

FREQUENTLY ASKED QUESTIONS

Super Porcelain EX-3
CERABIEN™ ZR



Before using products, be sure to read the Instructions for Use supplied with the product.

Product Identification Marks ● Super Porcelain EX-3 ● CERABIEN™ ZR

General Questions:

- **Cracks appear horizontally at the incisal and cusp / cervical of the pontic or along the frame shape. What are the causes of cracks?**

The metal CTE* does not match that of the porcelain! *Coefficient of Thermal Expansion

Cracks will occur if the coefficient of thermal expansion of the metal used exceeds the applicable range.

The porcelain is not bond well to the metal!

Please refer the metal manufacturer's instructions for use to pretreatment. For example, sandblasting, cleaning, degassing, etc.
Opaque should be used Paste Opaque or Powder Opaque.

The porcelain baking schedule is not appropriate!

Be sure that the Paste Opaque is slightly shiny after baking. If the Paste Opaque is not shiny and has an eggshell-like appearance, it may be under baking. Adjust the high temperature 20~30°C higher so that the surface becomes shiny after baking.

The porcelain is too thick!

Adjust the shape of the framework to keep the porcelain thickness below 2 mm at incisal edges, in occlusal cusps and under pontics.

The opaque baking temperature is too high!

If the second opaque bake is too glossy, lightly sandblast the surface with alumina.

Bubbles are coming from the metal framework!

If the metal contains porosity, gas, or impurities, the opaque may partially rise to the surface and crack during baking of the porcelain. In this case, will occur bonding failure or cracks. Recast with uncontaminated metal.

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- **When using a Co-Cr alloy or a Ni-Cr (without Be), the opaque does not remain on the baked surface and peels off cleanly. What is the cause of this?**

For metal framework made of Cobalt-Chrome alloy, Nickel-Chrome alloy without Be and Noble alloys containing 75- 85 percent Palladium and Copper, use NP Bonder of Paste Opaque or Powder Opaque for the first application.

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- **Can I use a gold bonding agent?**

The gold bonding agent is not bonding properly!

If a gold bonding* agent is used, paste opaque or powder opaque is baked first.
Then apply and bake the agent. Second layer of opaque* is baked on top of the agent.

*Please refer to the manufacture's instruction for use.

*Do not use paste opaque for second. Use powder opaque.

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- **After the first bake the body has separated from the opaque layer.**

The High Temperature on the second opaque is too high! (the surface is too shiny).

Sandblasting the opaque surface with 50µm alumina at a pressure of about 2bar (0.2 MPa) before application of body porcelain.

The Body porcelain is excessively condensed.

Do not over-condense after the excess moisture is removed. Vibration will cause it to lift from the opaque.

- **Cracks appear the cervical area (where the thickness of the porcelain is thin).**

The baking temperature of the first body is too low!

Adjust the high temperature so that the surface is slightly shiny.

The alloy CTE* does not match that of the porcelain! *Coefficient of Thermal Expansion

Cracks will occur if the CTE of the metal used exceeds the applicable range.

- **Is it possible to mix and use with porcelain materials from other companies?**

Not recommended. Different baking temperatures and the CTE* of the metal behaviors may cause cracking.

*Coefficient of Thermal Expansion

- **Cracks in the shape of a tortoise shell appear after baking the porcelain.**

The drying time is too short!

If the temperature is increased while the porcelain is not sufficiently dry, residual moisture will affect the baking and prevent uniform firing.

Drying time should be at least 7 minutes. If the amount of porcelain to be built up is large, the drying time should be longer.

- **After the porcelain crown was set in the mouth, the porcelain delaminated from the zirconia frame.**

The porcelain is not bonding well to the zirconia frame!

Please refer the zirconia manufacturer's instructions for use to pretreatment. For example, sandblasting, cleaning, etc.

- **After the second bake the second application separates from the first.**

The surface of the first bake is not appropriate!

1. Sandblasting with 50µm alumina at a pressure of about 2bar (0.2 MPa) the first bake between applications.
2. Ultrasonic cleaner the first bake in alcohol or acetone between applications.

