

Dental **PRODUCT
SHOPPER**

JOIN THE FAMILY

*BISCO's TheraFamily of materials are safe, durable, predictable and easy to use,
making them must-adds to your practice*



BISCO's TheraFamily: The Leaders in Resin-Modified Calcium Silicate

These calcium-releasing materials offer a variety of benefits for your patients and your practice

As a busy clinician, you're always looking for products that save you time and make you a better dentist. Materials that help you overcome common clinical challenges while also allowing you to provide patients with the best experience and outcome possible are invaluable. They truly are practice builders, leading to happy patients who remain loyal.

BISCO's growing TheraFamily line of calcium-releasing materials certainly hits that mark, and includes TheraCem, TheraCal LC, TheraCal PT, and TheraBase. These materials lead the resin-modified calcium silicate (RMCS) market, offering the physical and mechanical properties required to provide exceptional clinical care in a variety of scenarios, and to do so efficiently.

"Patients really benefit from the biologic compatibility of these THERA products," pediatric dentist Dr. Mark Cannon said. "The alkaline nature and calcium release have always been a desirable feature for dental materials."

Overcoming Challenges

TheraFamily materials are strong, stable and easy to deliver, and help dentists solve common problems. One of the biggest? Maintaining pulpal vitality, which is critical for pediatric patients, Dr. Cannon said.

For example, TheraCal PT serves as an alternative to pulpotomy materials such as formocresol, ferric sulfate, and MTA, which all have their drawbacks, said Dr. Carla Cohn. While formocresol is considered a carcinogenic risk, ferric sulfate—if not rinsed properly after application—can cause internal root resorption, resulting in a high long-term failure rate. MTA is an expensive material that could cause staining and requires mixing, making it "cumbersome and difficult to place."



Mark Malterud,
DDS, MAGD

"I've never used a BISCO product that I couldn't recommend to other doctors."

TheraFamily materials are safe, predictable, durable, and easy to use, enabling dentists to efficiently provide patients with top-notch care.

"I've never used a BISCO product that I couldn't recommend to other doctors," Dr. Mark Malterud said. "I know I'm giving my patients the best care and the best materials available to me."



THE HYDROPHILIC MATRIX

Unlike other resin matrixes, BISCO's THERA technology allows for ion exchange as water comes into the matrix, reacts, and releases calcium hydroxide ions. The alkaline pH environment is quickly created, promoting apatite formation.

Meet The Family

TheraCem

What it is: A self-etching, dual-cured, self-adhesive resin cement formulated for luting crowns, bridges, inlays and onlays, as well as prefabricated metal and nonmetal fiber posts and cast posts. When using this fluoride- and calcium-releasing cement, there's no need to etch, prime, or bond prepared surfaces.

The benefits: The easy-to-use cement can be placed quickly, producing a strong bond for indirect restorations. Its high degree of conversion offers increased strength, while its high radiopacity allows for easy identification and differentiation from recurrent decay and other restorative materials on radiographs. Patients also benefit from continuous calcium and fluoride release.¹

How it works: The durable cement contains the adhesion promoting monomer MDP, which enhances the bond strength to zirconia, metal, and tooth structure without an additional adhesive or primer.

What makes it unique: TheraCem is the first BISCO cement to incorporate THERA technology. It's also the only self-adhesive resin cement that contains MDP and releases calcium and fluoride.

The challenges it helps overcome: Unlike other resin cements, TheraCem is easy to handle and can be cemented in a few simple steps, streamlining procedures. Its radiopacity helps show residual cement on implant crowns or abutments for easy cleanup. The self-mixing tip also makes application seamless, providing a consistent mix for immediate delivery.



What clinicians are saying: "TheraCem is my go-to for cementation, especially for any zirconium product. It has outstanding handling properties, and the physical properties are unmatched by any other product. It is initially acidic, creating adhesion to the tooth, and then becomes alkaline with calcium release."

-Dr. Mark Cannon



"[The] film thickness and handling properties provide good coverage with no inhibition of seating the restoration."

- Dr. Marybeth Shaffer

TheraCal LC

What it is: A light-cured RMCS flowable pulpal protectant material for direct and indirect pulp capping. It also can be used as a protective liner under various materials, including composites, amalgam, and cements.

The benefits: The easy-to-use material features excellent handling properties, stays where it's placed, and preserves tooth structure. TheraCal LC's alkaline pH promotes healing.² Its calcium release stimulates hydroxyapatite and secondary dentin bridge formation.³⁻⁵ And because it's virtually insoluble, it won't wash out over time.

