kuraray

Noritake

# FIRING GUIDE FOR CERABIEN™ MiLai

## LAYING THE FOUNDATAION FOR OUTSTANDING RESULTS

## FUTURE-PROOF YOUR LAB

CERABIEN™ MiLai is a set of internal stains and porcelains engineered for the micro-layering technique. The ultimate aim: deliver exceptional aesthetic results efficiently and reliably. Its advanced formulation provides for superior gloss, translucency, and colour consistency at low firing temperatures, making it a time-saving and highly effective solution for the finishing of ceramic restorations.

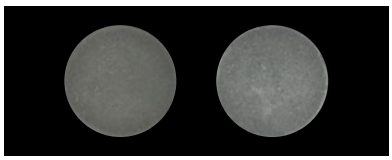

To fully harness the potential of CERABIEN™ MiLai, understanding your hardware is crucial. By tailoring furnace settings and leveraging the material's innovative formulation will offer valuable support in your striving for consistent, high-quality results.

## **STEP 1** VISUALIZE THE IDEAL RESULT

Start by understanding what a correctly fired CERABIEN™ MiLai sample looks like. Below are examples to guide your evaluation:

### OUTSTANDING RESULTS

High luster, uniform translucency, vibrant and consistent colour

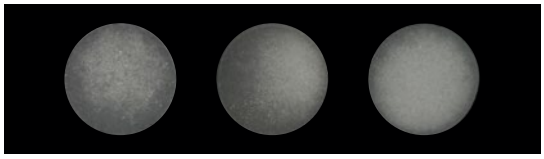


Button sample (t=1.2mm)

Perfectly fired CERABIEN™ MiLai samples demonstrating high-quality results.

### ROOM FOR IMPROVEMENT

Matte or uneven surface due to suboptimal hardware setup



Suboptimal firing due to furnace structure or configuration.

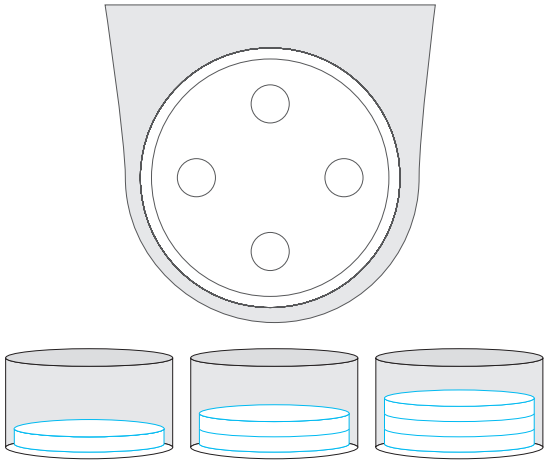
These references help you identify room for improvement in your firing process.

## **STEP 2** CONDUCT A TRIAL BAKE

Before beginning production, perform a **trial bake** to assess your furnace's firing consistency.

1. **Prepare the sample:** Use a CERABIEN™ MiLai button sample (i.e. thickness 1.2 mm).
2. **Test key positions:** Place the sample in various furnace locations:
   - Front, back, left, and right.
   - At different heights if ceramic mats are used.

This step allows you to identify stable zones and highlight areas where adjustments may be needed.



### TIPS FOR EVALUATION OF THE KEY POSITIONS IN THE FURNACE

**Proper positioning:** Based on our experience, positioning the elements in the centre or slightly higher in the furnace provides the most consistent results. This area benefits from uniform heat distribution and airflow, providing for optimal translucency and gloss.

**Height considerations:** Positioning the sample at a moderate height is key to achieving even firing outcomes. Avoid placing samples too low, as these areas may not receive sufficient heat exposure. Similarly, placing samples too high can result in reduced heat efficiency, especially in furnaces with pressing mechanisms or uneven heat flow near the top of the furnace.

**Positioning risks:** Positions near the observation window, lower-central regions, or furnace walls with higher material volumes may yield inconsistent results. The observation window might encourage heat loss due to its proximity to the external environment, while lower-central regions may suffer from inadequate heat exposure. Walls with higher material volumes can block the airflow, leading to uneven firing and suboptimal results.

