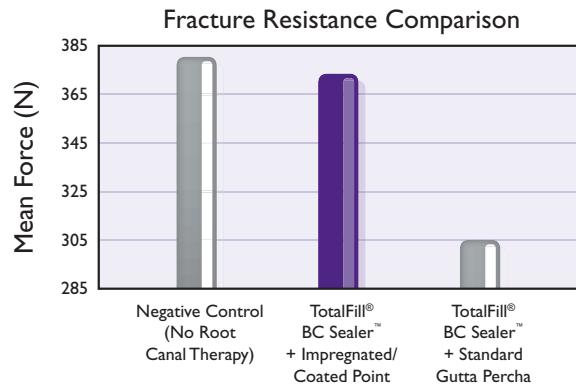
Source:  
Nagas E, Uyanik MO, Eymirli A, Cehreli ZC, Vallittu PK, Lassila LVJ, Durmaz V. Dentin moisture conditions affect the adhesion of root canal sealers. *JOE*. 2011; 38(2): 240-4

# TOTAL FILL<sup>®</sup>

## BC OBTURATION KIT<sup>™</sup>

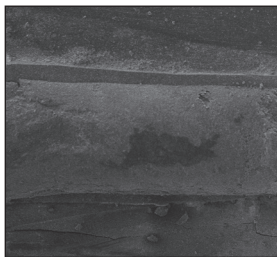
### BIOCERAMIC BONDED OBTURATION

Unlike traditional points, TotalFill<sup>®</sup> BC Points<sup>™</sup> are subjected to a patented process of impregnating and coating each cone with bioceramic nanoparticles. The bioceramic particles found in TotalFill<sup>®</sup> BC Sealer<sup>™</sup> bond with the bioceramic particles in TotalFill<sup>®</sup> BC Points<sup>™</sup> to form a true gap-free seal. A recent study showed that TotalFill<sup>®</sup> BC Sealer<sup>™</sup>, 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!

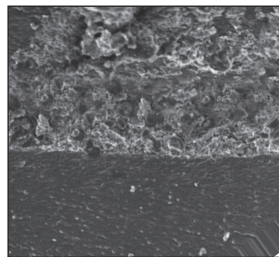


Source:  
Ghoneim AG, Lutfy RA, Sabet NE, Fayyad DM.  
Resistance to fracture of roots obturated with novel canal-filling systems. *JOE*. 2011; 37 (11): 1590-2

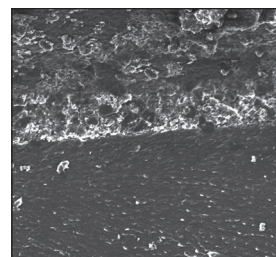
It is universally accepted that microbes require food and space to survive and multiply. Therefore the primary goal of obturation should be to completely fill and seal the entire canal thereby eliminating any gaps (this includes the gap between the sealer and the filling material). The below SEMs visually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



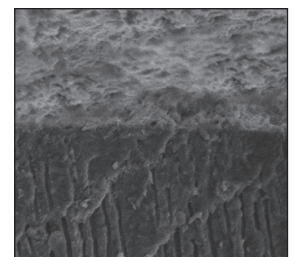
x35 Magnification



x200 Magnification



x350 Magnification



x1000 Magnification

SEMs courtesy of Martin Trope DMD, Clinical Professor, Department of Endodontics, School of Dental Medicine, University of Pennsylvania.

“In all my years of viewing high magnification SEMs, I have never seen a sealer form such a consistently intimate bond with dentin.”

- Dr. Martin Trope  
Clinical Professor, University of Pennsylvania

#### TotalFill<sup>®</sup> BC Obturation Kit<sup>™</sup>\*:

Order: 08.650.04.S01.XX (.04)

Order: 08.650.06.S01.XX (.06)

#### TotalFill<sup>®</sup> BC Sealer<sup>™</sup> Syringe:

Order: 08.650.00.001.XX



\*BC Points<sup>™</sup> are available in individual sizes and in assortment wheels. BC Pellets<sup>™</sup> are also available for warm vertical obturation. Standard gutta percha can be used, but for a true, gap-free seal, BC Points<sup>™</sup> are recommended.