How it works: With TheraCal LC, direct pulping can be completed in four steps, and indirect capping in deep preparation and liner preparation in large preparations take three. The delivery system features a thick needle that makes direct placement into preparations easy.

What makes it unique: The first in the new RMCS class, its formulation allows for command set with light curing, and



THE SANDWICH TECHNIQUE

This technique helps to further streamline the restorative process and improve clinical outcomes. How? TheraCal LC is first used for pulp capping and as a liner when treating exposed pulp. Then, TheraBase can be placed for maximum pulp protection and calcium release.

its thixotropic properties make it easy to place. The material also works as a stable, durable liner that acts as a protective seal. You can use it as an alternative to calcium hydroxide, glass ionomer, RMGI, IRM/ZOE, and other restorative materials.

The challenges it helps overcome: The biggest is its ability to generate an alkaline pH, which maintains pulpal vitality, and—by forming a protective barrier that insulates the pulp—it results in virtually no post-op sensitivity.^{2,4,6,7} Unlike other materials used for pulp caps, TheraCal LC provides a good seal around the exposure. And because it can be light cured, the material has a much shorter setting time.



What clinicians are saying: "TheraCal LC has amazing handling, allowing for a pinpoint amount of ion-releasing resin to be placed and then light cured. TheraCal LC has been repeatedly and independently studied to demonstrate an alkaline nature and calcium release equivalent to MTA but with vastly better physical properties."

-Dr. Mark Cannon



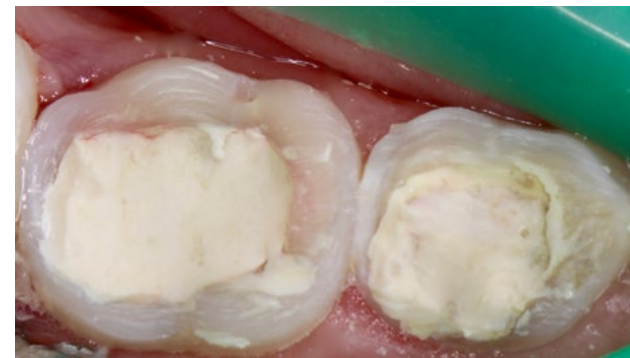
"Patients are seeking us out because we're not doing as many root canals and we're able to save teeth, which fits well into our practice philosophy of minimally invasive dentistry. Patients who are told they need a root canal, post, core, and crown from another dentist come to me. We do an indirect pulp cap and resin bonded restoration instead. Their tooth is happy, they're happy, and we've preserved a significant amount of tooth structure."

-Dr. Mark Malterud

TheraCal PT

What it is: A biocompatible, dual-cured, RMCS for pulpotomies, placed after the coronal pulp is partially or fully removed. It's also indicated for direct pulp capping and as a liner for direct and indirect pulp capping. TheraCal PT maintains tooth vitality, working as a barrier and protecting the dental pulpal complex.

The benefits: The strong, radiopaque material resists breakdown and degradation to provide a durable seal. And the fact it's dispensed from a syringe and doesn't



Primary first and second molar pulpotomies, treated by Dr. Carla Cohn with TheraCal PT.

require hand mixing saves time, which is critical when working on children.

How it works: The material treats exposed dentin and creates a protective barrier around the pulpal complex to help maintain tooth vitality. TheraCal PT is delivered directly into the pulp chamber with no mixing required, has a working time of 45 seconds and a setting time of 5 minutes, and the dual-cured set allows for immediate placement.

What makes it unique: The formulation consists of synthetic Portland cement calcium silicate particles in a hydrophilic matrix. Other calcium hydroxide-based materials have high solubility that leads to dissolution over time.

Because it is placed directly into the pulp chamber, TheraCal PT is ideal for deep cavity preparations.

The challenges it helps overcome: It requires fewer steps than other materials and is easy to place, adapting to the pulpal floor with minimal manipulation. Its command set makes it immediately restorable and compatible with restorative materials and cements.



What clinicians are saying: "It's very good at protecting the pulp, easy to apply, bonded well, and resulted in little, if any, post-op sensitivity."

-Dr. Shohreh Sharif



"TheraCal PT is ideal to use in any pediatric patient, but especially useful in situations in which we must work quickly. The ability to command set with a light cure allows for the practitioner to continue with restoration immediately after placement. Anything that is faster and easier is valuable when working with young patients."