The baking temperature is too low!

Bake at the same temperature as the primary baking.

The drying time is too short!

Drying time should be at least 7 minutes.

There is insufficient dry-out time and/or too much condensing on the second bake!

Leave the porcelain slightly wet and use at least 7 minutes dry-out time on all additional bakes.

The High Temp on the second bake was not high enough!

The temperature should be same as on the first bake.

- **After glazing there is not enough translucency.**

The baking temperature is too low!

Adjust the high temp so that the surface is slightly shiny after the first bake. The baking start temperature is not correct !

Follow the baking schedule chart.

If the starting temperature is too high, the porcelain surface is sintered; if it is too low, the organic materials cannot be burned out.

Other manufacturer's forming liquid is used!

Use Noritake Forming Liquid for EX-3, CZR Forming Liquid for CERABIEN™ ZR.

Components of the solution may affect the translucency of the porcelain.

The vacuum pump is not work properly!

Repair the pump if 96kPa (72cmHg) vacuum level is not reached in less than 60 seconds.

Dirty cleaning solution is contaminant the porcelain surface!

Use fresh solution in the ultrasonic cleaner.

There are any handling problems!

The longer the porcelain is allowed to building – up, it becomes too dry. If the porcelain is built on top of dried porcelain, bubbles are formed at the interface.

Hair dryer is used and dried!

Do not use a hair dryer to dry the porcelain. Local overheating may have adverse effects.

- **After the first bake porcelain separates from the zirconia frame.**

The porcelain is not bonded well to the zirconia frame!

Please refer the zirconia manufacturer's instructions for use to pretreatment. For example, sandblasting, cleaning, etc.

The high temperature on the second opaque is too high (the surface is too shiny).

Please lightly sandblast the opaque surface with alumina before application of body porcelain.

The body porcelain is excessively condensed!

Stop condensing as soon as the excess moisture is removed.

- **What is the difference between Cervical and Clear Cervical?**

Cervical is a highly chroma used for the cervical area. Clear Cervical is a translucent for the cervical area, which is used to reproduce internal coloration resembling the natural tooth without negatively affecting the chroma on the top layer of the cervical area. Since the color tone is given as a transformer for the cervical area, a deep color tone can be expressed without changing the saturation significantly.

- **What porcelain is used as a substrate when building up the gingival area?**

Please use PO Pink of Paste Opaque Modifier and OM Pink of Opaque Modifier or Pink, Red, Salmon Pink of internal. For CERABIEN™ ZR, use internal.

- **What is the baking schedule for each porcelain?**

Please refer to the baking schedule table. [CZR](#) [EX-3](#)

- **Is Enamel porcelain that represents natural tooth enamel?**

Body and Enamel reproduce the dentin color of natural teeth. Reproduce enamel in Translucent or Luster.

- **What is NP shade and NW shade?**

NP shade has a slightly pink hue. NP1.5 is the chroma between A1 and A2, and NP2.5 is between A2 and A3. NW shade is a whitening shade. NW0 is one shade lighter than B1, and NW0.5 is one shade lighter than A1.

- **What is Esthetic shade ?**

Esthetic White shade is a whitening shade. This shade is even whiter than the NW series. There are four shades: EW00, EW0, EW, and EWY (only EWY is white with a slight yellowish tinge).

- **The crown color become lighter or darker.**

The balance of Body and Enamel building-up is not correct!

If the Body thickness is less than 0.8mm, use about 0.2mm of Opacious Body underneath the body shade.

The Opacious Body is less translucency and higher chroma than the Body. The colors are easier to produce and have more depth.

If there is not enough space for porcelain, use Translucent only in the incisal area.

The Body and Enamel create the color structure of natural tooth dentin. The Body creates the color, and the Enamel gradually dilutes the color toward the incisal edge. Translucent represents natural tooth enamel.

Excessively thick Enamel building-up will result in less chroma.

