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Noritake

CERABIEN MiLai

LOW-FUSING PORCELAINS AND INTERNAL STAINS
FOR ZIRCONIA AND LITHIUM DISILICATE DENTAL RESTORATIONS

TECHNICAL GUIDE

Kuraray Noritake Dental Inc.

kuraraynoritake.eu

OUTSTANDING ESTHETICS AT THE FIRST GO

CERABIEN™ Milai is a set of porcelains and internal stains specifically designed for the micro-layering technique. The name “Milai” is derived from the term “micro-layering” and the Japanese word “mirai” (which means future). The innovative product based on synthetic feldspar enables dental technicians to add the final touch to their zirconia or lithium disilicate restorations in a simple and time-saving procedure for outstanding esthetics right from the start.

Various cut-back frames. Photos: courtesy of MDT Daniele Rondoni

FEATURES & BENEFITS

1 **COMPACT LINE-UP DESIGNED FOR MICRO-LAYERING**
For a minimized inventory, streamlined decision-making and a simple, efficient and economic finishing procedure.

2 **LOW FIRING TEMPERATURE (740°C / 1,364°F)**
For compatibility with a braad range of restorative materials including zirconia and lithium disilicate* and a simplified inventory management.

3 **UNIQUE PORCELAIN PROPERTIES**
Based on feldspathic synthetic porcelain for consistent handling and mechanical properties; multiple firing is possible.

*The material should have CTE within 9.5-11.0x10^{-6}/K (50-500°C)

OVERVIEW

ZIRCONIA

LITHIUM DISILICATE*

*The material should have CTE within 9.5-11.0×10^{-6}/K (50-500ºC)

PREPARATION* (page 5)

*To use CERABIEN™ MiLai porcelains with KATANA™ Zirconia, see page 6 for detailed procedure. For zirconia materials other than KATANA™ Zirconia, please refer to the Instructions for Use supplied with that product.

*To use CERABIEN™ MiLai porcelains with lithium disilicate materials, refer to the Instructions for Use supplied with that product.

APPLICATION OF A WASH AND BAKING* (page 6)

*Value Liner is available for controling the value of the restoration. When using Value Liner, proceed wash baking with Value Liner following step 1 on page 8.

APPLICATION OF INTERNAL STAIN* (page 6)

BUILDING-UP OF TRANSLUCENT OR LUSTER AND BAKING* (page 6)

MORPHOLOGICAL CORRECTION* (page 7)

APPLICATION OF GLAZE AND STAIN, BAKING AND FINISHING* (page 7)

COMPLETED!

COLOUR COMBINATION TABLE

VALUE LINER
10g / 50g

Value Liner 1 | Value Liner 2

ENAMEL
10g / 50g

E_2

TRANSLUCENT
10g / 50g

Tx

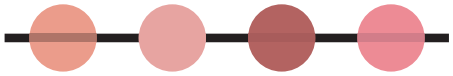
LUSTER
10g / 50g

ELT_1 | LTx | LT_1 | LT Super Gray | LT Royal Blue | Aqua Blue 2 | Creamy Enamel

CLEAR CERVICAL
10g / 50g

CCV-2

TISSUE
10g / 50g



Tissue 1 | Tissue 4 | Tissue 5 | Tissue 6

INTERNAL STAIN
3g

White | Gray | Incisal Blue 1 | Incisal Blue 2 | Blue

Yellow | Mamelon Orange 2 | Cervical 2 | Salmon Pink | Tissue Pink | Tissue Red

A^+ | B^+ | Fluoro | Bright

PREPARATION FOR BUILDING-UP

CERABIEN™ MiLai PORCELAIN

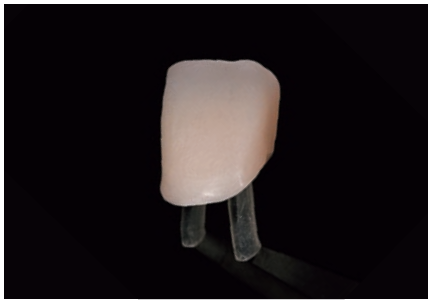
Condition the zirconia surface by following steps (1) and (2) given below, if you are using KATANA™ Zirconia. If you are using a dental ceramic milling block other than KATANA™ Zirconia, or a lithium disilicate material, pretreat its surface by following the Instructions for Use supplied with that product.

1 CONDITIONING THE ZIRCONIA FRAMEWORK SURFACE

Check the fit on the plaster model between the framework and the abutment at the inner surface, margins, etc.
Check whether there is enough space for building up a porcelain layer; ensure the zirconia is suitably thick. Grind the entire restoration using a diamond bur or a silicone point containing diamond particles.
Make sure that the restoration is thoroughly wet while working on it. Spray with water if necessary.

