Dental PRODUCT SHOPPER

Perfect Pairs

Product combinations from BISCO that will streamline your bonding procedures and provide patients with results that stand the test of time.

BISCO

PRODUCT focus

What's the Secret to **Optimized Procedures?**

Pairing materials that work well together avoids the risks that come with mixing and matching

When you use products that are designed to work together, your bonding procedures become more streamlined. You are able to perform treatment with complete confidence the materials will perform as they should, and you never have to worry about what will happen if they don't.

Mixing and matching products from different companies can lead to trouble, from causing headaches during the actual procedure to eventual debonding—resulting in phone calls from unhappy patients. That's why BISCO has spent so much time researching and developing solutions that are designed for plug-and-play dentistry, said Dr. Rolando Nuñez, DDS, MSc, BISCO's Manager of Clinical Marketing. These products come with a built-in assurance that using them as instructed will lead to success, which is what every dentist wants.

"I know there are subtle differences in chemistry from manufacturer to manufacturer, making it important to work within the same family."

—Robert Lowe, DDS, FAGD, FICD, FADI, FACD, FASDA

"I'm not a chemist. I'm a dentist," said Dr. Robert Lowe, who uses various BISCO products in his practice. "I know there are subtle differences in chemistry from manufacturer to manufacturer, making it important to work within the same family. You want to use a cement that is meant to work with a particular bonding agent, for example. The goal is to achieve optimal results, and I know none of us want to risk that because of mixing and matching."

Dr. Johan Figueira said he never combines products from different companies, because he knows doing so yields a higher risk of failure.

He's relied on BISCO bonding materials since 2011 and has no doubt they'll work every time. He and seven other dentists perform bonding procedures in his practice day after day, and they never hear complaints from patients experiencing sensitivity or dealing with restorations popping off.

Using materials that are incompatible has always been a problem in dentistry, which is why the idea of pairing materials that work well together has become so important, said Dr. Mark Cannon, who has researched this area throughout his career. BISCO, he said, offers a family of high-quality materials that were made for each other.

"They're well thought-out, well-researched products that have really sound science behind them," Dr. Lowe said. "Dentists can be well assured they'll do what they say they'll do."

NO GUESSING GAMES

When clinicians pick up a BISCO product, they don't have to worry about whether it will perform as advertised. They know BISCO materials are tested and proven, and that they can be seamlessly incorporated into their protocols. While these materials can be paired with other brands, they are designed to work together.

"Our products provide simplification that allows for less chair time without sacrificing performance," said Dr. Rolando Nuñez. "When products have multiple applications, are easy to use, and don't compromise performance, clinicians are going to want to use those products every day."

PRODUCT focus

These Products Were **Made for Each Other**

Six perfect pairs from BISCO that simply lead to better outcomes—without compromise.

By developing materials that are designed to work together, BISCO is providing clinicians with more balanced options. "We test everything thoroughly. We want to make sure clinicians can plug-and-play these products into their protocol," Dr. Nuñez said. "We provide the best possible solution and feel it's important for clinicians to know they can combine our products to achieve the best performance within that protocol."

So, which BISCO products are perfect pairs? Here's a closer look at the material combinations that are making dentists' jobs easier while also providing patients with durable results.

Strong Zirconia Bonds: *TheraCem & ZirClean*

TheraCem, a calcium- and fluoride-releasing,* self-etching resin cement, contains the MDP monomer that bonds to zirconia—but it only works if the restoration surface isn't contaminated. If a zirconia restoration goes straight from try-in to cementation, the bond will be compromised. Cleaning the surface with ZirClean before the bonding procedure is critical, as it removes the phosphates from the saliva and optimizes the zirconia substrate for bonding. Skipping this simple step will likely lead to failure.

"It's just one bottle so people don't get confused, and when you use self-etch mode there's zero sensitivity."