In cases where a sufficient amount of building-up cannot be obtained, do not cover the entire surface with Translucent, use it only partially at the incisal area. If there is not enough porcelain space and there is excessive enamel the translucency will be too high. Use more Body and less Enamel.

● The color of incisal becomes darker.

Use one shade lighter Enamel or mix the two.

● Compared to the Vita Shade Guide, it seems more reddish.

When the crown is inserted in the mouth, the patient's gum color will absorb the redness of the crown. If the crown matches the shade guide exactly the crown tends to look dark.

High chroma shades like A3.5 and A4 tend especially to have this problem.

● After baking the stain, it turns black.

The mixed stain is exposed to air for too long!

The stain liquid contains organic material that can undergo chemical change after which it may not burn out properly.

Mix small batches of stain so they will be used quickly and keep the palette covered when not in use.

Keep the stain liquid out of direct sunlight.

Stain liquid from other companies is used!

Please use Noritake Stain Liquid.

● Hue shift compared to target shade.

If zirconia from other companies is used, its color will be affected. Please make sure that the zirconia frame has the appropriate color. If necessary, adjust the zirconia frame color with a Shade Base.

● Out of hue compared to target shade.

Zirconia has translucency properties. High translucency zirconia KATANA™ Zirconia UTML and STML are affected by the color of the abutment. If you want to check the color tone accurately, it is recommended to make a pseudo abutment tooth with composite resin, etc. and check the color on the abutment tooth.

● What is the difference between Meister Liquid and Forming Liquid?

Meister Liquid can increase drying time.

Suitable for time-consuming cases such as multicolor building-up or long-span bridges.

● Does each product always require the use of a special liquid?

Distilled water can also be used except for Paste Opaque,

Paste Opaque Modifier, Internal Stain, and External Stain and FC Paste Stain.

Luster

What are the characteristics of Lusters?

Luster is a translucent that expresses the opalescent effect of natural tooth enamel.

Luster

Is LT Royal Blue too blue?

LT Royal Blue is a type of porcelain used only in small quantities. Blue color can be adjusted with such as T Clear or LTx. Please adjust according to the intended use.

Which is the strongest opalescence?

LT Super Luster has the strongest opalescence.

Opalescence strength: LT Super Luster > LTx > T Blue.

Does opalescence decrease with repeated baking?

No change.

Add-on

Is there Add mate in the CERABIEN™ ZR?

No. Repair porcelain is Add-on and MRP (margin repair porcelain).

What is the use of the Add-on?

Both EX-3 and CERABIEN™ ZR Add on are repair porcelains that can be bakes at 880° C.

What areas are AD-T and AD-B used for?

AD-T is used for small additional building-up for Enamel and/or translucent. AD-B is used for small additions where some Body porcelain is needed. Both porcelains are used during the glazing cycle.

※Baking is possible without vacuum, but if bubbles remain after baking, baking should be with vacuum.

After Add-on baking, it becomes cloudy.

Too much Add-on is used!

If a large addition is required, use regular porcelain such as Enamel or Body etc.

What is the difference between margin (MRP) and Add-on?

Margin (MRP) is used to modify margin porcelain and Add-on are used to modify the crown area such as body and incisal area. MRP cannot be used before finishing due to its low baking temperature. It should be used after finishing.



Internal Stain / External Stain

What color is IS fluoro?

The color is colorless and translucency with an emphasis on fluorescence. It can be mixed for greater emphasis or used alone.

Is the baking temperature of the Internal Stain lower than that of the Body, does it cause baking defects?

The baking temperature of the Internal Stain is the temporary baking (fixing) temperature.
The stain is baked when the porcelain is built up and baked on top of the stain.

Is it possible to applied and baked directly to the frame?

Yes, it is possible. If applied directly to the frame, it should be baked at the same baking temperature as the Body.

Can an internal stain be used as a surface stain?

No, you cannot get a shiny surface.

How can I avoid mixing vertical and horizontal coloring?

For complex staining, multiple applications and baking can be used to dye without mixing.

