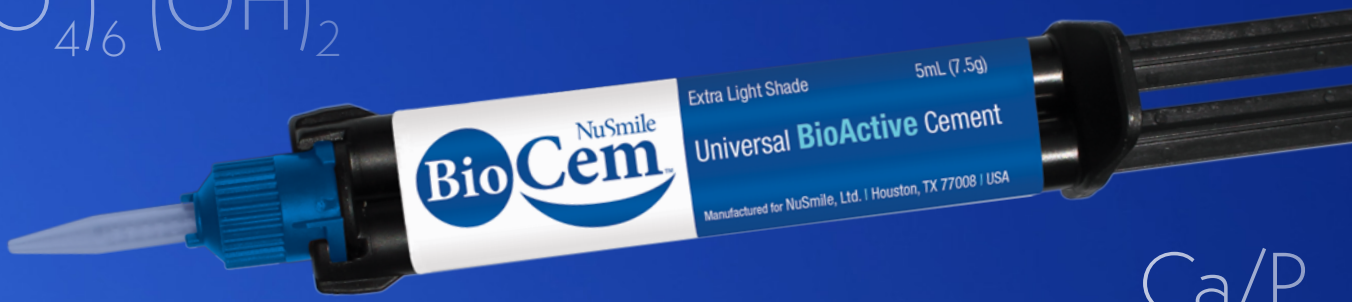
PO_4^{-3}

THE PERFECT CEMENT

FOR ANY ZIRCONIA PEDIATRIC CROWN. PERIOD.

$Ca_{10}(PO_4)_6(OH)_2$



Ca/P

NuSmile BioCem®

Tested. Trusted. **True.**

The first Dental Cement that is

CemBiotic®

CemBiotic (sim-bah-yoh-tik)- adjective: (1) contributes to the formation of mineral apatite (hydroxyapatite) and (2) releases phosphate, calcium and fluoride ions, and (3) is similar in structural composition to dentin, and (4) contains no HEMA, Bis-phenol A, Bis-GMA or BPA derivatives.

Enhance your restorations using an advanced cement

Glass ionomer (GI) cements are well-known for their high fluoride release and are commonly used for cementing snap-fit stainless steel crowns, but, their high water sorption and solubility can lead to cement washout for preformed crowns that are designed for a passive-fit. Washout increases the risk of microleakage, making the restoration more susceptible to secondary decay and weakening the bond between the cement, tooth and crown.

NuSmile BioCem® is the first resin modified glass ionomer (RMGI) cement of its kind designed specifically for the needs of pediatric dentistry.

Tested.

BioActive Properties

Contributes to the formation of hydroxyapatite to form a strong seal at the tooth-cement interface

Superior bond strength due to Biocem's high phosphate content

Natural pH with beneficial ion release

Trusted.

Unique Hydrophilic Composition

Strong resilient bond due to BioCem's low water sorption

Minimal microleakage for a permanent seal due to BioCem's low water solubility

True.

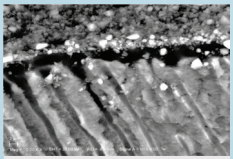
Exceptional Handling

Perfect for filling and positioning preformed esthetic crowns due to low film thickness coupled with high viscosity

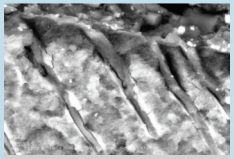
Versatile dual cure including flash cure and self-set technology

BioActive Properties

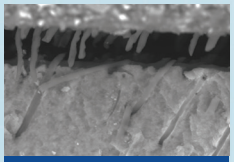
CONTRIBUTES TO THE FORMATION OF HYDROXYAPATITE - Forms a strong seal at the tooth-cement interface within 24 hours. This may help to replenish tooth structure.



