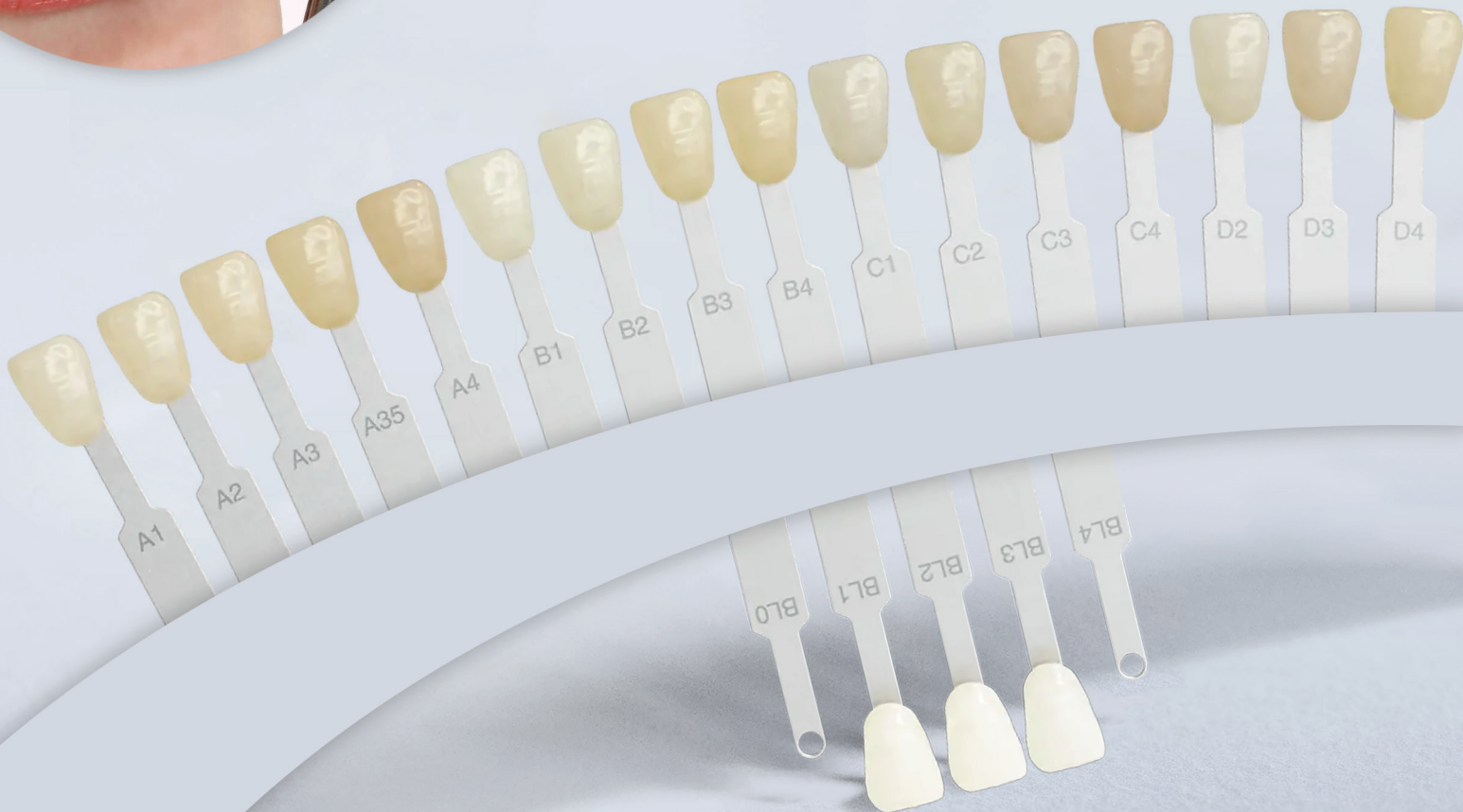


August 2024



# BONDING BASICS FOR LASTING COSMETIC ARTISTRY



# INTRODUCTION

## The Importance of Bonding

Thanks to many improvements in materials, you can now offer your patients more minimally-invasive options for cosmetic dentistry. Which is great – provided you can ensure the longevity of your restorations.