Can internal stains be mixed with Body, Enamel, or other powders?

Can be mixed.
We recommend making a baking sample to check the color in order to confirm the appropriate amount of mixture.

After baking the Internal Stain, how thick should the translucent be building-up?

About 0.3mm. If you building-up the first application of Body and Enamel so that before baking, it is that same size as the desired final size, after it is baked it will have shrunk and you will have the right amount space about 0.3mm.

Can IS Liquid and ES Liquid be used together?

No, IS Liquid is used for Internal Stain, ES Liquid is used for External Stain.

More liquid is mixed to dilute the color of the Internal Stain, but the color will darken after baking.

Please use Internal Stain Bright to dilute the chroma.

The color is too intense.

Use Internal Stain Bright to reduce the chroma by dilution.
Apply Internal Stain over the opaque rather than over the Body/Enamel bake.

Bubbles appear when using Internal Stain.

The surface to which the stain is to be applied has not been properly prepared!

After the completion of the morphological corrections, sandblast the surface of the restoration at a pressure of 0.2 MPa with 50 μ m alumina and clean with ultrasonic cleaning using either acetone or alcohol.

Stains and glazes made by other companies do not shine when used.

Baking temperature differs depending on each manufacturer.
Please use Kuraray Noritake Dental's product.

What is the difference between External Stain and Internal Stain?

External Stain is a stain used for the surface layer, which is highly translucent and glazed at the baking temperature of the glaze.
Internal Stain is a stain used for the inner layers such as on the Body, Enamel etc., which is highly chroma and does not shine.

What is the difference between self-glazing and glazing?

Glazed Finish:

Glaze is applied and fired to produce a smooth, glossy finish.

Self-glazing finish:

If you want to express a surface with sharp and fine details, do not apply Glaze and finish only by baking at a lower temperature (about 30° C).

Selectively polish the areas to be smoothed with a silicon point, pearl surface before baking.

Super Porcelain EX-3 Paste Opaque

Are the baking schedules for paste opaque and powder opaque the same?

No, the baking program is totally different. See the Baking schedule.

Can I use one application to save time?

No, you must bake 2 times. It will be a cause of trouble such as bubbles and cracks due to too thick opaque.

Can paste and powder opaque be used together?

Yes, if you first fire the Paste Opaque and then apply the Powder Opaque over it.

The Paste Opaque modifier has a different color before and after baking.

The pre-baking color may turn greenish due to changes in organic components depending on storage conditions and length of time. After baking, there is no problem with the color tone.

Cracks occur when Paste Opaque is baked.

Make sure the baking temperature is appropriate. Follow the recommended baking schedule for Paste Opaque.

What is the purpose of using NP Bonder?

Bonding material for the use of Co-Cr alloy, Ni-Cr alloy or semi-precious alloys containing 75% to 85% palladium and copper in combination with paste opaque. It increases baking strength, prevents discoloration, and improves color brightness.

What is the diluent for Paste Opaque?

Please use Paste Opaque Liquid.

Paste Opaque is too soft and difficult to use.

There is slightly more liquid in the container for the purpose of preventing it from drying out. Do not stir in the container. Tilt the bottle and scoop out the liquid-free portion.

Can distilled water be used to dilute Paste Opaque?

No, even small amounts of water will cause bubbles. Use Paste Opaque Liquid.

Is it possible to shorten the baking schedule for Paste Opaque?

Not allowed. Be sure to follow the baking schedule as it may cause trouble.

Need a wash application and bake?

Not necessary. First, apply a thin coat of NP Bonder to the entire dry surface of the metal framework by rubbing. Then apply NP Bonder until approximately 70 percent of the metal coloration is masked and then bake it.

Can the viscosity be adjusted?

It is Possible. To adjust viscosity, mix with Paste Opaque Liquid to avoid entraining bubbles.

Can Body be applied directly to the baked surface of the NP Bonder?

It is possible, but the target shade will not be achieved. After baking NP Bonder, use an opaque of the target shade to prepare the base color.