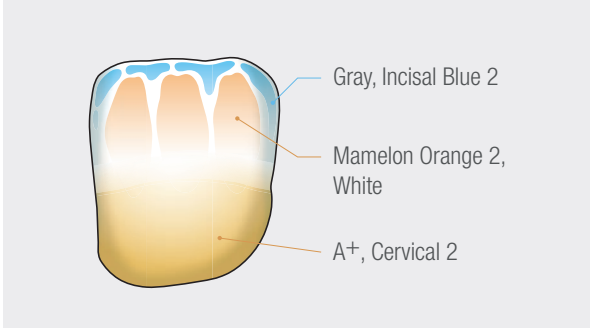
You can perform detailed anatomical carving (mamelon structure, margins) depending on the need. Grind the areas which come in contact with the opposing teeth. Check for any cracks after completion.

2 SANDBLASTING AND CLEANING



Sandblast the restoration surface at 0.2 MPa or less with 50 µm alumina particles, to allow the porcelain to bond well to the zirconia.
Follow with ultrasonic cleaning using either acetone or alcohol for approximately 10 minutes. When sandblasting the restoration, exclude the areas which come in contact with the opposing teeth.

EXAMPLE OF BUILDING-UP CERABIEN™ MiLai ON A ZIRCONIA FRAMEWORK



- The above image is only an example. Please select appropriate shades of porcelains or Internal Stains depending on your target shade.
- If you want to dilute the chroma of the Internal Stain, mix it with Bright.

RESTORATION
USING A ZIRCONIA FRAMEWORK

1 APPLICATION OF A WASH AND BAKING

To improve the bond strength of porcelain to the zirconia, apply a thin layer of CERABIEN™ MiLai Translucent or Luster over the zirconia framework.
Bake the restoration according to the baking schedule (“Wash Bake”) at the end of the Technical Guide.

ATTENTION:
In case that there is not enough space for building-up porcelains, Internal Stain can be used for wash baking. When using Internal Stain for wash baking, be sure to cover entire surface of the restoration with Internal Stain.
Bake the restoration according to the baking schedule (“Wash Bake”) at the end of the Technical Guide.

2 APPLICATION OF INTERNAL STAIN (OPTIONAL)

Apply Internal Stain to adjust the color of the restoration, as necessary.
Bake the restoration according to the baking schedule (“Internal Stain”) at the end of the Technical Guide.

3 BUILDING-UP OF TRANSLUCENT OR LUSTER AND BAKING

Apply Translucent or Luster (and Clear Cervical, if needed) to the crown surface, making the crown slightly larger than its target size. This will allow for any shrinkage caused by baking.
Bake the restoration according to the baking schedule (“Porcelain”) at the end of the Technical Guide once you finish building-up the porcelain.

The porcelain surface of the restoration should have a slight luster after baking.
Adjustments for any thin spots, hollows, etc. can be made by adding porcelain and re-baking.
In instances where a small amount of porcelain needs to be added to the contact area, the highest baking temperature should be approximately 10 degrees lower than the one given in the baking schedule.

ATTENTION:
The maximum thickness of CERABIEN™ MiLai porcelain layer should be same as or less than the thickness of the framework.

4 MORPHOLOGICAL CORRECTION

Start making the morphological corrections from the proximal area.
Create the labial groove with the tip part of a diamond bur. Proceed by extending it first in a vertical direction, then in a horizontal direction. Use the small head of a diamond bur to create the serration and the natural tiny grooves.
Polish away any roughness, especially in the proximal and marginal areas.
Clean the surface, as necessary, after completing the morphological correction.

5 APPLICATION OF GLAZE AND STAIN, BAKING AND FINISHING

Reproduce the appropriate gloss by self-glaze or by using CERABIEN™ ZR FC Paste Stain referring to the following methods:

Reproducing gloss by self-glaze

Using Pearl Surface C (for semi-finishing), perform fine-polishing then bake the restoration according to the baking schedule (“Self Glaze”) at the end of the Technical Guide.

Reproducing gloss using CERABIEN™ ZR FC Paste Stain Glaze or Clear Glaze

Apply a thin coat of CERABIEN™ ZR FC Paste Stain Glaze or Clear Glaze.
Bake the restoration according to the baking schedule of CERABIEN™ ZR FC Paste Stain. If the shade needs to be adjusted, different shades of CERABIEN™ ZR FC Paste Stain may be mixed.

6 COMPLETION

Final view of the restoration

RESTORATION
USING A LITHIUM DISILICATE* FRAMEWORK

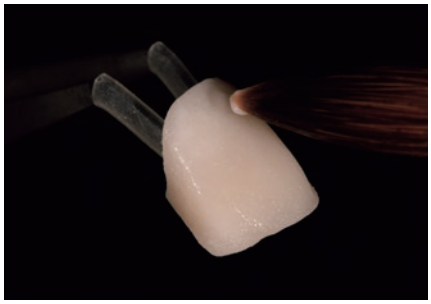
PREPARATION
When using lithium disilicate materials, pretreat the surface by following the Instructions for Use supplied with that product.

