

## Pulpdent Embrace Restoration & PFM Repair Kit Review: Porcelain Repairs Made Easy

- By [Howard S. Glazer, DDS](#)

Although porcelain fractures on crowns and bridges are usually caused by accidents or patient behavior, the burden for these mishaps often falls on the shoulders of the dentist. Considering the high cost of crown and bridge restorations, it is understandable that patients will expect a reasonably priced solution.

When faced with these situations, I always inform the patients that no repair will be as strong as the original restoration. Fortunately, materials such as the Embrace products from Pulpdent are now available. In my practice, these materials have produced great success. I have been using [Pulpdent's Embrace Restoration & PFM Repair Kit](#) with good results for 2 years.

In the following case, the patient fractured the mesial-occlusal-buccal portion of the lower left first molar pontic (No. 19) on a 6-unit PFM fixed bridge (Figure 1). This was unusual because the patient has passive occlusion on this tooth and no other porcelain fractures were noted. The fracture was noticeable when the patient smiled. If allowed to remain, the cracked, exposed porcelain would continue to chip away. It needed to be repaired to maintain the integrity of the bridge and satisfy the patient's esthetic needs. It is important to create as much mechanical retention as possible to have the best chance for a successful repair.<sup>1</sup> Roughing up the metal surface with a fine diamond is imperative, and undercuts are valuable for retention form (Figure 2).



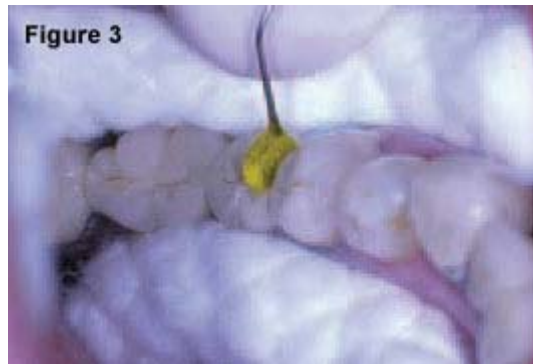
**Figure 1** — Shows fracture of the mesialocclusal- buccal portion of the lower left first molar pontic (tooth No. 19) on a 6-unit porcelain-fused-to-metal fixed bridge.



**Figure 2** — Kool-Dam was used to protect the gingiva and isolate the area to be repaired, ensuring a dry field and masking areas not to be etched.

Before etching the porcelain, make sure that the soft tissue is protected. Isolation with cotton rolls or a rubber dam is recommended. In this case, Kool-Dam light-cured liquid dam (supplied in the kit) was used to protect any exposed tissue (Figure 2). Kool-Dam stays cool, remains flexible when cured, and is easily removed in 1 piece.

A valuable tip when doing this procedure is to extend the etched porcelain surface beyond the fractured surface and onto the smooth porcelain. I do this routinely in these kinds of cases to increase the etched surface area for bonding and retention (Figure 3).



**Figure 3** — Pulpdent Porcelain Etch Gel (yellow) was then applied for 2 minutes.

Also included in this new system is Embrace First-Coat. According to the manufacturer's instructions, First-Coat is a light-cured resin primer that replaces silane and metal adhesives and is placed on both the porcelain and metal surfaces. Since the 1980s, dentists have used silane to act as a coupling agent to enhance the bond between inorganic porcelain and the organic resin used to repair the fractured crown. I have always suspected silane to be the weak link in traditional repair techniques, and my experience, as well as among others' suggests there is limited and inconsistent success with the old silane systems. In my opinion Embrace First-Coat represents the first significant improvement in porcelain repair in 2 decades, and it has provided a dramatic increase in success rates in my practice. In vitro shear bond strength testing by the manufacturer indicates that the bond between First-Coat and porcelain is stronger than the cohesive strength of porcelain itself at the resin–porcelain interface. Clearly this is the key factor.



**Figure 4** — After etching, rinsing, and drying, Embrace First-Coat was applied to the etched and abraded surfaces with a brush applicator, thinned with a gentle stream of air, and light cured for 20 seconds.

After applying First-Coat (Figure 4), Embrace Opaquer, which cures in just 20 seconds, can be used to mask metal or discolored surfaces (Figure 5). [Heraeus Kulzer's Venus composite resin](#) was placed over the opaque layer and light-cured for 20 seconds (Figure 6). The restoration was then contoured and finished using SS White finishing burs and polished with [Clinician's Choice Groovy Diamond Polishing Brushes](#).



**Figure 5** — Embrace Opaquer was placed in the center of the exposed metal and carefully spread with an explorer so that it was not on the beveled porcelain margin. The opaquer was light-cured for 20 seconds.



**Figure 6** — Venus composite resin (Heraeus Kulzer) was placed over the opaque layer and light-cured for 20 seconds.

Next, Seal-n-Shine was used to seal the margins against micro leakage and provide the final finish and polish to the composite and porcelain surface (Figure 7).



**Figure 7** — A final finish is achieved with Embrace Seal-n-Shine, which was light-cured for 20 seconds.

## Conclusion

As dentists, we are always seeking ways to improve the ability to provide much needed services to patients. In cases involving porcelain fractured off of PFMs and all ceramic restorations, dentists are now able to provide a better solution than ever before. The Embrace Restoration & PFM Repair Kit offers new materials to solve a problem that we face year in and year out. Ic

## References

1. Kurtzman GM, Schneider AL. A technique for repair of a fractured porcelain-fused-to-metal bridge. *Dent Today*. 2006; 25(1):94-95.

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### »Embrace Restoration & PFM Repair Kit -

No bonding agents required.

- Multi-functional kit: primes, protects, opaques, seals, finishes and polishes.
- Bonds to slightly moist surfaces.
- Eliminates metal and ceramic primers, silane and bonding agents.
- Compatible with restorative composites.
- No solvents, no modifiers, no mixing, no mess.
- Can be cured with all curing lights.