

- The colors shown in this brochure can be slightly different from those of the actual product.
- Before using this product, be sure to read the IFU (Instructions for Use) supplied with the product.
- The specifications and appearance of the product are subject to change without notice.

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CERABIEN

Dental Ceramic

CERABIEN™ ZR

FC Paste Stain

Technical
Instructions

1. Cautions

- ① When polishing and grinding a restoration("CERABIEN™ ZR") being fabricated, use an approved dust mask and vacuum with an air filter to protect your lungs from inhaling either dust or liquid.
- ② A restoration made with "CERABIEN™ ZR" is very hot immediately after baking. Do not touch it with your bare hands for a considerable amount of time after removing it from the furnace.
- ③ After using "CERABIEN™ ZR" FC Paste Stain, wipe any remaining paste off the rim of the container and tighten the cap securely to prevent the contents from drying out.
- ④ "CERABIEN™ ZR" FC Paste Stain, IS LIQUID and ES LIQUID are flammable. Do not use them near fire or high-temperature objects.
- ⑤ IS LIQUID is a stimulant liquid. When using it, good ventilation and an approved dust mask, safety glasses and gloves are recommended.

2. Important notes

- ① When using "CERABIEN™ ZR", if the patient or the dental professional demonstrates a hypersensitivity reaction, such as rash, dermatitis, etc., discontinue use of the product and seek medical attention immediately.
- ② When polishing and grinding a restoration("CERABIEN™ ZR") being fabricated, use safety glasses to prevent dust or liquid from getting into your eyes. If dust or liquid gets into your eyes, immediately rinse with copious amounts of water and seek medical attention.
- ③ Stains and plaque can accumulate on a restoration, once it has been put in position in the patient's oral cavity, depending on the patient's eating habits or food choices. Instruct patients about the importance of cleaning their restorations.

3. Storage

- [Storage method] ● "CERABIEN™ ZR" must be stored in a cool and dry place and keep away from direct sunlight. "CERABIEN™ ZR" should be stored at 1-30°C (33.8-86°F).
- "CERABIEN™ ZR" FC Paste Stain, IS LIQUID and ES LIQUID must be kept away from fire or high-temperature objects.

- [Expiration period] ● "CERABIEN™ ZR" must be used by the expiration date indicated on the package.

4. Precautions to take when using the product

- ① If the FC Paste Stain in the container has any precipitate at the bottom, stir before use until the contents are uniformly mixed, taking care not to entrap any air bubbles.
- ② When adjusting the viscosity of FC Paste Stain, dispense the required amount of FC Paste Stain from the container and mix ES LIQUID with it until you obtain the desired consistency. Do not put the ES LIQUID directly into the FC Paste Stain container.
- ③ When using a porcelain furnace for the first time, perform a baking test run in advance, since the working temperatures of porcelain furnaces may vary from one device to another.
- ④ Use only "CERABIEN™ ZR" with the LIQUIDs named in the "Directions for Use" contained in the manufacturer's Technical Instructions to prevent the restoration from possibly changing color when it is baked.
- ⑤ Do not mix "CERABIEN™ ZR" with any dental porcelain other than "CERABIEN™ ZR" or use it in unauthorized combinations. "CZR PRESS LF" and "CZR PRESS" may be used with "CERABIEN™ ZR" if they are used according to the procedures stated in their respective Instructions for Use.
- ⑥ Do not use Internal Stain as an alternative to External Stain. Do not use External Stain or FC Paste Stain as an alternative to Internal Stain.
- ⑦ Do not apply External Stain over FC Paste Stain.
- ⑧ Do not mix External Stain with FC Paste Stain. You may mix Internal Stain shades with each other, or External Stain shades with each other, or FC Paste Stain shades with each other, when making color adjustments.
- ⑨ FC Paste Stain may be used for restorations fabricated using "CERABIEN™ ZR" or "CZR PRESS". Detail information for FC Paste Stain will be provided later in the Technical Instructions.
- ⑩ Do not use Margin MRP(porcelain) or Add-on(porcelain) for additional build-up if you are following the C or D directions for use in the Instructions for Use; otherwise too much gloss will be developed.

Color composition list

"CERABIEN™ ZR" FC Paste Stain is a paste type External Stain, suitable for a wide range of clinical applications, with variable shades.



	Shade	Application	Location
Translucent	Glaze	Used to give gloss with transparency across the entire crown.	Entire crown
	Clear Glaze	Used to give gloss with higher transparency across the entire crown. Used to mix with other shades to adjust their chroma.	
Enamel	Light Gray	Used to reproduce an effect of light-grayish transparency for the incisal edges.	Incisal edges
	Dark Gray	Used to reproduce an effect of dark-grayish transparency for the incisal edges.	
	Grayish Blue	Used to reproduce an effect of grayish and bluish transparency for the incisal edges.	
	Blue	Used to reproduce an effect of bluish transparency for the incisal edges.	
Dentin	Cervical 1	Used to give a brown tint to the cervical area.	Cervical area
	Cervical 2	Used to give an orange tint to the cervical area.	
	Cervical 3	Used to give an olive tint to the cervical area.	
	A+	Used to increase the chroma of A Dentin shades.	Dentin
	B+	Used to increase the chroma of B Dentin shades.	
	C+	Used to increase the chroma of C Dentin shades.	
	D+	Used to increase the chroma of D Dentin shades.	