—Johan Figueira, DDS

Dr. Figueira leverages the TheraCem/ZirClean combination regularly, adding Z-Prime Plus as a primer before placing the cement to further strengthen the bond. A different primer, Bis-Silane, should be used when bonding TheraCem to ceramic restorations. That's an important point for dentists to keep in mind. Different cements are developed for different applications, so you must select the right type for the case at hand and then make sure it's prepared properly for cementation.

"When I came out of dental school, we only had one cement. Now we have many different substrates and cements, and it's important for dentists to understand what goes with what so we can have the best clinical result," Dr. Lowe said. "We classify our different materials and substrates based on the makeup of the restorative material, and the bonding agents and cements we choose must work optimally with the particular material we're using."

BISCO makes that easier by offering products designed specifically for certain substrates and for each stage of bonding. These products work together seamlessly, allowing dentists to finish one step and then move onto the next without any extra effort or thought. Dr. Cannon said the fluoride-releasing TheraCem is well suited for zirconia restorations, and when cleaned with ZirClean—a process that takes about a minute of clinical time—will provide the bond required for long-term success. Both products are versatile and can be used with most other substrates.

> "Bonding occurs because of the chemical reaction, rather than light activation, which is why these products work so well together."
>
> —*Rolando Nuñez, DDS, MSc*

Ease & Versatility:
All-Bond Universal & Select HV Etch w/BAC

All-Bond Universal's hydrophobic formulation and MDP monomers, which can bond to metals and metal oxides, give it the versatility needed for use in any etching mode. Etching the enamel with Select HV Etch w/BAC in combination with All-Bond Universal provides the greatest bond. Using Select HV Etch w/BAC in the selective-etch technique prevents the sensitivity that comes with over-etching and over-drying the dentin after cleaning with etchant gel, as well as the reduced long-term success rate associated with both.

The BISCO team recommends using the selective etch technique with All-Bond Universal, which requires etching the enamel with phosphoric acid but not the dentin. Some etchants are runny, making it difficult to keep the material away from the dentin. Select HV Etch w/BAC, a 35% high-viscosity phosphoric acid etchant, is designed for pinpoint accuracy. Though it can be used with other universal adhesives, it was developed specifically for the selective-etch technique with All-Bond Universal.

"I love All-Bond Universal and Select HV Etch w/BAC for direct composites and indirect ceramics," Dr. Figueira said. "I don't etch dentin at all. I etch the enamel and then place All-Bond Universal. It's easy to use and easy to teach your team. It's just one bottle so people don't get confused, and when you use self-etch mode there's zero sensitivity."

Superior Adhesion:
All-Bond Universal & Duo-Link Universal

All-Bond Universal was developed to be fully compatible with any dual-cure cement on the market. The one-bottle system doesn't require an additional activator, so you don't need to think about its chemistry or what it is or is not compatible with. However, when paired with Duo-Link Universal, a dual-cure luting resin cement, it "yields a very interesting high bond strength to tooth structure, which is what you want to achieve," Dr. Nuñez said.

Duo-Link Universal is Dr. Figueira's go-to cement for thicker crowns, because it can be difficult to completely cure these restorations with just a light. He'll etch the enamel, rinse and dry, place All-Bond Universal, cure, apply Duo-Link Universal, and cure. He knows that, because it is a dual-cure cement, the material has cured properly, and the bond will be durable.

"Duo-Link Universal is one of my favorites," Dr. Cannon said. "Because it is light curable, it can be tack cured for quicker cleanup of any excess cement. It pairs perfectly with All-Bond Universal, providing superior adhesion."

Ready for Prime Time:
Z-Prime Plus & ZirClean

Once a zirconia restoration is tried in, it must be cleaned before being cemented or the bond strength will suffer. ZirClean was designed for that task, quickly cleaning contaminated surfaces. Applying Z-Prime Plus, which contains MDP for bonding to zirconia, to a pristine bonding site will give you "the best bond possible," Dr. Nuñez said.

