

Which Cement is Best?

There is much to consider when selecting a cement, including the type of substrate and retentiveness of the prep. BISCO offers two strong options, Duo-Link Universal and TheraCem—the key is being able to determine when to use them.



Choosing a Cement: Self-Adhesive vs Conventional Resin

How do you achieve the best bond? Restoration type, substrate, and more play a role when deciding to use a self-adhesive cement or a conventional resin cement.

Choosing the right cement is critical to the success of your crown and bridge restorations, but with so many options on the market, it can be difficult to determine which type of cement is best to use. There's a lot to consider, and making the wrong choice can lead to failed restorations and unhappy patients.

Dental cements were originally created to fill the gap between direct restorations and the prepared tooth, with most of the retention coming from the prep design, said Dr. Rolando Nuñez, BISCO's Manager of Clinical Marketing. Cements have evolved over the years, with glass ionomer and self-adhesive resin cements that don't require additional bonding offering dentists options that save time and money.

Benefits of Self-Adhesive

Traditional cements cannot bond to tooth structure on their own, which means dentists must perform an often-cumbersome bonding procedure that can lead to postop sensitivity, Dr. Nuñez said. Because self-adhesive cements offer better durability and physical properties than glass ionomers, they have become a popular option for dentists who want to eliminate the need to bond.

WHEN CHOOSING A CEMENT, CONSIDER THIS:

- Retentiveness of the prep
- Restoration type
- Substrate
- Procedure
- Esthetics
- Occlusion

"With self-adhesive cements, manufacturers incorporated a monomer into the formula that will bond to tooth structure, so you don't need any additional adhesive or bonding techniques," Dr. Nuñez said. "Now, you can complete cementation faster. And some of these cements are somewhat moisture tolerant, and some release calcium, phosphate, and fluoride—another benefit for patients."

When Traditional is Best

Self-adhesive resin cements aren't the best option for every procedure. The bond they provide isn't as strong as when a bonding agent is used, and that means they should only be used for retentive preps.

BISCO offers both a traditional cement in Duo-Link Universal and a self-adhesive resin cement in TheraCem. Dr. David Hornbrook has used both in his practice for years with excellent results.

Duo-Link Universal is Dr. Hornbrook's go-to when the prep lacks retention and he needs the best bond possible. He relies on TheraCem when he's working on a retentive prep for a monolithic zirconia crown or a lithium disilicate crown in the posterior. Both cements are easy to use and clean up, and he likes the extra calcium and fluoride release benefits of TheraCem.

Restoration type, substrate, procedure, and esthetics also play a role in cement selection, making some dentists unsure of which way to go. The team at BISCO often takes calls from doctors looking for guidance. Their advice? Ultimately, it comes down to choosing a material that will give you the bond you need for the restoration in question, eliminating any worries about debonding.

"If you choose wisely, the restoration is going to stay in place," Dr. Nuñez said, "which is ultimately the goal."

Two Top Choices for Efficient, Long-Lasting Indirect Restorations

A look at the benefits of TheraCem and Duo-Link Universal, and guidance on how to determine when to use each cement.

One of the biggest challenges dentists face with cementation is material selection. There are many options, varying indications, and a lot of pressure to get it right—the success of the restoration depends on it. That's why it's so important for clinicians to understand the difference between the two most popular cement types for crown and bridge restorations—traditional resin cements and self-adhesive resin cements—and when to use them.

"These cements are extremely different, and deciding which to use is primarily based on prep design," Dr. Nuñez said. "Do you need more bonding or less bonding? Occlusion, the type of restoration, and substrate also are considerations. The challenge is making the proper clinical assessment."

BISCO offers products in both categories: Duo-Link Universal, the traditional option, and TheraCem, a self-adhesive resin cement. Both are high-quality products that create long-lasting bonds when used correctly.

So, how does Dr. Hornbrook determine which to use? The primary consideration is the retentiveness of the prep.



"If a conservative prep doesn't have a lot of retention, I would choose to use Duo-Link Universal."

—David Hornbrook, DDS, FAACD, FACE, FASDA

"If a conservative prep doesn't have a lot of retention, I would choose to use Duo-Link Universal," he said. "With a traditional crown prep, where I maybe took off an existing crown and have 4 to 5 mm of vertical prep, I use TheraCem."