RelyX
NO TAG FORMATION



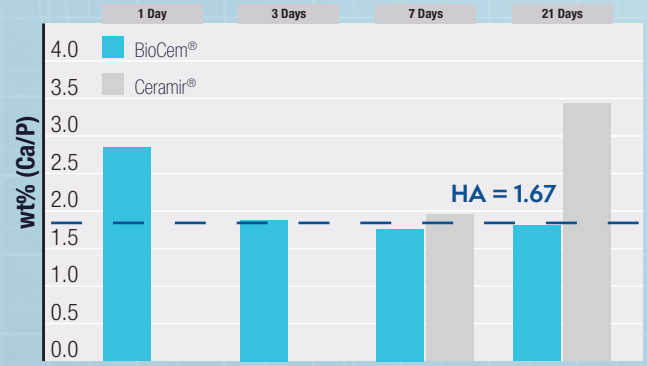
Ceramir
TAG FORMATION
FOUND AT 7 DAYS



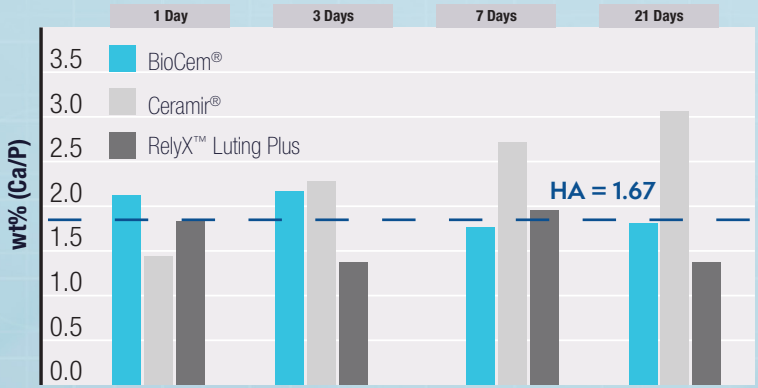
BioCem
TAG FORMATION
WITHIN 24 HOURS

Testing shows that BioCem forms "tags" between cement and dentin that have a chemical analysis and Ca/P ratio consistent with hydroxyapatite.

"Tag" Analysis



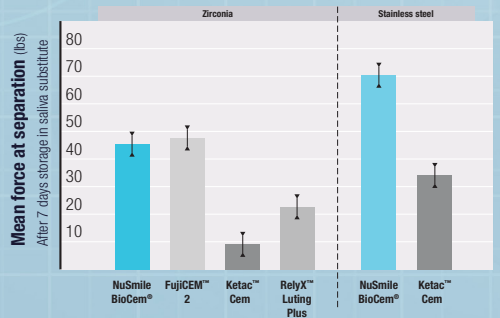
Cement Analysis



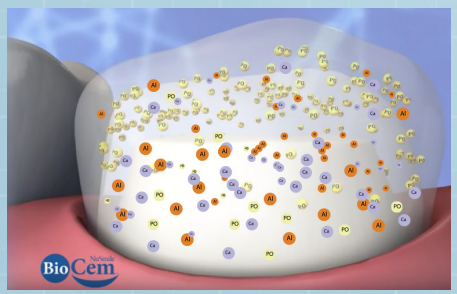
Source: JA Fernandez, BR Morrow, J Lou, F Garcia-Godoy. Chemical Analysis and Dentin Integration of Bioactive Cements. College of Dentistry, UTHSC, Memphis, TN, 2016

SUPERIOR BOND STRENGTH - BioCem's high phosphate formula locks onto the crown.

BioCem's calcium and alumina ions react and chemically bond to the tooth. The resin components provide **shock absorbing** and **stress relieving** performance you can depend on.



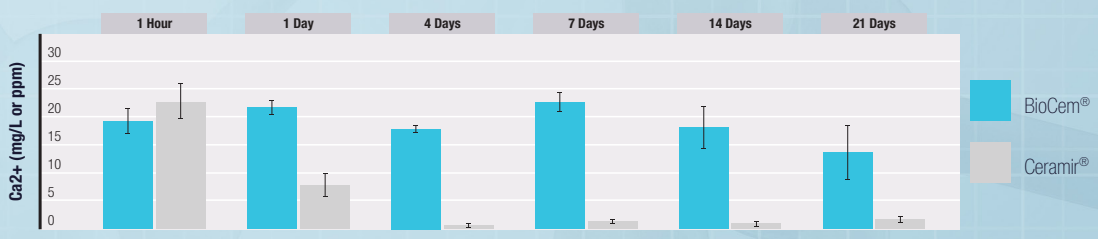
Source: Shelter and Webb, Medical University of South Carolina, 2014

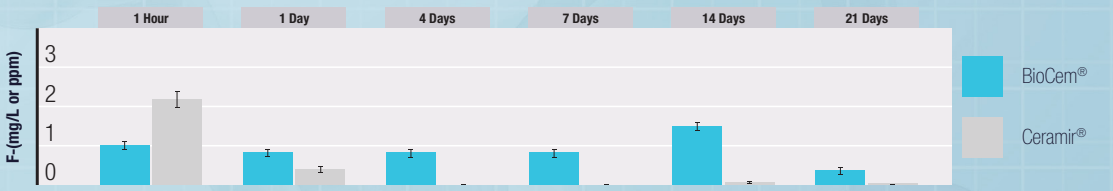


Phosphate compounds lock onto the crown while calcium and alumina ions chemically bond to the tooth.