A metallic primer plays a major role in this protocol, with Z-Prime Plus doing its job to enhance the bond once the surface has been cleaned. Dr. Figueira describes the process as simple and these two products as "the perfect marriage."

"ZirClean and Z-Prime Plus go hand in hand with cementing to zirconia crowns, inlays, onlays, and veneers, because after try-in you need to remove the phosphates from the saliva, which is ZirClean," Dr. Lowe said. "Then, you prime with Z-Prime Plus to enhance the bond of a cement like Thera-Cem to zirconium. They're the perfect pair for cementing zirconium restorations."

The Buildup to Success: *Core-Flo DC/DC Lite & Universal Primer*

Core-Flo DC and Core-Flo DC Lite are core buildup materials that restore lost tooth structure to prepare for indirect restorations, with their only difference being viscosity. When combined with Universal Primer, a two-bottle, dual-cure adhesive, you don't have to light cure the material, Dr. Nuñez said. Curing happens chemically based on the reaction between Core-Flo DC or Core-Flo DC Lite and the adhesive, which in this case is Universal Primer.

"It reacts with Core-Flo DC upon placement," he said. "Bonding occurs because of the chemical reaction, rather than light activation, which is why these products work so well together."

The Core-Flo DC products have become an essential part of Dr. Figueira's practice. He uses the material to block out undercuts if he's removing amalgam or failed restorations, as well as for post-and-core cases. He combines it with Universal Primer and appreciates the fact it can be used with any etching technique.

> "It was important to develop something that would work well with resin-based composites."
>
> —*Mark Cannon, DDS, MS*

Healthy Restorations:
TheraCal LC & TheraBase

TheraCal LC, a light-cured, resin-modified liner that releases calcium,* creates an alkaline pH that promotes healing and pulpal health.[1,2] It should be placed in less than 1 mm of thickness in deep preparations to protect the pulpal complex. Once the liner is placed, clinicians can start to build up their composite or place a base, about 1 to 2 mm thick, such as the dual-cure self-adhesive TheraBase for added protection. TheraBase is also calcium releasing and bonds to the tooth without a bonding agent.

"These two materials generate an interesting environment of calcium release," Dr. Nuñez said.* "When you combine these two, you have the benefit of calcium release, alkaline pH, and the promotion of pulpal health all having an effect on the overall restoration."

Many dentists place resin-modified glass ionomers (RMGI) on top of TheraCal LC, Dr. Cannon said, but that negates the benefit of the calcium release and alkalinity. If you place a liner that is alkaline and calcium releasing on dentin and then apply an RMGI that is acidic and fluoride releasing on top, the calcium from the liner will combine with the fluoride from the RMGI to create a non-biologic end product that has no mineralization capability in the tooth.[3] That is why TheraCal LC is such a critical product.

"It was important to develop something that would work well with resin-based composites," Dr. Cannon said. "TheraCal LC is a calcium-releasing* alkaline product with a hydrophilic resin base that provides the calcium for mineralization[4,5] and the alkalinity necessary for the formation of new hard-tissue bridges."[6] TheraBase releases calcium in an acidic environment. It acts as a dentin replacement on top of TheraCal LC and won't reduce the liner's alkalinity like other products might.

"TheraCal LC is still one of the only cavity protectant liners out there that is indicated for direct and indirect pulpal capping," Dr. Lowe said. "It's used as a cavity liner under indirect and direct restorations when in close proximity to the pulp, and TheraBase is used to build up lost internal dental structure that has been removed. They're another great pair."

Plug-and-Play Protocols

"BISCO's family of bonding products simplifies things and makes procedures very predictable," Dr. Figueira said. "I know that these products work."

