

## TriLor® FAQ

### ***BONDING QUESTIONS:***

**Is the bonding step necessary when bonding TriLor to Composite?**

Yes, every bit helps.

**What is the bonding process for TriLor? Here is a run-down of the process after milling TriLor:**

Sandblast

Steam

Air dry

Make your restorations using your conventional methods (zir, lithi)

Now you're ready to put them together!

Add dip wax to your glazed restoration in the areas that you're not going to have cement

Apply ceramic primer to the restoration

Apply composite primer to the TriLor

Air dry

Cement crown---use the right cement color!

Clean up excess cement

Sandblast

Add composite primer to TriLor areas

Add ceramic primer around areas that ceramic will touch the TriLor

Apply composite

Cure

Air Barrier around composite work

Final cure

Contour, etc

Stain glaze

Light Cure

**What bonding material can I use on TriLor?**

Some good Resin Cements I and others have used are RelyX by 3M, MultiLink by Bisco, Nexus by Kerr and Panavia by Kuraray. Whatever bonding cement you currently use will work, just be sure it doesn't have any geometric changes like shrinkage or expansion that you hadn't accounted for.

Apply the acrylic resin or composite directly to the TriLor®, performing the operative protocol as dictated by the manufacturer of the aesthetic material.

**Adhesion protocols for the TriLor is as follows:**

1. **Acrylic**~ Sandblast the TriLor with AlO<sub>2</sub> at 2 Bar (50 microns-110 micron); Air dry well (Oil and water free line); then wet the TriLor with acrylic resin and bond.
2. **Composite**~ Sandblast the TriLor with AlO<sub>2</sub> at 2 Bar (50 microns-110 micron); Air dry well (Oil and water free line); Prime with composite primer and proceed to apply as you would. Please follow instruction for the composite you use.
3. **Lithium Disilicate**~ Sandblast the TriLor with AlO<sub>2</sub> at 2 Bar (50 microns-110 micron); Air dry well (Oil and water free line); Sandblast the internal part of the crowns, use etching gel (as recommended) and bond with Universal Resin Cement
4. **Ti-Bases**~ Sandblast the TriLor with AlO<sub>2</sub> at 2 Bar (50 microns-110 micron); Air dry well (Oil and water free line); Sandblast the intimate part of the Ti-Base, and bond with Universal Resin Cement.

**Bond and Cement Details**

Esthetic Opportunities

Zirconia, Lithium Disilicate, PMMA, Nano and Composite.

For best results, adhere to material manufacturers supported bonding protocol.

TriLor® Treatment

Sandblast TriLor® contact areas w/ Al<sub>2</sub>O<sub>3</sub> 110 µm/2 bar.

Clean surface with gentle pressurized steam.

All gingival contact areas **should** be sealed (GC OptiGlaze).

Zirconia Bonding

Sandblast intaglio surface with Al<sub>2</sub>O<sub>3</sub> 110 µm/2 bar.

Clean surface with gentle pressurized steam.

Apply Zirconia Primer (mfr. recommended salinate, *i.e. MonoBond Plus, Ivoclar*)

Bond with Dual Cure Cement following manufacturer protocols (mfr. recommended, *i.e. MultiLink, Ivoclar*).

Lithium Disilicate Bonding

Sandblast intaglio surface with Al<sub>2</sub>O<sub>3</sub> 110 µm/2 bar.

Clean surface with gentle pressurized steam.

Etch intaglio surface, Hydrofluoric Acid 5%, 20 seconds.

Rinse for 20 seconds.

Apply Bonding Primer Silane (mfr. recommended, *i.e. MonoBond Plus, Ivoclar*).

Bond with Dual Cure Cement (mfr. recommended, *i.e. Multilink Ivoclar*).

#### PMMA – Milled Bonding

Sandblast intaglio surface with Al<sub>2</sub>O<sub>3</sub> 110 µm/2 bar.

Clean surface with gentle pressurized steam.

Apply primer silane (mfr. recommended, *i.e. MonoBond Plus, Ivoclar*).

Bond with Dual Cure Cement (mfr. recommended, *i.e. Multilink Ivoclar*).

#### Composite/ Nano-Ceramic – Milled Bonding

Sandblast intaglio surface with Al<sub>2</sub>O<sub>3</sub> 110 µm/2 bar.

Clean surface with gentle pressurized steam.

Apply primer silane (mfr. recommended, *i.e. MonoBond Plus, Ivoclar*).

Bond with Dual Cure Cement (mfr. recommended, *i.e. Multilink Ivoclar*).

#### Composite –Build-up Bonding

Sandblast intaglio surface with Al<sub>2</sub>O<sub>3</sub> 110 µm/2 bar.

Clean surface with gentle pressurized steam.

Apply Bonding Adhesive (mfr. recommended, *i.e. SR Connect, Ivoclar*).

Build-up Composite directly to TriLor®.