-Dr. Carla Cohn

TheraBase

What it is: A dual-cured, calcium- and fluoride-releasing, self-adhesive base/liner that creates a firm foundation and fully sealed margins under any restoration.

Benefits: With a high flexural and compressive strength, the durable material provides an excellent foundation for restorations. It's also radiopaque, resulting in

quick, effective diagnosis. Like the rest of the TheraFamily, the liner generates an alkaline pH, is dual cure, hydrophilic and provides calcium and fluoride release.

How it works: The material chemically bonds to tooth structure, releasing and recharging calcium and fluoride ions.¹ The calcium release generates an alkaline pH to promote pulp vitality.² It polymerizes even in deep restorations light can't reach. Once dispensed, it can self-cure or be light cured for 20 seconds before the final restoration is finished. It's delivered via a dual-barrel syringe with automix cannula tips that create a consistent mix for easy placement, exceptional handling and minimal waste. There's no mixing required, and it can be placed exactly where you want it to go.

What makes it unique: It's stronger and more durable than other base materials. Its flexural strength gives it high resistance to fracture while its compressive strength helps it withstand shock and stress from occlusal force. The MDP monomer makes it self-adhesive, eliminating the need for bonding agents.

The challenges it helps overcome: TheraCal LC users needed a liner that could be placed thicker than 1 mm. TheraBase, with its dual-curing capabilities, fills that gap, eliminating the need for a glass ionomer or other solution.



What clinicians are saying: "TheraBase is so easy to place! It adheres extremely well to moist dentin and has similar properties to TheraCem. It is the easiest base to place in dentistry. In many practices, it will replace glass ionomer."

-Dr. Mark Cannon



"It was incredibly easy to mix, and it was simple to accurately place the material exactly where I wanted it to go. Besides the fluoride release, the concomitant release of calcium makes me feel more confident that I am doing the best for my patients. I will use it



under any deep or questionable restorations. It definitely fills a void in our armamentarium."

- Dr. Francis Jacobyansky

A Brand You Can Trust

THERA materials are backed by research, Dr. Malterud said, and come from a leader in the new RMCS field.

"To practice modern dentistry, the dentist requires modern dental materials, and there are no more advanced dental materials than what you will find from the acknowledged leader in adhesive technology, BISCO USA," Dr. Cannon said. "Almost every patient will have a THERA product at one time in their lives."

References

- 1) Gleave CM, Chen L, Suh BI. Calcium & fluoride recharge of resin cements. Dent Mater. 2016 (32S):e26.
- 2) Okabe T, Sakamoto M, Takeuchi H, Matsushima K (2006). Effects of pH on mineralization ability of human dental pulp cells. Journal of Endodontics 32, 198-201.
- 3) Gandolfi MG, Siboni F, Prati C. Chemical-physical properties of TheraCal, a novel light-curable MTA-like material for pulp capping. International Endodontic Journal. 2012 Jun;45(6):571-9.
- 4) ADA definitions for direct and indirect pulp capping at: <https://www.ada.org/en/publications/cdt/glossary-of-dental-clinical-and-administrative-ter>
- 5) 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)
- 6) Sangwan P; Sangwan A; Duhan J; Rohilla A. Tertiary dentinogenesis with calcium hydroxide: a review of proposed mechanisms. Int Endod J. 2013; 46(1):3-19
- 7) Selcuk SAVAS, Murat S. BOTSALI, Ebru KUCUKYILMAZ, Tugrul SARI. Evaluation of temperature changes in the pulp chamber during polymerization of light-cured pulp-capping materials by using a VALO LED light curing unit at different curing distances. Dent Mater J. 2014;33(6):764-9.

PRO TIP



Dr. Carla Cohn uses TheraCal PT in her office and has some advice on proper placement: Place the tip of the syringe at the very base of the pulp chamber and slowly fill to the desired level, while leveling the tip of the syringe within the material at the same time. Why? This ensures a voidless pulp chamber filling.

Dr. Cohn uses the material for all primary dentition pulpotomies and finds it especially useful when restoring with a zirconia crown that requires a complete seal for pulpal therapy or composite resin that requires an immediate set material.

She uses TheraCal PT just about every day, and also relies on TheraCal LC as an indirect pulp therapy/capping material.

"Using this material (TheraCal PT) will elevate your practice, increase your efficiency and efficacy, and decrease your chair time," she said.

Additional Resources

Read the *Dental Product Shopper* Product Reviews

See what DPS evaluators are saying about each member of TheraFamily

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