A Closer Look at TheraCem

If you're working on a prep with a crown height of at least 3 mm and a taper between 8 and 10 degrees, as in the majority of clinical cases, you can rely on a self-adhesive resin cement like TheraCem to bond to the dentin, Dr. Nuñez said. No additional bonding agent is required, making the procedure more efficient.

THE BISCO BOND: WHY DOCTORS STICK TO THESE ADHESIVES

Dr. Hornbrook, an internationally renowned lecturer and mentor who is both a practicing clinician and the director of education and technology at Utah Valley Dental Lab, has trusted BISCO products for years, and describes them as among the best in the industry.

"They're the Mount Everest when it comes to adhesion and adhesive technology," he said. "I'm a huge fan of All-Bond Universal and All-Bond 3. The chemists and R&D at BISCO are second to none. They've taken their traditional adhesive experience and R&D and put it into cements like TheraCem and Duo-Link Universal."



"I've had minimal debonding using TheraCem with retentive preps," Dr. Hornbrook said. "The calcium and fluoride release is a nice benefit for patients, so we use it when we can, but it doesn't provide as strong of a bond as Duo-Link Universal."

The time savings make TheraCem Dr. Hornbrook's No. 1 choice for retentive preps. With TheraCem, he noted, he doesn't have to worry about maintaining isolation in the posterior, which can be a challenge when working on second molars, because there's no need to apply a dentin bonding agent as part of the procedure.

"I can more efficiently cement the crown, especially on molars," he said. "There are a lot of self-adhesive resin cements on the market, but I find TheraCem is superior. It's the easiest to clean, and even more importantly, it releases calcium and fluoride."

Another benefit? The cement transitions from an acidic pH, needed

DUO-LINK UNIVERSAL FEATURES:

- Compatible with all dental materials
- Formulated for cementation of most indirect restorations
- Allows for quick and easy removal of excess cement
- Features a high degree of conversion in both light- and self-cured modes
- Ensures a strong, long lasting restoration
- Easily identifiable on radiographs
- Ideal for all CAD/CAM restorations
- Low film thickness ensures complete seating of the restoration
- Available in two esthetic shades, Universal and Milky White



for initial etching and bonding, to an alkaline pH due to TheraCem's continuous calcium release.*

TheraCem is also ideal for zirconia crowns, Dr. Hornbrook said. The MDP monomer incorporated into the formula allows it to bond to the zirconia substrate, which can be challenging.

"TheraCem has many features and benefits that can sway a clinician to use it," Dr. Nuñez said. "It's not just the convenience of being able to skip the bonding step; it's all these other cool features, too."

A Closer Look at Duo-Link Universal

TheraCem, while convenient, isn't the best option for every clinical situation. There are times when the prep doesn't have much clearance, requiring more aggression when creating space for the restoration. In cases where the prep is nonretentive, you must bond to tooth structure, Dr. Nuñez said. A self-adhesive resin cement isn't strong enough to do that, making it essential to combine a traditional resin cement like Duo-Link Universal with a bonding agent like All-Bond Universal.

"With traditional resin cements, it's mandatory to perform a bonding procedure on the tooth," Dr. Nuñez said. "You have to use some kind of adhesive because these cements don't have the ability to bond to the tooth structure on their own."

This can be a bit cumbersome, as bonding is technique sensitive, requires isolation to keep saliva out of the prep, and can lead to postop sensitivity for patients—all reasons dentists prefer to rely on self-adhesive resin cements. But doing so for nonretentive cases creates a likelihood of debonding. Using a bonding agent like All-Bond Universal in conjunction with traditional cements will create a very strong bond to the tooth structure and is the best way to ensure patients won't have to deal with debonding, Dr. Nuñez said.

"These materials have great physical properties," he said. "For the most part, they have very little water absorption and good film thickness. With Duo-Link Universal, you're talking about a product that was designed to do this in the most efficient way. The only issue is you need to prep the tooth for bonding,

but you'll achieve an optimized bond strength and great clinical performance when you do."