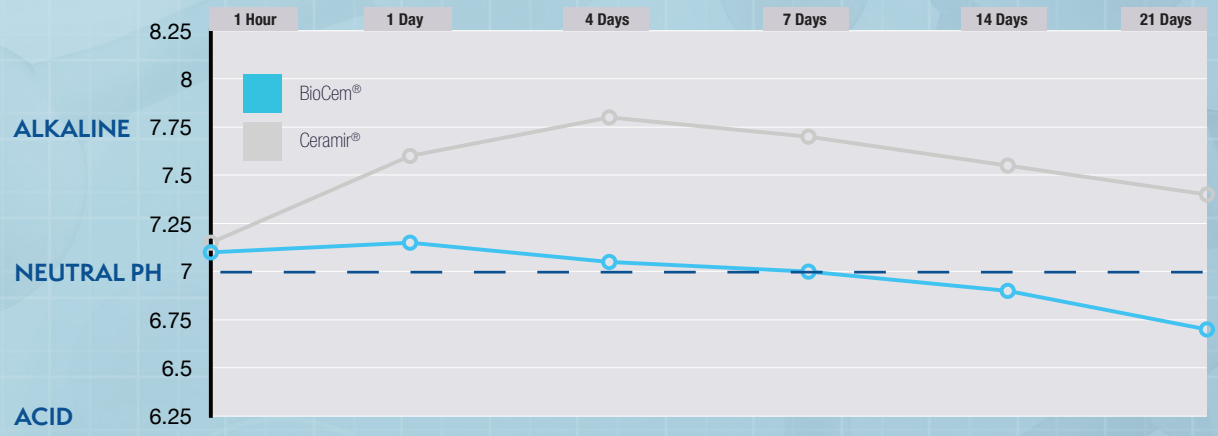
BioActive Properties

NATURAL pH - Maintained by release of beneficial ions. BioCem's structural composition, paired with a **higher level** of sustained **calcium** and **fluoride release** (compared to other cements), makes BioCem compatible with the oral environment.





BioCem maintains a **naturally balanced pH** in the oral environment and does **NOT** contain: **HEMA**, **Bisphenol A**, **Bis-GMA** or **BPA derivatives**.

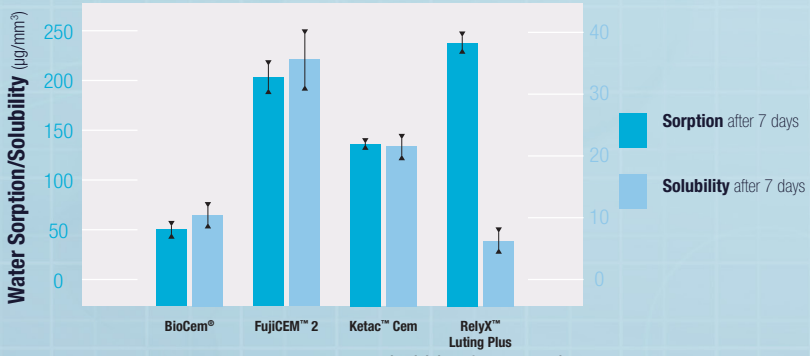


Source: J Brown, BR Morrow, CW Stewart, F Garcia Godoy. Evaluation of pH, Fluoride, and Calcium Release for Cement Materials. UTHSC, Memphis, TN (abstract), 2017

Unique Hydrophilic Composition

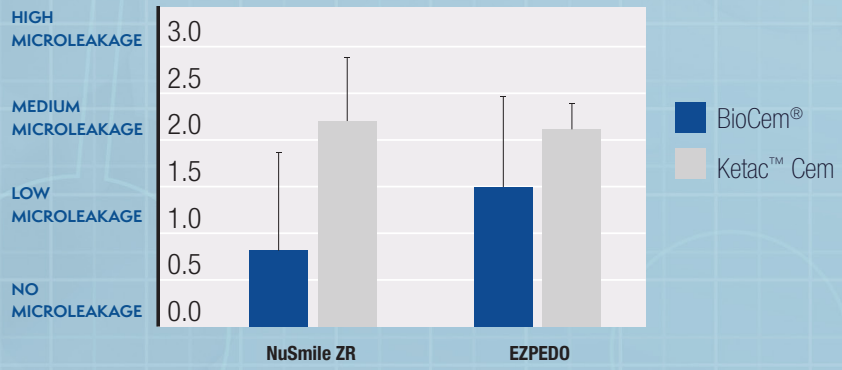
STRONG RESILIENT BOND - **Due to low water sorption and low water solubility** with high dimensional stability (minimal shrinkage or swelling). BioCem does not washout **with any brand of preformed esthetic crown.**

