A Technical Guide for Achieving Restorative Excellence
Ceramco™ PFZ Porcelain Fused to Zirconia is ideal for metal-free frameworks and can be used with Cercon® Zirconia and other 100% dense zirconia frameworks. It has been engineered to provide exceptional handling, thermal stability, and esthetic properties.

The entire system, from the liners through the dentins, natural enamels, opal enamels, and surface stains, impart the fluorescence of natural dentition. With Ceramco PFZ, clinicians can expect excellent esthetics in their zirconia all-ceramic restorations.

- Exceptional esthetics
- Handling of traditional Ceramco porcelains
- Cutting-edge synthetic porcelain
- Leucite-free for better wear
- Natural fluorescence
- Exceptional thermal stability for increased productivity

For technical support call toll-free 800-243-1942 or fax 609-366-8282
To achieve a natural appearance upon seating and cementation, it is critical to instill opalescence, fluorescence, and translucency in ceramic restorations.

Human teeth are inherently fluorescent, emitting visible light when exposed to ultraviolet light. Ceramco PFZ porcelains contain agents that allow restorations to replicate this effect.

Opalescence is the ability of the Ceramco PFZ porcelain (or other translucent materials) to appear blue in reflected light and red-orange in transmitted light. The opalescent effect is based on the behavior of translucency of natural teeth.

The degree to which light is transmitted through the Ceramco PFZ porcelain, rather than being absorbed or reflected, is its translucency.

Ceramco PFZ allows the ceramist to avoid excessive translucency in the restoration, which can result in a crown or fixed partial denture that appears too gray and dark.
Ceramco® PFZ is a complete porcelain system that has been designed to support a variety of clinical indications. In order to determine the appropriate course of action for a given restoration, the following “decision tree” has been formulated to guide your buildup protocols.

**Ceramco® PFZ Restorations**

- **Is a porcelain margin required?**
  - **YES**
    - Ensure they are applied and fired prior to applying liner.
  - **NO**
    - Refer to Ceramco PFZ Table before proceeding with buildup.

- **Has shade selection been completed?**
  - **NO**
    - Begin ceramic buildup
  - **YES**
    - Is there sufficient dentin/incisal thickness (1 mm) over the liner?
      - **YES**
        - Continue with dentin buildup
      - **NO**
        - Use opalescent dentin porcelain under the same dentin shade and later reduce the area when contouring.

- **Is the restoration lacking the desired vitality?**
  - **NO**
    - Complete buildup and fire
  - **YES**
    - Mix Natural Enamels with dentin or opal enamel porcelains to achieve desired effects.

- **Are natural dentin characterizations required?**
  - **NO**
    - Continue with enamel buildup
  - **YES**
    - Select a dentin modifier that corresponds with the desired shade and subtly mix it with the dentin porcelain.

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PFZ stains can be used as alternatives to liners in order to alter the shade of the zirconia core.

1. Blend stains and porcelain to achieve the desired shade according to the chart below.

2. Paint the surface of the core to obtain semi-translucent base color.

3. Fire according to the second dentin firing cycle.

When used instead of a liner, this technique will permit greater light transmission through the core and thus create a more vital shade for the final restoration.

<table>
<thead>
<tr>
<th>Shade</th>
<th>Stains/Porcelain Mix</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Range</td>
<td>PFZ Stain Ochre – 80%, PFZ Opal Clear – 20%</td>
</tr>
<tr>
<td>B Range</td>
<td>PFZ Stain Corn Yellow – 40%, PFZ Stain Ochre – 40%, PFZ Opal Clear – 20%</td>
</tr>
<tr>
<td>C Range</td>
<td>PFZ Stain Olive – 70%, PFZ Stain Gray – 10%, PFZ Opal Clear – 20%</td>
</tr>
<tr>
<td>D Range</td>
<td>PFZ Stain Olive – 80%, PFZ Opal Clear – 20%</td>
</tr>
<tr>
<td>Neutral</td>
<td>PFZ Opal Clear</td>
</tr>
</tbody>
</table>

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1. Apply opaque dentin and dentin to frame mesial and distal lobes. Use dentin porcelain to build to full contour.

2. Replicate mamelon effect and cut back the incisal third.

3. Create lingual ridges and build to contour.

4. Apply Natural Enamel Porcelain to the mesial and distal lobes.

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5. Continue application to the incisal one third of the restoration.

6. Complete the buildup of the facial aspect.

7. Build up the lingual surfaces to proper contour.

8. Add enamel porcelain to mesial and distal corners and dentin to any opaqued surface before firing.

For technical support call toll-free 800-243-1942 or fax 609-396-8282.
9. Fire the buildup. A properly fired crown will exhibit a shiny surface with a small amount of texture.

10. Use a diamond bur to perform any necessary finishing.

11. Repeat process as necessary for a second porcelain application.

12. The finished restoration with esthetic, natural appearance.

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1. Apply opacous dentin porcelain. For a FPD, apply to saddle area of pontic and seat framework.

2. Use dentin modifier as necessary to address deep dentin zones.

3. Frame mesial and distal lobes and build to contour.

4. Cut back dentin for the enamel porcelains and related effects.
5. Place mamelon porcelain on the dentin lobes to achieve mamelon effect.

6. Apply Natural Enamel Porcelain to the incisal or occlusal one third.

7. Use clear enamel porcelain arranged in parallel columns to create contrast.

8. Note contour of buildup and take care not to overbuild when compensating for porcelain shrinkage.
Natural enamels

Opal enamels

Opal enamels

Opal enamel

8

9

10

11

11. Apply Opal Enamel Porcelain that matches the dentin; layer Opal Enamel Porcelain on the lingual aspect as well.

10. Verify proper application of enamel porcelains on lingual aspect.

9. Continue application of Clear Opal and Natural Enamels to full contour.
12. Dry the buildup and fire to specifications. A proper visual indicator is shiny with a very small amount of surface texture.