Can NP Bonder be used mixed with opaque (Paste Opaque, Powder Opaque)?

Mixing is not allowed. NP Bonder must be used alone.

Is the baking temperature the same for a long-span bridge or a single crown?

The temperature is the same. If you feel that the product is not baked enough, please increase the baking temperature slightly.

Does the masking power decrease with repeated firing?

Repeated baking does not affect the masking power.

Bubbles appear after baking Paste Opaque.

The drying temperature is too high!

For types in which the drying position is close to the muffle (Drying at the entrance of the furnace is not possible), the temperature during drying is higher, and the liquid component of the paste may boil before drying.

Are the ingredients of Opaque Liquid and Paste Opaque Liquid the same?

Completely different. Use Opaque Liquid for Powder Opaque and Paste Opaque Liquid for Paste Opaque.

● Super Porcelain EX-3 ADDMATE

What is the difference between an ADDMATE and an Add-on?

Both are porcelains used for modification but baked at different temperatures.

What shades are available in ADDMATE?

The shade of each of the 7 ADDMATE porcelains is most similar to the EX-3 porcelain listed below.

Restoration shades	Addmate shades
A1O • A2O • A3O • B2O	Light Opaque
A3.5O • B3O • B4O	Dark Opaque
A1B • A2B • A3B • B2B	Light Body
A3.5B • A4B • B3B • B4B	Dark Body
All Enamel shades	Enamel
All Translucent shades	Translucent
LTo	Luster Translucent

*For restoration shades other than those listed in the table, select the appropriate Addmate shades that suit them best.

What are the causes of cloudiness and blackening after baking ADDMATE?

Please confirm the following information.

【Blackening and cloudiness】

EX-3 Forming Liquid or another company's liquid is used!

Use ADDMATE Forming Liquid.

Another company's porcelain separators is used!

Use a Magic Separator. The contents in the separator adversely affect the ADDMATE.

【Blackening】

Tissue paper fibers, dusts, etc. mixed in !

After drying, check to see if any fibers or other contaminants remain; if so, remove them.

ADDMATE became cloudy after baking. Can it be fixed by re-baking?

It will not be fixed. You need to remove it and then apply it again after determining the cause.

Can I bake with glaze at the same time?

A small amount of building-up (about the thin of occlusal paper) is possible.

450°C(842 ° F) → 700°C(1292 ° F) 96kPa* → Glaze temperature 920°C(1688 ° F) in the air

*96kPa = 72cmHg (29inchesHg)

Vacuuming to high temperatures may cause bubbles. 700°C(1292 ° F) or higher should be kept at atmospheric.

Can ADDMATE fix the cracks?

Cracks on the surface caused by external forces, such as dropping on the floor (cracks that disappear when water is applied), may be corrected.

Baking schedule for crack repair (For EX-3 use):

Bake at 40°C below the baking temperature of the glaze. Baked at 890°C if glaze is baked at 930°C.

Note

In case of incompatibility of the CTE* between the alloy and the porcelain, it cannot be corrected.

*Coefficient of Thermal Expansion

Is it possible to perform additional baking with ADDMATE after temporary set in the mouth?

Not recommended. The incidence of problems such as cloudiness and cracking are very high for crowns that are temporarily seated in the mouth when baked.

How to test bake before using ADDMATE?

We recommend that a small amount of ADDMATE be building-up on the crowns, etc. Please refer to the application and baking schedule. [EX-3](#)

If the temperature is not glossy at 700°C (1292°F)*, increase the temperature by 10°C (50°F) increments. If the surface is shiny at 720°C (1328°F), that temperature corresponds to 700°C (1292°F) in the baking schedule for your furnace.

Adjust all baking processes by 20°C.

*The temperature range of around 700°C (1292°F) is the temperature range where variations are likely to occur in firing furnaces.

Please check the temperature appropriate for your furnace.

Baked ADDMATE on a full-mouth case, but it doesn't bake well?