	Shade	Application	Location
Enhancement	White	Used to reproduce white spots (white bands)	Areas where white spots occur
	Mamelon Orange 1	Used to reproduce light orange stain on the mamelons.	Mamelons
	Mamelon Orange 2	Used to reproduce dark orange stain on the mamelons.	
	Earth Brown	Used to reproduce surface stain or dark brown stain for pits and fissures.	Areas stained brown
Reddish Brown	Used to reproduce surface stain or dark reddish-brown stain for pits and fissures.		
Adjustment	Value	Used to adjust the transparency (value) of Dentin or Enamel shades	Mixing
	Black	Used to adjust the degree of darkness (value) by mixing with other shades.	
	Green 1	Used to suppress slightly the redness of Dentin shades by using the complementary color effect.	Dentin
	Green 2	Used to suppress slightly the redness of Dentin shades by using the complementary color effect.	
	Yellow	Used to give a yellowish tint by mixing with other shades.	Mixing
	Salmon Pink	Used to reproduce transparency similar to Luster Porcelain by mixing with Enamel shades or used to make an orange-pink by mixing with Dentin shades.	
	Pink	Used to give a pink tint by mixing with other shades.	
	Red	Used to enhance dark red by mixing with other shades.	
	Fluoro	Used to develop fluorescent color more strongly under ultraviolet light (but is transparent under visible light) by mixing with other shades.	

1)

Full-zirconia restorations

(Directions for Use C in the IFU)

*The directions for use vary with the type of restoration: Choose the appropriate procedure, either **1)** or **2)**.



1 Conditioning the restoration surface

- Condition the restoration surface by following steps (1) and (2) given below, if you are using "KATANA™ Zirconia".

* If you are using a dental milling ceramic block other than "KATANA™ Zirconia", pre-treat the restoration surface by following the manufacturer's Instructions for Use.

* Note that you cannot use Margin MRP(porcelain) or Add-on(porcelain) for additional build-up; otherwise, too much gloss will be developed.

(1) Morphological correction

Check the fit at the inner surfaces and margins between the full-zirconia restoration and the abutment of the plaster model. Also, check the thickness of the zirconia and the surface for any cracks on the restoration. After checking, grind the entire restoration using a diamond bur or a silicone point containing diamond particles. Use a copious spray of water or work on the restoration while it is wet.

Perform detailed anatomical form (crown contours and surface textures) if necessary, and polish the areas which come in contact with the opposing teeth.

(2) Cleaning

Alumina sandblast (0.2 MPa or lower) the restoration surface, excluding the areas which come in contact with the opposing teeth, followed by 10 minutes of ultrasonic cleaning.

2 Application of Glaze and Baking

Apply FC Paste Stain Glaze or Clear Glaze over the restoration, until it is 30μm or more thick, and bake the restoration according to "Baking schedule 1" on page 9. If there is insufficient gloss after baking, apply an additional layer of Glaze or Clear Glaze, followed by re-baking.

* In step 2, Glaze or Clear Glaze can be mixed with a shade selected from the color combination table on page 3, apply the mixture to the restoration, and then bake the restoration according to "Baking schedule 1".

* Use External Stain (Glaze, FL Glaze or VC Glaze) or CZR PRESS Glaze.



3 Application of Stain, Baking and Finishing

Check the color of the restoration after baking the glaze. If it is necessary to adjust the color, choose the desired Stain shade from the color combination table on page 3, apply it over the Glaze on the restoration, and bake the restoration according to "Baking schedule 1". If the stain is insufficient, apply an additional layer of the Stain, followed by baking. After the adjustments and baking are complete, polish the restoration using a silicone point to finish the restoration.

* Refer to the section, "Examples of staining with FC Paste Stain", on page 10 for the procedures for applying Stain to anterior or posterior teeth.



2)

① Restorations using a zirconia framework (including cases where "CERABIEN™ ZR", "CZR PRESS LF", and "CZR PRESS" are used together)

② Anatomical zirconia coping (including cases where "CERABIEN™ ZR" and "CZR PRESS LF" are used together)

*The directions for use vary with the type of restoration: Choose the appropriate procedure, either **1)** or **2)**.

(Directions for Use A, B and D in the Instructions for Use)



Fabricate a crown using any of the following three methods:

- If "CERABIEN™ ZR" (porcelain) is used over a zirconia framework or an anatomical zirconia coping (restorations fabricated up to dentin shape), follow steps A-1(1) through A-8 in Directions for Use A or steps B-2 through B-4 in Directions for Use B, following the manufacturer's Instructions for Use.
- If "CZR PRESS LF" (porcelain) or "CZR PRESS" (pressed ingot) is used over a zirconia framework, build-up and bake or press according to the manufacturer's Instructions for Use.
- If "CZR PRESS LF" (porcelain) is used over an anatomical zirconia coping, build-up and bake according to the manufacturer's Instructions for Use.