References

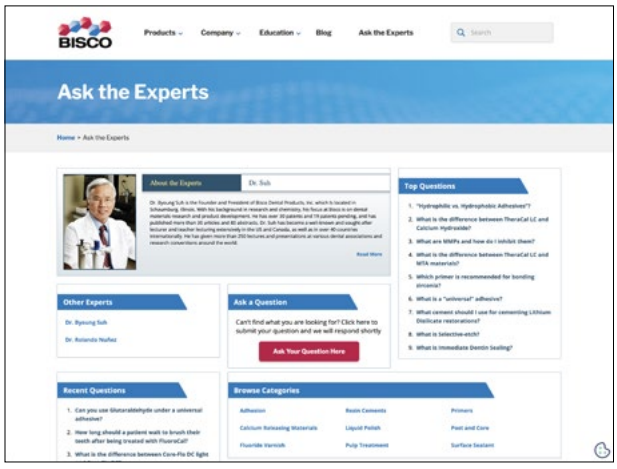
1. ADA definitions for direct and indirect pulp capping: www.ada.org/en/publications/cdt/glossary-of-dental-clinical-and-administrative-ter
2. Okabe T, Sakamoto M, Takeuchi H, Matsushima K (2006) Effects of pH on mineralization ability of human dental pulp cells. Journal of Endodontics 32, 198–201.
3. Chen L, Cho A, Cannon M, Suh BI. Effects of RMGI liners overlaid on resin-modified calcium silicate materials. International Association of Dental Research. J Dent Res. Abstract. 2018.
4. 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)
5. Yamamoto, S., et al. "Evaluation of the Ca ion release, pH and surface apatite formation of a prototype tricalcium silicate cement." International endodontic journal 50 (2017): e73-e82.
6. Cannon, Mark, et al. "Primate pulpal healing after exposure and TheraCal application." Journal of Clinical Pediatric Dentistry 38.4 (2014): 333–337.

*Data on file

ADDITIONAL RESOURCES

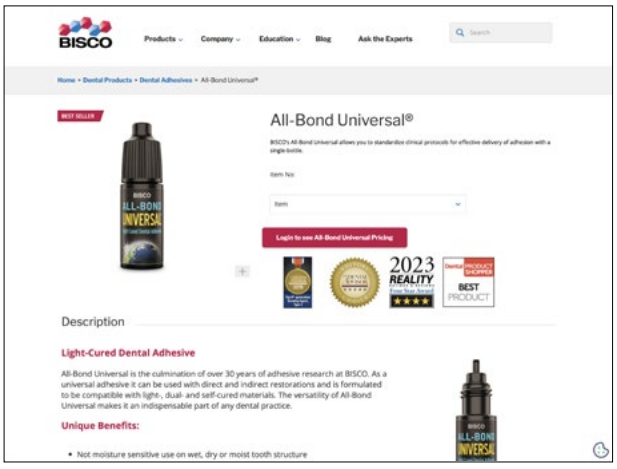
ASK AN EXPERT

Have a question about a BISCO bonding product?
Find the answer here:



READ UP ON BISCO PRODUCTS

Get started with an overview of All-Bond Universal.

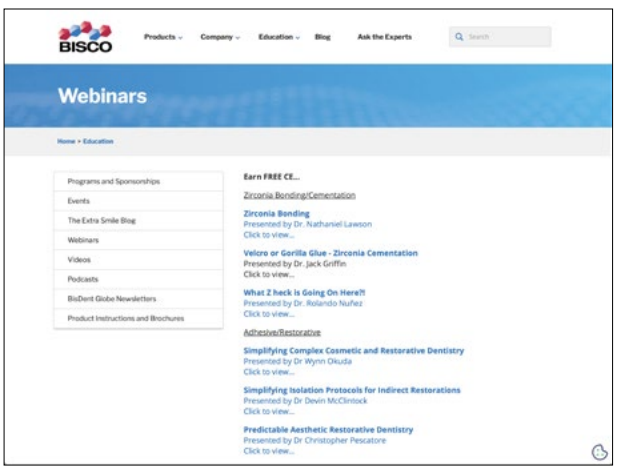


WATCH A VIDEO

Learn about zirconia contamination and how it can impact bonding.

BROWSE THROUGH BISCO'S WEBINARS

Choose from a variety of bonding related topics.



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