What's the secret to long-lasting cosmetic dentistry? The two biggest factors are occlusion, which is outside the scope of this e-book, and your bonding protocols.

## Direct vs. Indirect Restorations

Whether you are doing a direct or indirect restoration, the protocols for bonding to the tooth are essentially the same. For indirect restorations you must also prepare the intaglio surface of the restoration.

In addition, a long-lasting indirect restoration begins with planning. If you work with a good lab, your intraoral, extraoral and headshot images, combined with your explanation of the outcome you are trying to achieve, will enable the lab techs to help you create an excellent plan.

Be sure to have the temps mimic what the finals will look like, so that when your patient comes in for a temp check you can look at the color, shade, contour, etc. If you make any adjustments at this point, send an updated scan to your lab.



Bonding protocols are vitally important for long-lasting cosmetic dentistry.



## Start with a Try-In

For indirect restorations, before you begin your bonding protocol it's a good idea to start with a try-in to ensure your patient will be happy with the end results. If the tooth is minimally prepped, try to do this without anesthetizing the patient. Otherwise the anesthesia can cause shade changes in the restoration.

Although it sounds odd, a recommended trick for try-ins is to use K-Y® Jelly personal lubricant as your "try-in paste." Because it is a little thicker than doing the try-in with water, it provides a little more resistance when you place the restoration. Plus, it is translucent and water-soluble, so you can rinse it out with water without it contaminating your bonding surface. Just don't bring the container itself into the operatory, as your patients might be put off by your choice of materials!



Be aware that anesthesia can cause shade changes in your indirect restorations.



# BONDING PROTOCOL STEP 1: PLACE THE RUBBER DAM

Everything starts with the rubber dam, which comes in a wide variety of sizes, shapes, color and textures. Unless the situation requires the use of a heavy gauge dam, it is usually best to use a latex-free dam, in order to reduce the risk of allergens.

A rubber dam provides:

1. Airway protection
2. Isolation
3. Visibility
4. Patient comfort

## Why Place a Rubber Dam?

- 1 Airway protection** – The rubber dam helps ensure that your patient does not aspirate anything, such as small pieces of the old dentistry that you are removing.
- 2 Isolation** – In dentistry you work with a lot of hydrophobic materials. Keeping the teeth dry and isolated will reduce the risk of contamination and increase the bond strength. Better isolation = better bond.
- 3 Visibility** – A rubber dam provides excellent retraction and access. It retracts the lip and tongue while pushing the tissue down so that you get good visibility at the margins.
- 4 Patient comfort** – Most patients actually prefer the rubber dam because it eliminates the problem of what to do with their tongue, as well as the feeling that they're "drowning."



# BONDING PROTOCOL STEP 2: PREP THE TOOTH

- 1 Clean the tooth** – Use your air abrasion unit, with 27-micron aluminum oxide powder and 40 PSI, to clean the surface of the tooth. This will remove temporary cement as well as the smear layer, and help provide a nice mechanical retention on the tooth interface.
- 2 Apply etch** – To avoid creating a sensitivity problem, do your best to limit your etch to just the enamel. Consider using SELECT HV<sup>®</sup> ETCH from BISCO, a universal high-viscosity etchant designed for pinpoint placement that stays exactly where you place it. Leave it on for 15 seconds and then irrigate to rinse it off.



- 3 Apply All-Bond & air thin** – Apply the first coat of All-Bond Universal<sup>®</sup>, scrubbing the preparation with a microbrush for 10-15 seconds, apply a second coat, scrubbing the preparation with a microbrush for 10-15 seconds, and then air thin for 10 seconds to be sure the solvent is evaporated.

Note: If you are using a different bond product, be sure to talk to your rep to find out how to get the best results from the bond. For example, some adhesives require an activator and/or different timing.

4

**Apply Teflon tape** – To protect the adjacent contacts and ensure you do not accidentally bond the teeth together, place some Teflon tape interproximally. But don't apply the tape before you apply the bond, as the bond's acid might eat through the tape.



5

**Cure** – Cure for 20 seconds.



Use Teflon tape to protect the adjacent contacts and ensure you do not accidentally bond the teeth together.



