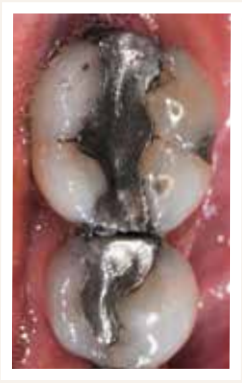
Obsidian® CAD — Best Practices for Clinical Success

by Justin Chi, DDS

The following protocol has helped me ensure excellent clinical results when milling Obsidian Crowns with my TS150™:



Before

After

1. **Minimum Thickness.** FastDesign™ software is extremely easy to use and very flexible when it comes to minimum thickness requirements. While this flexibility is helpful for creating inlays, it is important to design full coverage crowns with a minimum material thickness of 1 mm or more. This proves especially important around the margin to avoid any potential fractures when seating the crown.
2. **TS150 tool use.** I have the best success when following the manufacturer's recommendation of not milling more than five Obsidian crowns per tool. The cost of tool replacement is far less significant than a failed mill job or an ill-fitting crown.
3. **Coolant.** It is important to ensure the coolant stream is properly aligned with the TS150 cutting tool. Misalignment can lead to a tool or block failure. I always have my dealer rep check on this with each visit.
4. **Adjustments.** Make all adjustments to the crown before crystallization using a diamond bur with a grit size less than 70 microns.
5. **Crystallization.** This is one of the most important steps in the Obsidian process. First, I use SuperPeg II™ peg paste from Harvest Dental Products to fill and support the entire intaglio surface and all margins in order to avoid any shrinkage or distortion of the crown. Second, I always use the appropriate ceramic peg (never metal) and a honeycomb tray. I've found this protocol gives me the best possible crown margins. Finally, I've found optimal crown fit when setting the maximum temperature on my oven to 810° C*.
6. **Cementation.** I have found the greatest success while using the following protocol:
    a. Try in crown for fit.
    b. Etch with 5 percent HF etch for 10 seconds. Rinse thoroughly.
    c. Apply a thin coat of Monobond Plus® (Ivoclar Vivadent) to the intaglio surface and allow to react for 60 seconds. Air dry excess.
    d. Use the resin cement of your choice as per the manufacturer's recommendations. I use RelyX™ Unicem (3M™ ESPE™).

*Following the oven temperature adjustment protocol as described in the Obsidian Users' Manual.

About Dr. Chi

Dr. Chi received his Bachelor of Science degree in dental laboratory technology from the LSU School of Dentistry, and his DDS at USC School of Dentistry. He has worked as a clinical educator for E4D Technologies where he led CAD/CAM training seminars, and joined Glidewell Laboratories in 2015 as a clinical dentist with an emphasis on CAD/CAM restorations.