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## Calibra Universal

Dentists can now benefit from the swiftness of tack curing without the stress of overcuring. Calibra Universal offers a wide tack cure window of up to 10 seconds and an extended 45-second gel phase, which is said to provide dentists the ability for a more thorough and effective cleanup. The material also is formulated to deliver optimal strength and esthetics (10-second tack cure equals five-second wave cure per surface (buccal, lingual)). For excess cement cleanup, monowave output LED lights with a single peak output around 470 nm are recommended. High power, dual or broad spectrum lights may cause premature hardening of excess cement. Check curing light effect on mixed cement in the laboratory prior to clinical use.

**DENTSPLY Caulk**

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# Taking the stress out of cement cleanup

DENTSPLY Caulk's Calibra Universal features a new initiator system and an extended gel phase to make cement cleanup easier and more efficient. [ by Renee Knight ]

DR. ALAN ATLAS

Dr. Alan Atlas discovered DENTSPLY Caulk's Calibra cement nearly 20 years ago when he first began teaching at the University of Pennsylvania's School of Dental Medicine. Even after all this time, Dr. Atlas and his students still turn to Calibra cement and use it to place thousands of restorations every year.

Dr. Atlas also uses Calibra in his private practice and describes it as his go-to cement. He's watched the brand evolve throughout the years and said he's impressed with the various improvements in both its delivery systems and its physical properties.

Calibra Universal, the newest member of the product line, is no exception. This dual-cured, self-adhesive cement doesn't require a bonding agent, Dr. Atlas said, and features distinctive characteristics that reduce post-op sensitivity, as well as make cleanup more efficient.

"The biggest conundrum for most clinicians is how best to remove the excess cement that appears after seating the crown," Dr. Atlas said. "Isolation, contamination and post-operative sensitivity are issues challenging the dentist and patient, too. Because the cement is self-adhesive, the issue of post-operative sensitivity is significantly reduced if phosphoric acid and adhesive bonding agents are not implemented prior to crown placement."

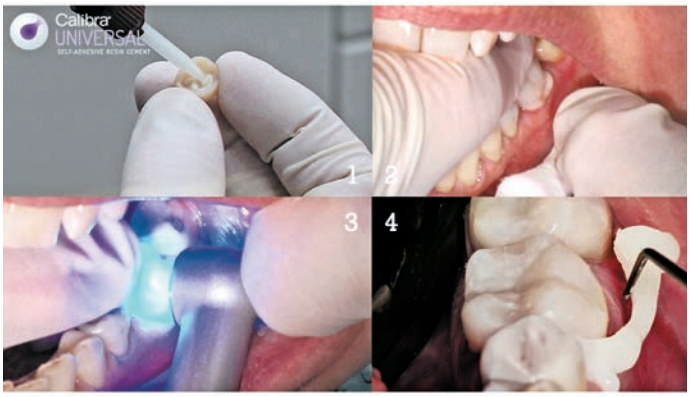
## How Calibra Universal improves cleanup

While there are several self-adhesive universal cements on the market, they all share one frustrating problem: They're difficult to clean up, said Dr. Bern Koltisko, VP, R&D Global Restorative SBU for DENTSPLY Caulk. Koltisko and his team decided it was time to address that problem and set out to develop a self-adhesive cement that's easy to clean up yet still delivers all the properties dentists need and expect. That cement is Calibra Universal, and its new initiator system is what makes easy cleanup possible.

The new initiator system allows dentists to either self cure or light cure the cement, Koltisko said, and offers a wide tack cure window of up to 10 seconds. If dentists light cure the cement to remove excess material, it provides a 45-second extended gel phase, making it far easier and less stressful to remove.

"Resin cement can harden quickly, making it a struggle to remove. But if you don't let it set long enough, you might get displacement of the crown or veneer," Koltisko said. "The cement must have the right setting characteristics for you to achieve the best outcome. Being able to quickly and easily remove excess cement without disturbing the restoration is the No. 1 issue out there for resin cements. We've addressed that with this product."

Not only does this make the dentist's life easier, it makes procedures less stressful for patients, Koltisko said. They don't have to deal with the post-op sensitivity that may result when a restoration isn't placed correctly or the trauma that comes with using a bur or other means to remove excess cement from around the margins after it has hardened.