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# BONDING PROTOCOL STEP 3 (FOR INDIRECT RESTORATIONS): PREP THE RESTORATION

## General Tips

- **Delivering multiple restorations –**  
Do not insert more than two indirect restorations at a time. This will enable you to maintain control and isolation, and to have excellent visual access to the margins on each tooth.
- **Determining where to start –**  
If your restoration involves tooth numbers eight and nine, start there so that your midline is correct. In addition, this way if you lose space and need to adjust the interproximal to get the final crowns to seat, you won't have to take that off from eight or nine.
- **Doing the prep yourself –** Although you can ask the lab to prep the restoration, doing it in your office ensures that it will be done to your exact specifications, thereby increasing the chances of an excellent, long-lasting bond. You can do these few minutes of prep work while your patient is in the chair, getting numb.



Do not insert more than two indirect restorations at a time.

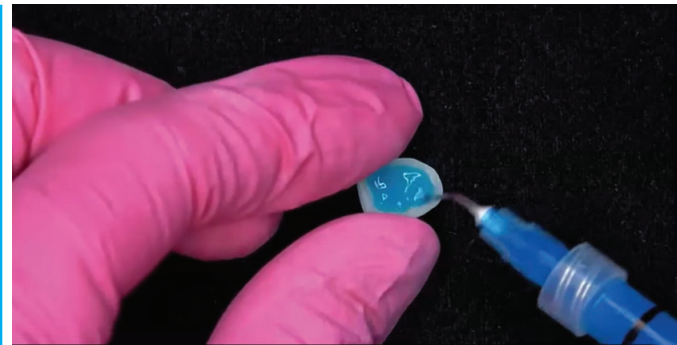


## Prepping a Zirconia Restoration

- 1 **Clean the crown** – Air abrade the intaglio surface with 27-micron aluminum oxide powder to clean out any debris, then rinse really well.
- 2 **Apply BISCO Z-Prime™ Plus** – This is an MDP-containing primer that increases the bond strength to the Zirconia.

## Prepping a Porcelain Restoration

- 1 **Apply Porcelain Etchant** –  
If using a 9.5% hydrofluoric acid gel, do 15 seconds on the intaglio surface for lithium disilicate restorations, and 60 seconds for Feldspathic restorations.
- 2 **Apply Select HV® Etch w/BAC** –  
Do just 15 seconds of this 35% phosphoric acid etchant, which will remove any of the calcium precipitate that forms when you porcelain etch.
- 3 **Apply silane** – This makes the surface become hydrophobic and acts as a primer for porcelain the way that Z-Prime™ Plus is a primer for Zirconia. Both one-bottle and two-bottle silane products are available; the two-bottle products are a little more shelf stable.



“ The restoration's material impacts the preparation steps. ”

# BONDING PROTOCOL STEP 4: PLACE THE RESTORATION

## Placing Direct Restorations

At this point you've cleaned the tooth, applied the etch, applied the All-Bond Universal®, air thinned and cured. You can now proceed with the restoration based on what is appropriate for the specific case.

## Placing Indirect Restorations

- 1 Determine the type of cement you will use** – If you're working with Zirconia or a metal substructure where you will not get light penetration, use a dual cure universal resin cement, such as BISCO Duo-Link Universal™ Resin Luting Cement.
- 2 Try in the restorations** – Do this *before* you apply any adhesive or resin to the restorations. Try them in individually with the clamps in place, and determine the best path of insertion.
- 3 Apply the cement & place the restorations** – Place the first restoration. While you keep the pressure on it, have your assistant load the second restoration.



- 4 **Tack cure** – Tack cure on the facial and the lingual.
- 5 **Poke a hole in your rubber dam** – Take a micro brush and poke a hole through your access to your rubber dam clamp.
- 6 **Remove the excess cement** – Be sure to get all of it around the margins as well as interproximally, and then clean up the buckle and palatal aspects of the restorations with a flame diamond.
- 7 **Cure** – Cure both the palatal and the facial of each tooth for 20 seconds to ensure you get a full chemical cure.

To place an indirect restoration:

1. Choose a cement
2. Try in the restoration
3. Apply cement & place restoration
4. Tack cure
5. Poke a hole in your rubber dam
6. Remove excess cement
7. Cure
8. Remove clamps



- 8 **Remove clamps** – If you have additional restorations to place, repeat the entire process for them.



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