

## BISCO DENTAL PRODUCTS

# Strength & Simplicity Cemented in Chemistry

Displaying its commitment to solving clinical challenges, BISCO continues to expand its THERA family of restorative solutions

**T**eeth are strong. Not only can they remain intact after facing extremely high temperatures, but their internal structures are designed by nature to withstand and evenly distribute the daily force of biting and chewing. When a tooth becomes structurally damaged, traditional dentistry has called for a "drill and fill" approach. But is drilling apart a tooth and filling it with a material that's weaker than tooth structure really the best solution in every case?

We have happily embarked on a new era of dental materials that are more compatible with the tooth. Restorative solutions like cements and liners that release calcium and fluoride ions in an effort to repair the tooth—instead of tear it down—are steadily replacing the old age of drill and fill.

In 2011, BISCO changed the game with the introduction of TheraCal LC, a resin-modified, calcium silicate pulp protectant and liner. The groundbreaking material uses a unique hydrophilic resin that allows calcium ions to be exchanged between the material and

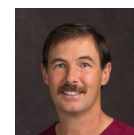


dentin structure—encouraging hydroxyapatite formation and a secondary dentin bridge.<sup>1,2</sup>

### A Next-Generation Cement

Six years later, the THERA family welcomed TheraCem into the fold, a self-adhesive resin cement that not only bonds to dentin and various substrates—including zirconia, metal, and composite—without etching or priming, but also releases calcium and fluoride into tooth structure.

"TheraCem gives me comfort of knowing that I am placing a product that will help the tooth—and my dentistry—over time," said Dr. Robert Beatty, who has been impressed with the cement from the very first time he used it. In particular, he



Robert Beatty, DDS

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enjoys TheraCem's paste-paste mixing and consistency, the natural white shade that's not opaque or too white, and easy cleanup.

One of the hallmarks of TheraCem—and BISCO restorative solutions as a whole—is a simplified technique for placing indirect restorations. The cement achieves a high degree of conversion, which improves its physical properties to provide added strength without the need for refrigeration when it is not being used.

"The cementation process is not more complicated than other easy-to-use cements, yet I feel TheraCem provides more value and predictability," Dr. Beatty said.

TheraCem's self-adhesive properties, which allow it to bond to tooth structure and zirconia without etching or priming, come from use of the MDP monomer.

According to Dr. Liang Chen, BISCO's

Director of R&D and Chief Scientist, many dental adhesives contain the MDP monomer, which is currently the best adhesive monomer in dentistry. "It forms a chemical bond with tooth structure and also forms a chemical bond with zirconia and metal," he said. "It greatly simplifies the cementation procedure."

### Chemistry You Can Trust

TheraCal PT, a dual-cured, resin-modified calcium silicate that releases calcium to tooth structure during pulpotomy treatment, is the THERA family's most recent addition. As BISCO continues to expand this growing family, along with its vast portfolio of restorative solutions, clinicians can continue to trust the thoughtful chemistry behind each and every solution.

### References

1. ADA definitions for direct and indirect pulp capping at: [www.ada.org/en/publications/cdt/glossary-of-dental-clinical-and-administrative-ter](http://www.ada.org/en/publications/cdt/glossary-of-dental-clinical-and-administrative-ter)
2. Apatite-forming Ability of TheraCal Pulp-Capping Material, M.G. GANDOLFI, F. SIBONI, P. TADDEI, E. MODENA, and C. PRATI J Dent Res 90 (Spec Iss A):abstract number 2520, 2011 ([www.dentalresearch.org](http://www.dentalresearch.org))
3. Gleave CM, Chen L, Suh BI. Calcium & fluoride recharge of resin cements. Dent Mater. 2016 (32S):e26.
4. New Self-adhesive Resin Cement With Alkaline pH. Chen L, Gleave C, Suh B, J Dent Res 96(A):#286, 2017.

## A GROWING THERA FAMILY



### 2011: TheraCal LC

Light-cured, flowable resin-modified calcium silicate filled liner for direct and indirect pulp capping.



### 2017: TheraCem

Dual-cured, calcium- and fluoride-releasing\* self-adhesive resin cement indicated for luting crowns, bridges, inlays, onlays, and prefabricated metal, nonmetal, and fiber posts.



### 2019: TheraCal PT

Designed for pulpotomy treatment, the dual-cured, resin-modified material is formulated with synthetic Portland Cement calcium silicate particles.



Dr. Liang Chen, Director of R&D and Chief Scientist at BISCO, recently discussed what clinicians can expect from the evolving THERA family.

**Q: Why should clinicians use calcium-releasing materials?**

**A:** Calcium is the main constituent of teeth. Calcium release from materials like TheraCal LC may stimulate hydroxyapatite and secondary dentin bridge formation.<sup>2</sup>

**Q: What sets TheraCem apart from other calcium-releasing cements?**

**A:** The calcium source from TheraCem is calcium silicate, which not only releases calcium,<sup>3</sup> but also provides an alkaline pH.<sup>4</sup>

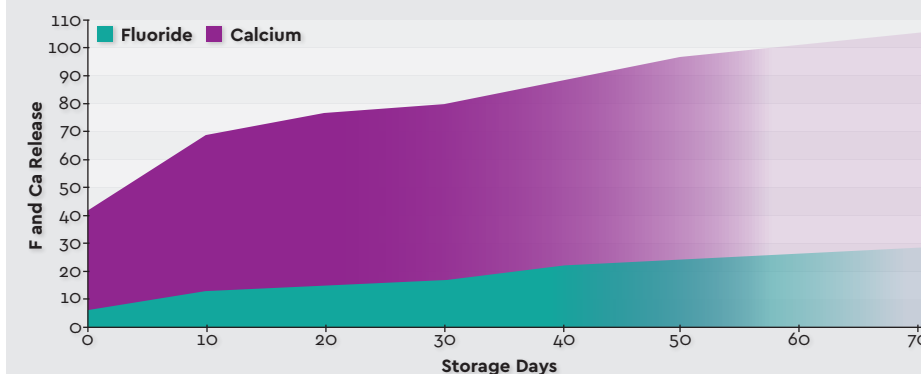
**Q: Can we expect the THERA family to continue expanding?**

**A:** BISCO's THERA products like TheraCem, TheraCal LC, and TheraCal PT provide better and faster solutions to clinical problems. Many clinical challenges and problems still exist that need to be addressed and solved. So yes, we are working hard to develop more great products to address and solve them.



Liang Chen, PhD

## THERACEM CONTINUOUS CALCIUM AND FLUORIDE RELEASE



\*Data on file. BISCO, Inc.