1 Making morphological corrections of the restoration

Perform morphological corrections of the crown and adjust the surface contours using a diamond bur (such as a "Pro-Tech Point-EX") or a paper-abrasive material (such as "Meister Cones"), followed by cleaning with water.

* Note that you cannot use Margin MRP(porcelain) or Add-on(porcelain) for additional build-up if you use "CZR PRESS LF" or "CZR PRESS".

2 Application of Glaze and Baking

If "CERABIEN™ ZR(porcelain)" or "CZR PRESS LF(porcelain)" is used as a substrate, apply a thin coat of FC Paste Stain Glaze or Clear Glaze. If you use "CZR PRESS(pressed ingot)", apply it until it is 30µm or more thick, and bake the restoration according to "Product used as a substrate" on page 8 and "Baking schedule" on page 9.

If there is insufficient gloss, apply an additional layer of Glaze or Clear Glaze, followed by re-baking.

* In step 2, Glaze or Clear Glaze can be mixed with other shades, apply the mixture to the restoration and then bake the restoration.

* The sintering temperature varies with the type of product used as a substrate.

* If "CERABIEN™ ZR" is used as a substrate, use External Stain (Glaze, FL Glaze or VC Glaze) or CZR PRESS Glaze.

3 Application of Stain, Baking and Finishing

Check the color of the restoration after baking the glaze. If it is necessary to adjust the color, apply a desired Stain shade over the Glaze on the restoration and bake the restoration, referring to "Product used as a substrate". If there is insufficient stain, apply an additional layer of the Stain, followed by re-baking. After baking, polish the restoration using a silicone point to finish it.

* During step 3, it is permissible to mix Glaze or Clear Glaze can be mixed with other shades, apply the mixture on the restoration, and then bake according to "Baking schedule 1".



[Product used as a substrate]

	Baking schedule
"CERABIEN™ ZR" (porcelain)	2
"CZR PRESS LF" (porcelain)	3
"CZR PRESS" (pressed ingot)	1

Baking schedule

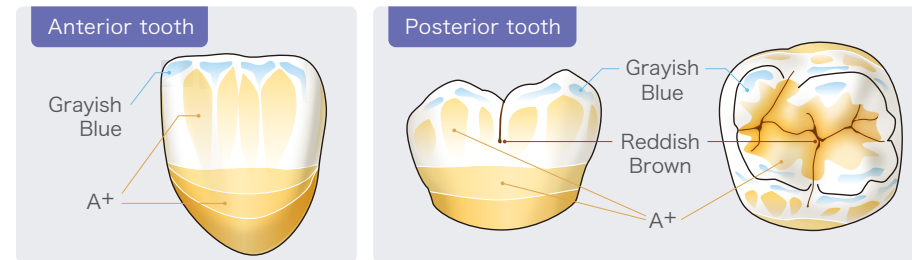


* The sintering temperature varies with the type of product used as a substrate.

Product used as a substrate	1 Zirconia and "CZR PRESS" (Pressed ingot)	2 "CERABIEN™ ZR" (Porcelain)	3 "CZR PRESS LF" (Porcelain)
Dry-out Time (min.)	5	5	5
Pre-drying Temperature (°C / °F)	500/932*1	600/1112	600/1112
Start Vacuum (°C / °F)	600/1112*1	—	—
Heat Rate (°C/ min. / °F/ min.)	45/81	45/81	45/81
Vacuum Level (kPa)	96*2	—	—
Release Vacuum (°C / °F)	750/1382	—	—
High Temperature (°C / °F)	750/1382	910/1670	840/1544
Hold Time in the air (min.)	1	0	0
Cool Time (min.)	4	4	4

*1 Predrying temperature and start vacuum temperature are different. *2 96kPa=72cmHg/29inchesHg

Examples of staining with FC Paste Stain



Enamel shades such as Grayish Blue

- For the occlusal surface of a molar, apply Enamel on the cusps, connecting each cusp and the marginal ridges with Enamel. It is important to apply Enamel along the contour from each cusp tip toward the root.
- For an anterior tooth, apply Enamel on the incisal edges. It is important to apply it so that it replicates the shadows of the mamelon structure.
- Do not stain the edges forming a border between two surfaces, such as the cusp tip, marginal ridges, or incisal edges.

Dentin shades such as A+

- To adjust the chroma of the entire tooth (both anterior and posterior teeth), apply Dentin horizontally. Apply it to the cervical area to increase the chroma, thinning the application gradually toward the cutting edges (the occlusal surface).
- For anterior teeth, apply Dentin on the mamelon structure vertically, to replicate the internal structure.
- For pits and fissures in the occlusal surface of the molar, apply Dentin along the central grooves to increase the chroma.

Enhancement shades such as Reddish Brown

- Apply enhancement on the occlusal surface of the molar, especially in deep pits and fissures, to stain. It is possible to give a three-dimensional appearance to the occlusal surface; however, too much touching-up is not recommended.