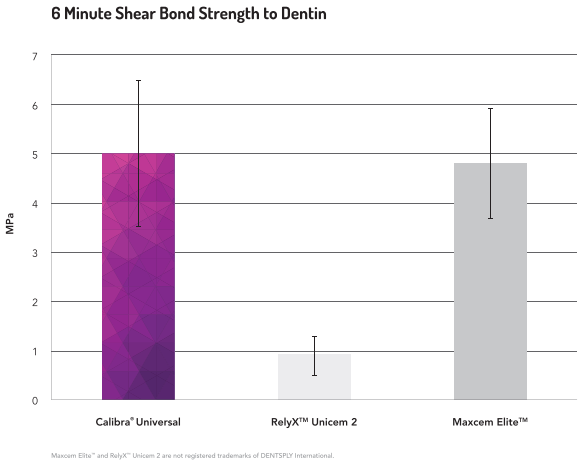



◢**Fig 1.** *Apply Calibra Universal.*

◢**Fig 2.** *Seat restoration.*

◢**Fig 3.** *With its wide tack cure window, briefly light cure for five seconds per surface (buccal, lingual).*

◢**Fig 4.** *With its 45-second extended gel phase, thoroughly clean up marginal excess.*




◢*Calibra Universal offers immediate high bond strength for a strong initial bond right after the six-minute cementation step.*

## The feedback

DENTSPLY Calk released Calibra Universal in May, and, since then, the company has received plenty of positive feedback from clinicians who are happy with the product, Koltisko said.

Clinicians love the fact the material stays in the gel phase lon-

## CALIBRA UNIVERSAL FEATURES

- It can be used for nearly any restorations, including metal crowns, PFMs, all-zirconia and all-ceramic restorations.
- Calibra Universal is self-adhesive so there's no need to prepare enamel or dentin with an etchant or bonding agent.
- It has a tack cure window of up to 10 seconds.
- It features a 45-second gel phase after light cure for easy cleanup.
- Its shade stable technology features five shades for esthetic results.

> "The extended easy gel phase technology seals the margin without disruption and fear of contamination during cleanup."
>
> — DR. ALAN ATLAS

ger after curing and the easy cleanup this extended gel phase makes possible, Koltisko said.

"They've had no problems removing the excess cement," he said. "This product really hits the targets we were trying to achieve."

### The challenges

DENTSPLY Caulk's R&D team has worked on different aspects of Calibra Universal for the last 10 years or so, Koltisko said, with the intent to continue to improve cement performance. A lot of work goes into developing a cement like Calibra Universal, and it isn't without its challenges. The biggest challenge to developing a cement, or any dental material, for that matter, is balancing the properties.

"You're trying to balance a lot of properties in a product with many ingredients. You're trying to achieve very good esthetics, good bonding performance and a fast setting process in formulations that are stable over time," he said. "When you add in self-adhesive components with a new initiator system, you can't forget about the impact on 10 other properties you need to make a great cement."

The team found that balance when creating Calibra Universal. Koltisko said he considers this just the first step in growing DENTSPLY's Caulk's cement portfolio and developing more cements designed to make the dentist's job easier and less stressful.

## WHY CALIBRA UNIVERSAL

Dr. Alan Atlas outlines three different cleanup scenarios and how Calibra Universal helps in each situation:

**1. Excess cement is present, and the clinician has the option of light curing Calibra Universal cement immediately.** The net positive effect is the margins are sealed immediately; however, the clinician now must use the handpiece and diamond to remove the excess. The net negative effect of this procedure is the disruptive effects of the diamond on the margin, creating abraded areas that enhance bacteria colonization and lead to leakage, marginal discoloration and, ultimately, deterioration and failure.

Additionally, research has shown immediate curing produces the greatest amount of polymerization shrinkage and stress to the cement/tooth interface.

**2. Not curing the cement immediately and cleaning as much of the cement as possible before light curing.** The net positive effect of this is the cement has a low viscosity that allows for easy cleanup, leading to less cement remaining before light curing with minimal handpiece and diamond intervention required after light polymerization.