Dr. Hornbrook believes Duo-Link Universal is the best dual-cure resin cement on the market. He likes the fact it's easy to clean up, which is a major problem with most resin cements, and he appreciates its high polymerization in complete darkness.

"If a restoration is opaque or thick or if you're down into a canal placing a post, you need a dual-cure resin cement that has high polymerization," he said. "I also use Duo-Link Universal if I have an inlay or only where the margins are visible. When it polymerizes it's clear, so it doesn't show the margins."

Either Way, Technique is Key

TheraCem, with its MDP monomer, can bond to the tooth structure without a bonding agent. It can also bond to zirconia without the need for an additional primer. Once the prep is cleaned with ZirClean—designed for the extraoral, non-abrasive cleaning of the bonding surfaces of zirconia, ceramic, and metal restorations—and primed with a silane solution like Bis-Silane or Porcelain Primer after try-in of etchable ceramic restorations, the cement can be dispensed into the intaglio and the restoration delivered.

The procedure for Duo-Link Universal

is similar, but does require a few extra steps for bonding. Any etching technique can be used once the area is decontaminated and primed, but Dr. Nuñez recommends using a universal bonding agent like All-Bond Universal in self-etch mode. You should place the bonding agent after the enamel is etched with phosphoric acid, following manufacturer instructions. Once the bonding technique is complete, place the cement in the intaglio and deliver the restoration.

Keep in mind, universal adhesives are not acidic enough to effectively etch-cut or uncut enamel. For these cases, the enamel should be etched using the selective etch technique.

Make the Right Choice

The sheer number of cements available can be overwhelming. They all come with different features and indications, making it difficult to know which is best for the case at hand.

While newer self-adhesive resin cements like TheraCem offer convenience and other patient benefits, it's critical to know which cases require the traditional approach, with cements like Duo-Link Universal used in combination with a bonding agent. When you know the difference, you can confidently create strong bonds and restorations that stand the test of time.

*Data on file. BISCO, Inc.

A PROCEDURAL GUIDE TO BONDING

The Zirconia Technique:

- Try-in the restoration.
- Decontaminate the restoration with ZirClean after try-in to remove saliva phosphates that can lead to debonding. ZirClean also can be used to extraorally clean ceramic and metal restorations.
- Sandblast the intaglio surface of the restoration if the lab hasn't already.
- Treat the internal surface with an MDP containing primer like Z-Prime Plus.
- Apply dental adhesive to the tooth, air dry and light cure according to manufacturer instructions.
- Apply a resin cement.
- Clean up excess cement.

The Metal-Ceramic Technique:

- Sandblast the internal surface, then rinse and dry.
- Apply an MDP monomer-containing primer like Z-Prime Plus.
- Etch the tooth with phosphoric acid, then rinse.
- For a non-retentive prep, apply an adhesive, following manufacturer instructions, air dry, and light cure.
- Apply a dual-cure resin cement.

The Lithium Disilicate Technique:

- Try-in the restoration.
- Etch the internal surface of the restoration with hydrofluoric etchant according to manufacturer's instructions. Rinse with water and dry.
- Treat the internal surface of the restoration with silane primer like Porcelain Primer or Bis-Silane.
- If bonding to enamel, etch the enamel with phosphoric acid etchant. Rinse with water.
- Apply dental adhesive to the tooth. Air dry and light cure, according to manufacturer's instructions.
- Apply a dual-cure resin cement.
- Remove excess cement



THERACEM FEATURES:

- Self-etching, self-adhesive cement
- Fluoride and calcium releasing
- Provides a strong bond to zirconia and most substrates
- 18-month shelf life at room temperature
- Higher radiopacity and can be easily identified on a radiograph
- Easy clean-up and removal of excess cement
- Achieves an alkaline pH after bonding

A PRIMER IN PRIMING

Keep in mind the correct priming procedure depends on the substrate. For glass ceramics such as porcelain or lithium disilicate, first clean the restoration and then etch with hydrofluoric acid. Prime with Bis-Silane or Porcelain Primer to improve bonding.

If your indirect restoration is zirconia-based, metal, or alumina, then an MDP-containing primer like Z-Prime Plus should be used to increase bond strength.



ADDITIONAL RESOURCES