#### **Can TriLor be un-boded from a Ti Base?**

Unfortunately, there is no way of removing the Ti Bases using heat or chemicals. It needs to be physically removed and then re-bonded. The trick though is to remove it in a way that it does not compromise the restoration and if it is, it will necessitate a re-mill of the bridge. The challenge is that if the mistake is during clinical procedures, unfortunately there is no way of fixing it in the laboratory and out of the mouth.

### **GENERAL QUESTIONS:**

### Is TriLor only Digital?

TriLor comes in puck form that accommodates most milling machines and indication. Those who are analog can still benefit from TriLor's qualities with the TriLor Arch, a clever and easy way to fabricate implant supported bars, manually.

### What is the min vertical thickness on a thimble frame?

The minimum thickness for the TriLor material is **3.5mm** however a thimble can typically range 6-8 mm, so the vertical restorative space the patient exhibits will provide for the thimble thickness, which is a reduction of 1.0mm to accommodate a crown. Meaning 3.5mm is the minimum thickness, but it won't be very retentive for a crown to be cemented on it, so it's best to have the thimble 1.0mm less than the final size of the crown.

As far as minimum thicknesses, the indication for that with **TriLor is 3.5mm**, meaning it should not be reduced to less than 3.5mm in order to maintain its geometric stability; nonetheless, when doing a thimble type of substructure be careful at the preparations and particularly at the gingival third to not go below 3.5mm. Rather in CAD design, you want to have it 1mm less than the final design. That allows a uniform thickness on your crown and/or over-denture; the more uniform overall, the better support it enjoys. Also, as I am sure you know, the Anterior-Posterior spread really has to be adhered to and I would be on the more cautious side to prevent any failures. It is a fantastic product that is very strong, but maintaining thicknesses will provide you with greater yield strength and stability.

### Is TriLor® approved for permanent restorations?

Yes

### What is the flexural strength?

540 Mpa

### What is the Tensile strength?

380 Mpa

### What pink composite do you prefer?

GC Gradia is a nice composite, there are many light cured composites on the market with great results. As long as they are light cured, they will work with TriLor®

### What workflow/modules do I use for Trilor in a 3 Shape Scanner?

If you are doing a partial framework you would use the RPD module in your 3 Shape or if a crown or bridge use the Crown and Bridge design module; if it's a all-on-X then you will need the implant and bar module. If you have the Complete Restoratives software you should have both modules.

**3Shape TriLor Library and material files available for import.** After designing the bar, simply copy and append, clear out the order form and design the individual restorations.

**All on X from Prep:** Make sure your implant system is in the library, go to bridge Smile library and choose anatomical crown design in order to create a Toronto (Thimble) style bridge, that will subsequently get individual crowns either in LiSi or Zirconia or any all-ceramic restorations.

**All on X:** Bar design for wrap around denture can be used in the normal design and set up fashion, but minimum thickness needs to be adhered of 3.5mm or 9mm<sup>2</sup>

#### **What colors are available in TriLor Puck and Arch?**

Bone color best indicated for all restorative options including thimble style bar. Pink color, ideal for wrap around denture bar implant supported prosthetics. The pink colored puck eliminates the need for opaque and provides for greater thickness under the denture

#### **Can you add a cantilever to the posterior of a TriLor bar?**

Yes. Up to one molar width and follow the Anterior/Posterior spread to avoid any fulcrum effects on the implant and reinforce connector width and height from abutment to pontic.

#### **Can I use TriLor to make a 12 unit bar, with 4 implants and Zirconium crowns, pink gingiva**

It all depends on the distance between the most anterior to the most posterior implant site(s), which is called the A/P spread; and the bar should not encompass greater than a 2 pontic distance. It further depends on the patients bite and if they have any paranormal functions, like bruxer or clencher. Not knowing much about the case, it would be difficult to truly assess it's success, but if done right and all indications are considered; it will be a success.

Ideally, if the implant sites are the laterals and the first premolars and the bar will only extend to the first molar and made sure to comply or exceed with all thickness measures, it should function well. Individual Preparations need to be 3.5mm or greater and be careful to overly narrow the anterior thimbles. Furthermore, the wall of the multi-unit connection should be 1.5 mm or greater to absorb the forces adequately.

#### **Please Note when using Primers on TriLor:**

The manufacturer recommends primers made by Shofu, Bredent, Ivoclar and GC. Not using the recommended primer can cause an adverse chemical interaction that creates minor superficial change (greening) on the Trilor material during the light curing process. Please use manufacturer recommended primers; ensure that they are not expired and meet the proper light wave length when curing.

#### **What happens when a polymer frame breaks? Is it repairable or am I starting from scratch?**

If the break is superficial and not through the bar, it can be repair with resin. However, if it is broken into pieces then unfortunately it would need to be re-milled, after verifying the design is corrected. Keep in mind that if it is repaired, the strength is diminished to whatever the strength of the composite used, since there is no fiberglass supporting at that repaired junction.