13. Use diamond burs under irrigation to refine anatomy.

14. Apply second layer of corresponding dentin and enamel porcelains and fire accordingly.

15. Completed restoration demonstrates natural light transmission and esthetics.

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Ensure the coping is properly reduced. Place shaded margin porcelain on palette and mix with Ceramco PFZ Margin Liquid.

Apply porcelain to the gingival area, extending down to but not over the margin. Allow margin porcelain to dry to a chalky, hard appearance. The correct visual indicator will be shiny yet grainy.

Complete the 3-minute dry and 3-minute preheat cycles to remove organic material and avoid discoloration.

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Make a new mix of margin porcelain and Ceramco PFZ Margin Liquid and apply the mixture to the gingival margin.

Dry and fire the restoration according to the recommended temperatures. The visual indicator is shiny yet grainy.

Apply and fire the liner according to the recommended procedures.

Tight adaptation should be evident upon completion.

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When deep dentin zones are encountered, it is possible to mask these areas using dentin modifiers.

- Apply a layer of opaque dentin porcelain to achieve natural light transmission incisally.
- Layer in dentin modifier along the gingival third and contour.
- Complete the dentin, enamel, and effect buildups and fire the restoration in the normal manner.

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To replicate natural light transmission, it is necessary to create translucency in ceramic restorations.

- Cut back the completed dentin layer before layering in enamel and effect porcelains.
- Layer in mamelons and characterize incisal edges with Natural Enamel Porcelains.
- Complete enamel buildup and fire to achieve desired translucency.

For technical support call toll-free 800-243-1942 or fax 609-396-8282.
1. Apply thin coat of liner in an even layer over the coping.

2. Dry and fire the coping according to recommended temperatures. The correct visual indicator is a shiny surface.

3. Select correct shade and apply modified dentin to cervical third.

4. Apply dentin porcelain to full contour and cut back for enamel porcelains.

5. Add Natural Enamel Porcelain occlusally and extend to mesial and distal aspects.

For technical support call toll-free 800-243-1942 or fax 609-386-8262
6. Fire at recommended temperatures. A correct visual indicator is shiny with a very small amount of surface texture.

7. Continue with second application of Opal Enamel Porcelains as required.

8. Refine anatomy using diamond burs, using water irrigation as necessary.

9. Fire the completed porcelain buildup. A properly fired crown will exhibit a shiny surface with a small amount of texture.
Ceramco PFZ Natural Enamels can be layered over the dentin to duplicate the vitality of natural teeth.

- Mix the Natural Enamels with the dentin or Opal Enamel Porcelains for a variety of characterizations.

- Mix the Ceramco PFZ Opal Enamels with the Natural Enamels or use them as effect powders.

- Place melanin porcelains on the dentin porcelain lobes prior to applying enamel porcelains.

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Through the ceramic buildup, it is important to follow visual cues depicting the successful completion of a given step. Following here are several images that accurately demonstrate the intended result.

**Completed Crown Buildup**
A properly fired crown will exhibit a shiny surface with a small amount of texture.

**Completed Margin Porcelain**
The correct visual indicator will be shiny yet grainy.

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<table>
<thead>
<tr>
<th>Shade</th>
<th>Natural Enamel</th>
<th>Opal Effect Enamel</th>
<th>Margin Porcelain</th>
<th>Mamelon</th>
<th>Dentin Modifier</th>
<th>Shade</th>
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<tr>
<td>A1</td>
<td>Extra Light</td>
<td>Opal Light</td>
<td>A1</td>
<td>Yellow-Orange</td>
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<tr>
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<td>Yellow-Orange</td>
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### FIRING PROGRAMS in °C

<table>
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<tr>
<th>Program description</th>
<th>Time (min)</th>
<th>Vacuum</th>
<th>Set Temp</th>
<th>Temperature</th>
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<tbody>
<tr>
<td></td>
<td>Pre Dry</td>
<td>Vac</td>
<td>Hi Temp</td>
<td>Hold</td>
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<td>5</td>
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<td>1 min</td>
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<td>Liner, 2nd bake</td>
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<td>Overglaze/stains</td>
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<tr>
<td>Add-On</td>
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### FIRING PROGRAMS in °F

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<td>15 sec</td>
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<tr>
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<td>5</td>
<td>0</td>
<td>1 min</td>
</tr>
<tr>
<td>Liner, 2nd bake</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Op Dentin/Dentin/Mod/Enamels, 1st bake</td>
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<td>5</td>
<td>0</td>
<td>15 sec</td>
</tr>
<tr>
<td>Op Dentin/Dentin/Mod/Enamels, 2nd bake</td>
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<td>5</td>
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</tr>
<tr>
<td>Natural glaze/stains</td>
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<td>30 sec</td>
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<td>Add-On</td>
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“Today’s ceramic materials afford unprecedented options in the dental laboratory. It’s imperative for the technician to invest him or herself into a system, to understand its nuances and harmonies, when we’re pursuing the ultimate goal—the patient’s satisfaction.”

—Adam J. Mieleszko, CDT, New York, NY
Creating Art can be Challenging...

Building Restorations shouldn’t be!

CERAMCO PFZ porcelain utilizes the latest in advanced manufacturing processes to provide exceptional esthetics and the ease of use. This leucite-free porcelain is a cutting-edge material that has incomparable thermal stability for increased productivity, while maintaining remarkable shade vitality and fluorescence of natural dentition.

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