1 BUILDING-UP OF VALUE LINER AND BAKING

- **Due to its translucency, the value of lithium disilicate restoration may be lower compared to that of zirconia restoration when setting it in the mouth.**
- **CERABIEN™ MiLai comes with Value Liner, which add opacity and control the decrease in brightness of the frame.**
- **If there is no need to control the value of the restoration, use Translucent or LT1 following page 6.**

FIRST LAYER

Apply a thin layer of CERABIEN™ MiLai Value Liner over the framework.
Bake the restoration according to the baking schedule (“Wash Bake”) at the end of the Technical Guide.



SECOND LAYER

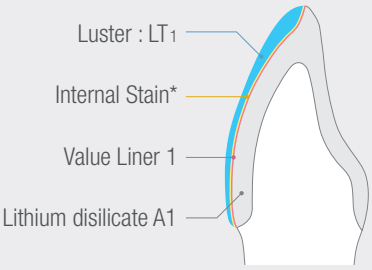
Apply a second layer of Value Liner if necessary.
Bake the restoration according to the baking schedule (“Porcelain”) at the end of the Technical Guide.

ATTENTION: CERABIEN™ MiLai is designed for micro-layering. Please keep in mind that each layer should be thin. Building-up too thick Value Liner layer may affect the esthetics of the restoration.

- After building-up Value Liner layers, continue the procedure from step 2 on page 6.

COMPLETION
Final view of the restoration.

Example of building-up CERABIEN™ MiLai on a lithium disilicate framework



*For the details of how to apply Internal Stain, please see the chromatic map on page 5.

- The above image is only an example. Please select appropriate shades of porcelains or Internal Stains depending on your target shade.
- If you need to add opacity and control the decrease in brightness of the frame further after wash baking using Value Liner, apply an additional coat of Value Liner and bake again.

*The material should have CTE within 9.5-11.0×10-6/K (50-500ºC)

CAUTION FOR USE

CONTRAINDICATIONS:

If the patient is hypersensitive to potassium-aluminosilicate glass or any other components, this product must not be used.

CAUTION AND WARNING

1. This product should not be used when malocclusion, clenching or bruxism conditions are present.
2. If the patient or the dental professional demonstrates a hypersensitivity reaction, such as a rash, dermatitis, etc., discontinue use of the product and seek medical attention immediately.
3. When mixing materials, or grinding a restoration being fabricated, use an approved dust mask and vacuum with an air filter to protect your lungs from inhaling either dust or liquid.
4. When mixing materials or grinding a restoration 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.
5. Do not use for any purposes except for fabricating dental restorations. This product is for dental application only.
6. The restoration 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.
7. IS LIQUID is flammable. Do not use near flames or high-temperature objects.
8. IS LIQUID is a stimulant liquid. When using it, ensure good ventilation and if necessary, wear a protective mask, safety glasses and gloves.
9. Stains and plaque can accumulate on a restoration after it has been placed 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.

PRECAUTIONS IN USE

1. This product's coefficient of thermal expansion is different from that of the porcelain materials used for dental metal ceramic restorations. (You may use this product on the surface of restoration BAKED using either "CERABIEN™ ZR" or CZR PRESS LF.)
2. Porcelain furnace temperature variations may be significant in the lower ranges. Determine the exact baking schedule by making a preliminary test before baking an actual case restoration.
3. The correct baking temperature for this product varies with the size of the restorations to be baked.
4. The Stain porcelain should be mixed using the specified liquid. (Use of liquids other than those specified may result in a darker restoration color than desired, after baking.)
5. This product is a low-temperature baking porcelain. To prevent discoloration of the porcelain, observe the following conditions:
- If tissue paper fibers get incorporated into the porcelain slurry during water sorption in the condensation procedure, the fibers will not burn off completely. After drying, check to make sure that no residual tissue fibers remain before baking.
- Always use freshly mixed porcelain.

6. The thickness of the layers applied with this product should not be thicker than that of the ceramic frame.
7. Keep the interior of the porcelain furnace clean by periodically firing it above 1,000ºC (1,832ºF) while empty.
8. Dispose of this product as a medical waste to prevent infection.

STORAGE

1. The product must be stored in a cool and dry place. Keep away from direct sunlight.
2. The product should be stored at 1 – 30ºC (33.8 – 86ºF).
3. The product must be stored in an appropriate place where only dental personnel have access.
4. The product must be used by the expiration date indicated on the package.
5. Do not store IS LIQUID near flames or high-temperature objects.

