

LOD

LIMITLESS ON DEMAND

Bonding Protocol for the Limitless Workflow

Restoration Protocol 1A: Glass-Based Ceramics (Emax, Lisi, Amber, etc)

Generally, your glass-based ceramics are typically etched with Hydrofluoric acid by your lab technician prior to being sent to you. You need to tell them to use 9.5% HF acid for 20 seconds.



1. After Try-In

If no heme on restoration intaglio, rinse thoroughly, place 34% blue phosphoric acid on the intaglio of veneers for 60 seconds, and rinse.

If heme, place ivoclean and leave for 60 seconds, and rinse off.



DO NOT PARTICLE ABRASE THE
INTAGLIO OF A GLASS BASED CERAMIC

2. Rinse with water and dry thoroughly, Place silane primer with micro brush. Thin layer of silane. I use Relax Silane Primer or Monobond Plus. Both work well.

Restoration Protocol 1AB: Oxide Based Ceramics (Zirconia)

For your zirconia veneers, the bonding protocol is slightly different. I have been bonding zirconia veneers for four years personally with no de-bondings. All of this is done after TRY-IN.

WHY WOULD ANYONE WANT TO USE ZIRCONIA VENEERS? LESS AGGRESSIVE PREPS ARE NEEDED TO BLOCK OUT DARK TEETH. BETTER COLOR STABILITY. USE 3Y IF GOING THIS ROUTE.



1. Particle abrade intaglio of zirconia veneer in lab with 30-50 micron AlO₂ particle for 5-10 seconds.

Sandstorm professional, keep the tip 10mm away from the surface's intaglio and maintain a pressure of around 24 psi. Particle abrasion increases surface energy, increases wettability and decreases contact angle.



2. Rub in Ivoclean.

Place and rub for 60 seconds, rinse and dry. pH of 13 which allows a stronger bond to MDP (10-Methacryloyloxydecyl dihydrogen phosphate) primers. Ivoclean will decontaminate and strips the zirconia of phosphate groups allowing MDP to bond to it.

NEVER USE PHOSPHORIC ACID ON ZIRCONIA, IF YOU DO SO THE PHOSPHORIC ACID WILL OCCUPY THE PHOSPHATE GROUPS AND WILL PREVENT BONDING TO MDP PRIMER.

3. Place Clearfil Ceramic Primer Plus

Rub for 30 seconds and air dry. In addition to the tried and proven adhesive monomer MDP for bonding to metal oxide, it contains a silane coupling agent which guarantees strong adhesion to all SiO₂-based ceramic materials. Since Clearfil contains MDP this will form a reaction with zirconia oxide. This ionic reaction needs a alkaline pH.



4. Place Alloy Primer on Intaglio

Rub for 30 seconds and air dry. Alloy Primer contains both MDP and VBATDT (6-(4-Vinylbenzyl-n-propyl)amino-1,3,5-triazine-2,4-dithiol), another functional monomer. VBATDT is especially effective in bonding to precious metals, while MDP improves the overall bond strength and promotes interaction between VBATDT and the metal. VBATDT has also been shown to extend the bond's lifespan. If you do not have Clearfil Ceramic Primer Plus and the Alloy Primer, you can substitute them with Monobond Plus. The studies indicate this may not be as strong as the protocol above, but it still works well.



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Restoration Protocol 1C: Printed Material



1. After Try-In

Particle abrade the intaglio of the 3D printed veneer in the lab with 50-micron AlO₂ particles at 29 PSI. Sandstorm professional, Keep tip 10mm away from intaglio of surface. Thoroughly rinse and dry.



2. Place MonoBond Plus on intaglio for 60 seconds.

Rub for 60 seconds and air dry.



3. Paint bond on intaglio of 3D printed Veneer - for this I use Adhese Universal Do not cure.

Tooth Protocol 2: Bonding Glass Based, Oxide Based, and 3D Printed



1. Particle abrade tooth with 27 micron AlO₂ particles of 40 psi.

Be very careful near the tissue. Place the tip of the preparation a few millimeters away from the tooth and ensure it angles towards the incisal edge. Always have HVE on for this.



2. Etch enamel for 30 seconds and dentin for 15 seconds.

Depending on your bond, this will vary. Please make sure to review if you have a self etch adhesive.

IF THE GUM TISSUE IS BLEEDING, YOU CAN NOT USE
FERRIC SULFATE BASED HEME CONTROL PRODUCTS.



3. Bond tooth

Depending on your bond, this will vary. I use Optibond FL prime and bond.

Pro tip: When working on multiple teeth, I use a benda brush to apply the primer, then rub it in with a micro brush. I do the same for the bond.

With this bond, you need to work quickly and ensure your light is off. The filled properties of the bond can interfere with the seating of your veneers. If you have trouble seating these, I recommend using All Bond Universal.

NOTE FOR 3D PRINTED VENEERS I USE ADHESE UNIVERSAL ON THE TOOTH. DUE TO THE VISCOSITY OF OPTIBOND FL, THIS MAKES THE INSERT TOUGH WITH THESE TYPE OF VENEERS.