Larger cases, such as full mouths, require more calorie than single crowns. Adjust the temperature, e.g., hold time for 1 minute at the high temperature.

Can I fabricate porcelain crowns using only ADDMATE?

It is not possible. ADDMATE is used for small volume repair, less strength, and does not match the shade.

Will it be fused with a gold crown?

The CTE* is completely different, so does not bonding. *Coefficient of Thermal Expansion

Is it possible to bake an ADDMATE on top of the external stain after baking?

Not recommended. Air bubbles may appear depending on the thickness of the stain and firing conditions.

Is it possible to bake a external stain on top of the ADDMATE after baking?

Do not use any other porcelain except ADDMATE after baking ADDMATE.

Can ADDMATE be color-adjusted?

It is possible to adjust the color by mixing external stains.
It is recommended that the color be confirmed by test baking before use.

When baked, it does not bonding well.

The area to be building-up is lightly sandblasted with alumina and cleaned. Perform a test baking to confirm proper baking.

Can I transfer it to another container?

To ensure quality stability, store in glass containers without transfer to another container.



CERABIEN™ ZR Shade Base

Is the shade Base that increases bonding strength?

Bonding strength is the same as other porcelain such as Body.
Used to masking of discolored abutment teeth color.

Masking of metal or discolored abutment teeth color.

Use a Shade Base. Depending on the degree of discoloration, mix with an Opacious Body to adjust opacity.

Is Shade Base always used?

If you want to adjust the opacity and color of the frame, use a Shade Base. Use an Opacious Body or Body if you want to make use of the translucency and color of the frame.

Is Shade Base difficult to apply?

Use of Meister Liquid is recommended.
Meister Liquid has a longer drying time than Forming Liquid or distilled water and reduces drying during application.

Need a wash application and baking?

Required.
Wash application and baking is to improve the bond strength of porcelain to the zirconia framework.

Can I use only one application to save time?

Large amounts of application cause bubbles and shrinkage cracking.

The shade Base makes the entire crown opaque.

Is the application thickness is too thick!

Shade Base is used to masking the color of the discolored tooth color and color is opaque.
Apply at a thickness of about 0.2 mm. If necessary, mix with Opacious Body to adjust opacity.

After glazing, the margins do not fit properly, how can this be corrected?

Use MRP at this stage. Bake without vacuum up to a high temperature of 850°C (1562°F) .

MRP cannot be used before glazing due to its low firing temperature. It is used to correct margins after finishing.

Want to adjust MRP's color tone?

Use a 1:1 mixture of MRP and the appropriated shade(s) of margin porcelain. Bake it up to a high temperature of 900°C (1652°F) without vacuum.

*Please adjust the high temperature and perform test baking to ensure proper baking.

The use of margin porcelain results in a darker color.

Do not apply an excessive amount of Margin, as this will cause an unattractive opaque appearance, so that the labial/buccal angle of the triangular structure is less than 45 degrees.

When the frame on which the margin porcelain was built up is removed, it is left on the model.

First treat the model surface using plaster curing agent. This helps to prevent excess moisture into the plaster surface, thereby easy to remove form die. If the plaster surface has been cleaned with a steam cleaner even after treatment, reapply. Then apply Magic Separator (margin separator).

Polishing material

How is Pearl Surface™ used?

Pearl Surface™ C and F are polishing materials that are used to create a natural glossy finish after modifying the morphology of surfaces, without damaging the fine surface properties.

Pearl Surface™ C: medium finish

Pearl Surface™ F: for finishing

1. After completing the form correction, polish with a paper cone.
2. For medium and elderly patients with less surface irregularities and shiny crowns, "Pearl Surface™ C" is used for pre-polishing.
3. Baked on a porcelain furnace at 30 ° C to 40 ° C lower than normal self- glazing.
4. Finishing polish

[For medium, elderly tooth]

Polish again with "Pearl Surface™ C", followed by finish polishing with "Pearl Surface™ F".

[For younger tooth]

In case of uneven surface like younger tooth, "Pearl Surface™ F" is used to polish and finish the surface.