DIRECTIONS FOR USE

VALUE LINER

Shade	How to Use
Value Liner 1	Add opacity and control the decrease in brightness of the frame. Suitable for light shades such as A2 or lighter.
Value Liner 1	Add opacity and control the decrease in brightness of the frame. Suitable for dark shades such as A3 or darker.

ENAMEL

Shade	How to Use
E_2	Used for the dentin area, to reproduce translucent dentin color. Apply this shade to one-third of the way from the incisal edge.

TRANSLUCENT

Shade	How to Use
Tx	Used to reproduce high translucent enamel surface colour.

LUSTER

Use Luster instead of or in combination with Translucent to reproduce the surface texture, opal effect and color of the enamel.

Shade	How to Use
ELT_1	Bleaching shade, used when the target shade is EW/EWY.
LTx	High translucency and opal effect, used for a highly translucent incisal area. Use this alone or as a mixture with other Luster shades.
LT_1	Used to reproduce the brightness of natural tooth enamel. Use this alone or as a mixture with other Luster shades.
LT Super Gray	Useful for reducing brightness on incisal edges and for creating beautiful contrast effects. Use this alone or as a mixture with other Luster shades or Translucent Tx.
LT Royal Blue	Strong bluish incisal color. Used to reproduce the blue zone. Use this alone or as a mixture with other Luster shades.
Aqua Blue 2	Young age incisal area color. Used to reproduce the blue zone. Use this alone or as a mixture with other Luster shades or Translucent Tx.
Creamy Enamel	Used mainly on the cusps and ridges of molars, and occasionally on the area from mesial and distal proximal surfaces at the incisal edge of anterior teeth, to the area near the corners of the incisal edge.

CLEAR CERVICAL

Use Clear Cervical to reproduce internal coloration resembling the natural tooth without significant change to the chroma.

Shade	How to Use
CCV-2	Used for the cervical area.

TISSUE

Use Tissue to reproduce tissue color.

Shade	How to Use
Tissue 1	Reproduce general gingival color.
Tissue 4	Mix with Tissue 1 to enhance brightness. Suitable for adjustment of brightness in cases when the distance with the gingival is wide.
Tissue 5	Used for areas where an opacious red tone is required.
Tissue 6	Used to reproduce bright pink.

PRODUCT LINE-UP

Porcelain							
Liner	10g, 50g	Value Liner 1	Value Liner 2				
Enamel	10g, 50g	E_2					
Translucent	10g, 50g	Tx					
Luster	10g, 50g	ELT_1	LTx	LT_1	LT Super Gray	LT Royal Blue	Aqua Blue 2
		Creamy Enamel					
Clear Cervical	10g, 50g	CCV-2					
Tissue	10g, 50g	Tissue 1	Tissue 4	Tissue 5	Tissue 6		
Internal Stain	3g	White	Gray	Incisal Blue 1	Incisal Blue 2	Blue	Yellow
		Mamelon Orange 2	Cervical 2	Salmon Pink	Tissue Pink	Tissue Red	A^+
		B^+	Fluoro	Bright			

Liquid	
LF LIQUID	100ml
IS LIQUID	10ml / 100ml

BAKING SCHEDULE

Baking Schedule	Dry-out Time	Predrying Temp.		Start Vacuum		Heat Rate		Vacuum Level	Release Vacuum		High Temperature		Hold time In the air	Cool Time
	min.	°C	°F	°C	°F	°C/min.	°F/min.	kPa*1	°C	°F	°C	°F	min.	min.
Wash Bake	5	500	932	600	1112	45	81	96	740	1364	740	1364	1	4
Internal Stain	5	500	932	-	-	45	81	0	-	-	700	1292	-	4
Liner/Enamel/ Translucent/Luster/ Clear Cervical	7	500	932	600	1112	45	81	96	740	1364	740	1364	1	4
Minor Adjustment	5	500	932	600	1112	45	81	96	730	1346	730	1346	0.5	4
Tissue	5	500	932	600	1112	45	81	96	720	1328	720	1328	1	4
Self Glaze	5	500	932	-	-	45	81	0	-	-	710	1310	-	4
CERABIEN™ ZR FC Paste Stain	5	500	932	600	1112	45	81	96	730	1346	730	1346	1	4

Attention	The above program is only a guideline. Baking temperature may be varied with the peculiarities of different furnace. Porcelain furnace temperature variations may be significant in the lower ranges. Determine the exact baking schedule by making a preliminary test before baking an actual case restoration.

*1 96 kPa = 72 cmHg (29 inchesHg)

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- Before using this product, be sure to read the Instructions for Use supplied with the product.
- The specifications and appearance of the product are subject to change without notice.
- Printed colour can be slightly different from actual colour.

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