**Tip:** Aim to position the sample in the middle of the furnace chamber, both horizontally and vertically, to lay the foundation for uniform heat exposure and consistent firing results. When possible, place the sample closer to the interior of the furnace rather than near the observation window, as the window area may experience slight heat loss. Adjust placement based on your specific furnace setup and observed results during trial bakes for optimal results.

## **STEP 3** ADJUST FIRING CONDITIONS

Once you have completed the trial bake, analyse the results and make necessary adjustments:

1. **Temperature adjustments:**
   - If minor inconsistencies appear, increase the peak temperature by small increments (e.g., 10°C / 50 °F).
   - Repeat the trial bake to confirm the adjustments.
2. **Placement modifications:**
   - Avoid problematic zones identified during the trial bake, such as the observation window area or regions near pressing mechanisms in the top.

Thanks to the optimized formulation of CERABIEN™ MiLai, even slight adjustments can have the desired effect.

## **STEP 4** RECOGNIZE AND CORRECT UNDERBAKING

If a sample is underbaked:

1. **Do not attempt to bake again:** Additional firing cannot restore colour, translucency, or structural integrity in underbaked samples.
2. **Remove and restart:** Adjust temperature settings, placement, or both, and start with a fresh sample.

**Preventive tip:** Conducting trial bakes before full production reduces waste and supports higher workflow efficiency.

## **STEP 5** UNDERSTAND FURNACE-SPECIFIC FACTORS

Each furnace operates differently, and understanding these nuances helps achieve consistent results:

1. **Press furnaces:**
   - Pressing mechanisms in the top can reduce heat efficiency in the upper regions.
   - Avoid placing samples too high within the furnace.
2. **Non-press furnaces:**
   - Older or uncalibrated models may have uneven temperature distribution.
   - Regular maintenance and calibration are critical for reliability.

By tailoring your approach to your specific furnace, you can achieve consistent results with minimal adjustments.

## **STEP 6** ESTABLISH A REFERENCE STANDARD

Once you have determined the optimal settings for your furnace:

1. Fire a button sample for each material or colour batch under your established conditions.
2. Attach the finished sample to the corresponding CERABIEN™ MiLai container.
3. Use this reference to provide for consistent results across different shades, translucency levels, and opalescence values.

This simple practice provides a clear standard for future work and simplifies troubleshooting when variations arise.

## **STEP 7** MAINTAIN OPTIMAL PERFORMANCE

To sustain high-quality results:

- Regularly calibrate your furnace to maintain accurate temperature settings.
- Keep detailed records of firing settings and outcomes to refine your process over time.
- Periodically re-evaluate firing conditions as furnaces age or new materials are introduced.

## UNLOCK CERABIEN™ MiLai's FULL POTENTIAL

CERABIEN™ MiLai is more than just a dental porcelain; it is a solution designed to support efficient procedures and aesthetic, high-quality outcomes. By following this firing guide, you can confidently integrate the material into your workflow, achieving consistent and beautiful results with ease. This way, CERABIEN™ MiLai empowers you to elevate your practice.

## BAKING SCHEDULE

| | Dry-Out Time | Predrying Temperature | | 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 | °C | °F | °C | °F | min. | min. |
| Wash Bake | 5 | 500 | 932 | 600 | 1,112 | 45 | 81 | 96 | 740 | 1,364 | 740 | 1,364 | 1 | 4 |
| Internal Stain | 5 | 500 | 932 | - | - | 45 | 81 | 0 | - | - | 700 | 1,292 | - | 4 |
| Liner/Enamel/ Translucent/Luster/ Clear Cervical | 7 | 500 | 932 | 600 | 1,112 | 45 | 81 | 96 | 740 | 1,364 | 740 | 1,364 | 1 | 4 |
| Minor Adjustment | 5 | 500 | 932 | 600 | 1,112 | 45 | 81 | 96 | 730 | 1,346 | 730 | 1,346 | 0.5 | 4 |
| Tissue | 5 | 500 | 932 | 600 | 1,112 | 45 | 81 | 96 | 720 | 1,328 | 720 | 1,328 | 1 | 4 |
| Self Glaze | 5 | 500 | 932 | - | - | 45 | 81 | 0 | - | - | 710 | 1,310 | - | 4 |
| CERABIEN™ ZR FC Paste Stain | 5 | 500 | 932 | 600 | 1,112 | 45 | 81 | 96 | 730 | 1,346 | 730 | 1,346 | 1 | 4 |

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.

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