Additionally, allowing the cement to self-cure during cleanup significantly reduces the negative effects of light polymerization. The net negative effect is the margins are more susceptible to contamination, especially if bleeding occurs during cement removal. This scenario is more technique-sensitive, especially in an uncooperative patient with excess salivation and unhealthy gingival tissue.

**3. After seating the crown, tack curing the cement up to 10 seconds.** This allows the material to remain in an extended gel phase and not set to the point where the clinician would require a rotary diamond to remove the excess.

**This eliminates all the disadvantages of the first two scenarios.** The margins are sealed immediately but not to the point where polymerization shrinkage and stress would alter the integrity of the interface. There is less concern about contamination around the margins because the cement has been photo polymerized sufficiently to seal thoroughly. Finally, because the cement is in an extended gel phase, it can be removed easily without alteration to the marginal integrity.

This is markedly different than the gel phase apparent with other self-adhesive resin cements and resin-modified glass ionomer cements. Because that gel phase is dependent upon autocuring, the cement is more vulnerable to disruption upon removal to the point where the cement may be pulled out from underneath the margins, leaving microgaps for bacteria to colonize.

### Why you should consider trying it

Whether Dr. Atlas is placing a gold, zirconia or any other high strength ceramic, he prefers to use a resin cement unless

## FROM THE DOCTOR

Why Dr. Alan Atlas prefers cementing any crown substrate whether it's gold, zirconia or any other high strength ceramic:
"The options for resin cements include adhesive placement with the aid of a bonding agent or, alternatively, a self-adhesive resin cement that contains acidic methacrylate monomers, which enable the cement to self-adhere to the tooth and greater mechanical and dimensional stability than other traditional self-adhesive cements like glass ionomer and resin-modified glass ionomer cements.

The glass ionomer cements, for the most part, only offer auto or self-curing, which inherently takes longer to set. This makes the cement more susceptible to oral fluids, degradation and weakening over time. Many of these cements require a varnish to protect the cement during the initial phases of setting to reduce the effect of contamination. Most importantly, glass ionomer-based cements do not have the physical properties to support many of the ceramic restoration materials currently available for crown fabrication, making them vulnerable to fracture.

Resin cements offer more versatility because they offer improved bond strengths, as well as the physical properties required to be used successfully under all substrates for crowns and bridges. The unique characteristics of these cements have made them more appealing to the clinician because of the simplicity of placement and ease of excess removal."

> **"This not only benefits the clinician by making cement selection and use easier, but it also benefits the patient, whose crown or bridge will have improved long-term outcomes."**
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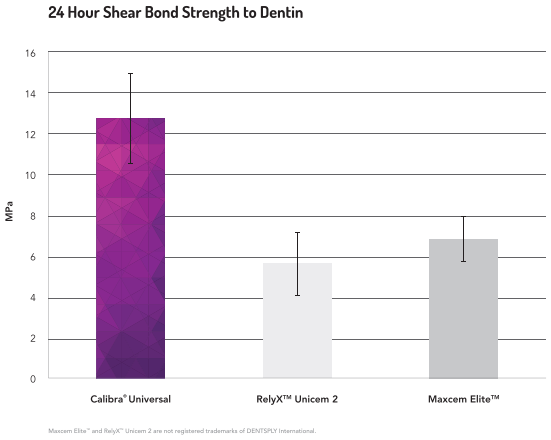
> — DR. ALAN ATLAS




*Calibra Universal cement provides significantly higher bonding performance within 24 hours for long-lasting strength and crown longevity.*

there are contraindications to consider, such as sub-gingival placement or the inability to control isolation. For nearly 20 years, Calibra has been his cement of choice.

The latest version of this cement offers many benefits beyond the extended gel phase for easy cleanup, including low film thickness, radiopacity, strong initial bond strength and shade stability. It can be used in most clinical situations for crown and bridge cementation and is a product Dr. Atlas describes as featuring "all the prerequisites necessary for being the optimum cement."

"It is the cement that truly comes close to perfection and can be used with any crown substrate whether it is ceramic or gold," he said. "This not only benefits the clinician by making cement selection and use easier, but it also benefits the patient, whose crown or bridge will have improved long-term outcomes." ●