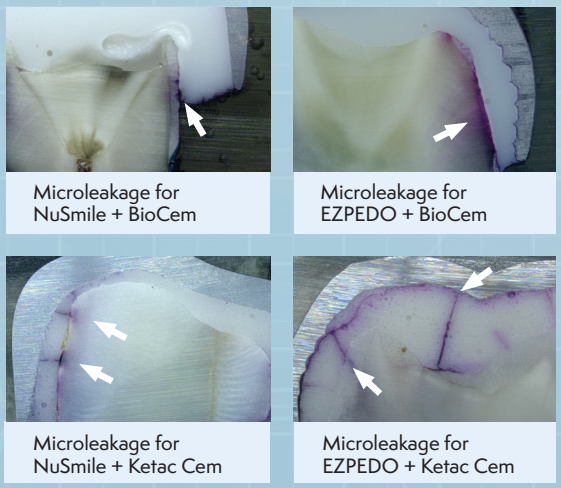
BioCem exhibits very **low water sorption** compared to other popular RMGI and glass ionomer cements, giving it the ability to **stay put** and **maintain retention** of the crown throughout the life of the restoration.



Source: M Cowen, JM. Powers. Water Sorption and Solubility of RMGI Dental Cements. THE DENTAL ADVISOR Number 96 – October 24, 2016

MINIMAL MICROLEAKAGE FOR A PERMANENT SEAL - **BioCem's solubility is less than half that of other cements meaning** less opportunity for secondary decay and failure. According to an in-vitro study (P. Stepp et al): "*Microleakage occurs in prefabricated zirconia crowns due to limited seal and inadequate fit of the crown. Loss of cement can lead to early loss of full coverage restorations.*"





Microleakage for NuSmile + BioCem

Microleakage for EZPEDO + BioCem

Microleakage for NuSmile + Ketac Cem

Microleakage for EZPEDO + Ketac Cem

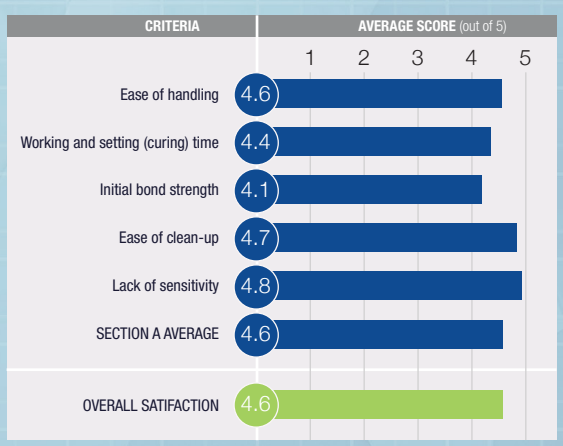
Source: P Stepp, BR Morrow, M Wells, D Tipton, F Garcia-Godoy. Microleakage of Cements in Prefabricated Zirconia Crowns. Pediatric Dentistry 2018-Vol 40/2

This study concluded that: **"The best seal occurred with BioCem and NuSmile zirconia crowns."**

Exceptional Handling

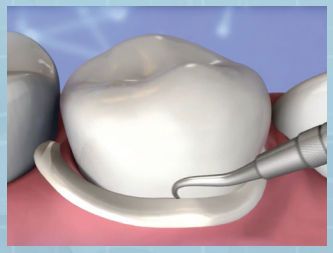
PERFECT FOR FILLING AND POSITIONING PREFORMED ESTHETIC CROWNS - BioCem's low film thickness allows the crown to fully seat. BioCem's high viscosity is **perfect straight out of the syringe** to hold preformed crowns in the right position.

Cement	Film Thickness (microns)
BioCem®	**11**
FujiCEM™ 2	11 ± 3
Ketac™Cem	16 ± 1
RelyX™ Luting Plus	17 ± 3

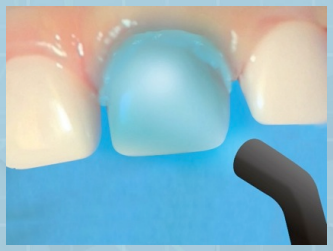


Evaluated in DENTAL PRODUCT SHOPPER "Best Product". Ceramir® received a 4.3 rating in a similar review by the same organization.

VERSATILE DUAL CURE - Fast cure and self-set technology. A quick, easy, reliable cure and setting time for every type of preformed esthetic crown.



After placement, flash cure to a rubbery consistency to easily remove excess cement from the margins.



Finalize set with a standard curing light for zirconia crowns.

OR

Allow cement to continue to self-set for SSC or pre-veneered crowns.

Ca^{2+}

The **PERFECT CEMENT** for any zirconia pediatric crown.

NuSmile BioCem®

HA

nusmile.com

F^-

MKT20008