# TOTAL FILL<sup>®</sup>

## ROOT REPAIR MATERIAL<sup>™</sup>

### TIRED OF HASSLING WITH CONVENTIONAL ROOT REPAIR MATERIALS?

Premixed with Superior Handling and Healing Properties,  
TotalFill<sup>®</sup> Root Repair Material is Ideal for All Your Root Repair Needs.

TotalFill<sup>®</sup> Root Repair Material (RRM<sup>™</sup>) is available in two specifically formulated consistencies (syringable paste or condensable putty) and contains many of the same characteristics as TotalFill<sup>®</sup> BC Sealer<sup>™</sup>. The favorable handling properties, increased strength and shortened set time make TotalFill<sup>®</sup> RRM<sup>™</sup> highly resistant to washout and ideal for all root repair and pulp capping procedures. Research and countless cases confirm that TotalFill<sup>®</sup> RRM<sup>™</sup> is highly biocompatible and osteogenic. Join the thousands of others that have set aside their spatulas and joined the TotalFill<sup>®</sup> RRM<sup>™</sup> revolution!

#### SUPERIOR HANDLING

- Premixed-syringable paste or putty consistency
- Shortened Set Time ~2 hours vs 4+ hours with others
- Highly Resistant to Washout

#### EXCELLENT HEALING

- Highly Biocompatible
- Osteogenic
- Anti-bacterial (+12 pH)

#### TotalFill<sup>®</sup> BC RRM<sup>™</sup> Syringe

Order: 08.650.00.003.XX  
1 x 1g Preloaded Syringe  
7 x Intra Canal Tips  
MSDS  
Instructions for Use



#### TotalFill<sup>®</sup> BC RRM<sup>™</sup> Putty

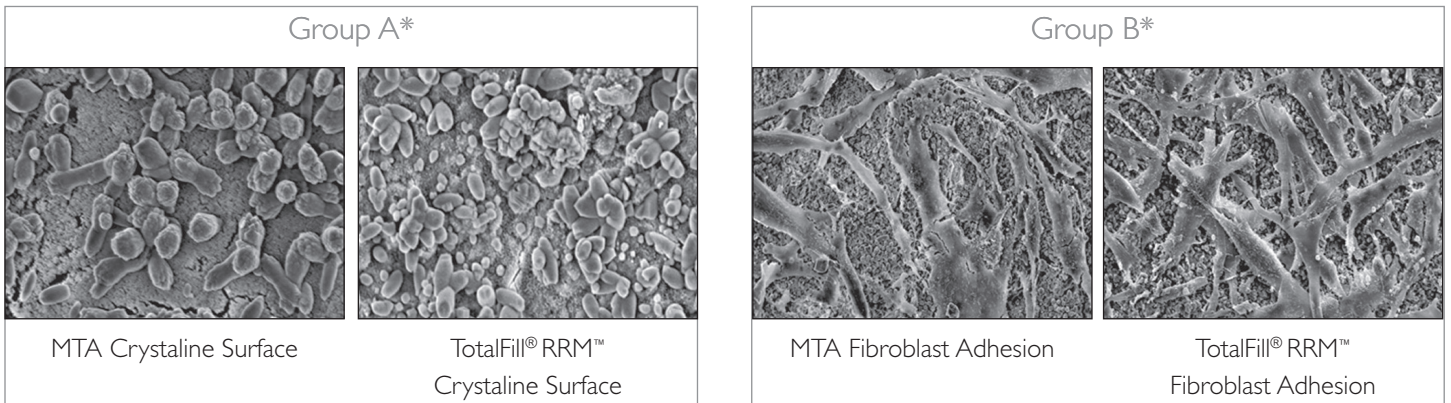
Order: 08.650.00.004.XX  
2.5g Jar  
MSDS  
Instructions for Use



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 TotalFill® 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 TotalFill® RRM™ (after 7 days of incubation). Notice the extensive matrix-like overlay on the surface of the RRM™. These SEMs visually confirm that TotalFill® RRM™ is highly bioactive and efficiently promotes biomineralization.

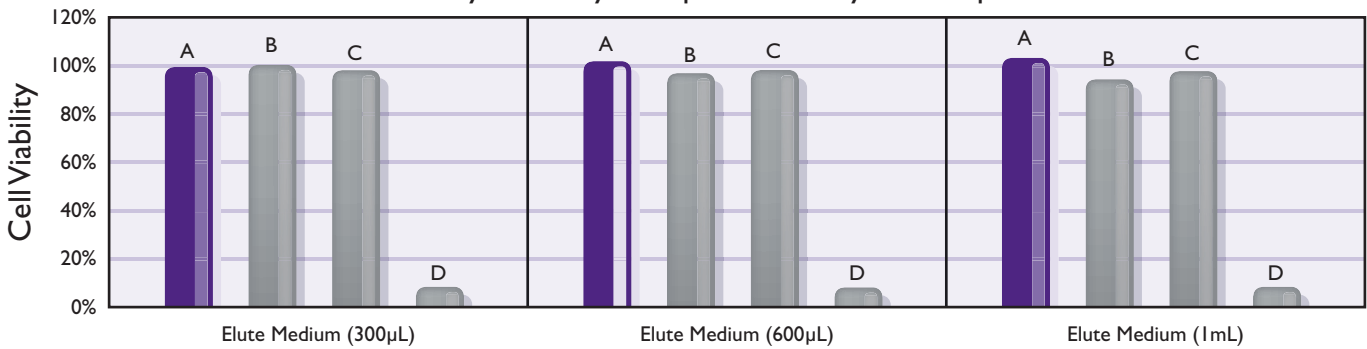


Source: Jingzhi M, Shen Y, Stojicic S, Haapasalo M. Biocompatibility of Two Novel Root Repair Materials. JOE. 2011; 37(6): 793-8

## EXCELLENT BIOCOMPATIBILITY

The following graph illustrates the biocompatibility of TotalFill® RRM as compared to other commonly used root repair materials.

### Cytotoxicity Comparison 3-Day Set Samples

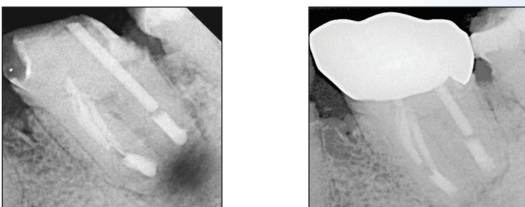


Source: AlAnezi AZ, Jiang J, Safavi KE, Spangberg LSW, Zhu Q. Cytotoxicity evaluation of EndoSequence Root Repair Material. Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology, and Endodontology. 2010; 109(3): 122-5. DOI:10.1016/j.tripleo.2009.11.028

A = TotalFill® Root Repair Material  
 B = Gray MTA  
 C = White MTA  
 D = AH26®

## CLINICAL RADIOGRAPHS

Courtesy: Dr. Ali Nasseh



“ TotalFill® BC RRM™ root repair material RRM has superior sealability, low cytotoxicity and immediate antimicrobial effect. Clinically TotalFill® BC RRM™ is easy to use and its application on perforations, open apices and retrograde filling does not require any type of carrier. The material is ready to use and no unnecessary waste is left compared to the traditional material used with the same purposes.”

- Dr. Gilberto Debelian  
 Adjunct Faculty Grad Endo UNC, UPenn and University of Oslo

AH Plus®, AH26™, ProRoot® MTA, MTA-Fillapex™, Apexit Plus™, EndoREZ™, Epiphany™, Resilon™, Sealaplex™, and Tubli-Seal™ are trademarks of their respective owners and are not trademarks of Peter Brasseler Holdings, LLC, or its affiliates. TotalFill®, BC Sealer™, BC Points™, BC Obturation System™ and RRM™ are trademarks of Peter Brasseler Holdings, LLC, or its affiliates

©2013 Brasseler USA Dental, LLC, One Brasseler Blvd Savannah, GA 31419 USA. All rights reserved.



B-3991-BUSA-08.13