

ceraMotion®
Zr



Foto: © Christian Ferrario

Handling Tips



D
DENTAURUM

Dear Customer,

In purchasing Dentaureum products for ceramic processing, you have selected high-quality products which are ideally adapted to one another for efficient and attractive ceramic work.

An essential precondition for working with ceramics is a high degree of precision and close adherence to the processing instructions.

This brochure contains a number of practical tips when working with our products.

Should any problems occur when you are using our products, we are here to assist you in solving them.

Our technical advisors will be pleased to help you with any questions regarding the use of our products **Hotline +49 72 31 / 803 - 410**.

Information and instructions for using Dentaureum ceramic systems can be found on the internet at **www.dentaureum.de**.

Please note!

- The accurate firing temperature of your ceramic furnace is essential for producing good ceramic work. The temperature of your furnace should be checked regularly (see indications on page 4).
- The furnace chamber should be cleaned from time to time in order to avoid contamination of the ceramics (see indications on page 4).
- Keep furnace closed. Always close furnace after use or switch to night mode to prevent absorption of moisture.
- The indications on page 4 are particularly important for the successful fabrication of temporary restorations with ceraMotion® Zr.

Contents

Furnace cleaning	Page	4
Handling tips for ceraMotion® Zr ceramics	Page	5–9

Handling tips for ceraMotion® Zr ceramics

Shades too light and not transparent enough. Ceramic material porous.	No.	1
Ceramic surfaces too rough.	No.	2
Ceramic surfaces too smooth. Edges and contours lose shape.	No.	3
Poor adhesion.	No.	4
Chipping during dentin firing.	No.	5
Cracks, basal or at shoulder.	No.	6
Length cracks after firing.	No.	7
Bubbles in ceramic material.	No.	8
Bubbles when firing temporary restorations.	No.	9
Shade is incorrect.	No.	10
Milky looking results, shade too light.	No.	11
Cracks after firing.	No.	12
Chipping after firing.	No.	13
Chipping in mouth.	No.	14

Furnace cleaning

The ceramic furnace must be cleaned regularly to remove contamination from the inner surfaces of the firing chamber.

We recommend:

- Clean furnace with carbon fiber chips (REF 260-317-00)
- Include firing trays in cleaning
- Base temperature: 600 °C/1112 °F
- Drying time: 1 min
- Heat rate: 100–120 °C/min / 212–248 °F/min
- Final temperature: 1050 °C/1922 °F
- Holding time: 10 min

Run firing program without vacuum. Follow the furnace manufacturer's instructions for use!

Tips for ceraMotion® Zr ceramics

No.	Problem	Cause	Solution
1	<p>Shades too light and not transparent enough.</p> <p>Ceramic material porous.</p>	<ul style="list-style-type: none"> ■ Pre-heating temperature too high. ■ Final temperature too low. ■ Vacuum was turned on too late. ■ No vacuum or insufficient vacuum when program running. ■ Moisture in the furnace chamber. ■ Use of baby oil as separating agent. ■ Correcting application too dry. ■ Ceramic repeatedly mixed with modelling liquid. 	<p>In order to adjust the firing temperature of your furnace, we recommend a test firing, as this is the only way to determine the correct firing sequence.</p> <p>For that purpose, use Transpa T material mixed with Modelling Liquid (REF 254-000-10) and run the first dentin firing.</p> <p>Put the test piece on platinum foil, not on firing cotton, as this may cause dulling. The temperature of the furnace is correct, when the test piece is clear, translucent and has sharp edges.</p> <p>Check vacuum.</p> <p>Keep furnace closed over night to avoid moisture in the furnace chamber.</p> <p>Use suitable separating agent for ceramics, e.g. SM-Isofit.</p> <p>Always ensure even level of moisture during layering. If necessary, use different mixing liquid (e.g. Standard+ or Me Standard).</p> <p>Use distilled water only to re-mix ceramics.</p>
2	<p>Ceramic surfaces too rough.</p>	<ul style="list-style-type: none"> ■ Final temperature too low. 	<p>See No. 1.</p>

Tips for ceraMotion® Zr ceramics

No.	Problem	Cause	Solution
3	<p>Ceramic surfaces too smooth.</p> <p>Edges and contours lose shape.</p>	<ul style="list-style-type: none"> ■ Final temperature too high. 	<ul style="list-style-type: none"> ■ See No. 1.
4	<p>Poor adhesion.</p>	<ul style="list-style-type: none"> ■ Final temperature too low. ■ Connecting/Liner firing too low. ■ Zirconium oxide framework was sandblasted or processed with diamond burs prior to veneering. 	<ul style="list-style-type: none"> ■ Check firing temperature of the furnace, see above. ■ Run connecting firing at least 30°C/86°F above the temperature of the dentin firing. ■ The crystal lattice could be deformed or the ZrO₂ could have changed phases, which can lead to chipping, cracks or late cracks.
5	<p>Chipping during dentin firing.</p>	<ul style="list-style-type: none"> ■ Furnace base temperature too high, furnace opening too narrow. ■ Firing trays and pins too hot. ■ Pre-drying time too short. ■ Measurement reading does not always reflect actual chamber temperature (dependent on position of thermocouple and heat radiation). 	<ul style="list-style-type: none"> ■ Check standby temperature; if necessary reduce temperature. Lift position should be at lowest position at start (some furnaces can be adjusted manually). ■ Use cold firing trays and cold pins. ■ Prolong pre-drying times for larger objects. ■ Do not place workpiece on firing tray too early.

Tips for ceraMotion® Zr ceramics

No..	Problem	Cause	Solution
6	Cracks, basal or at shoulder.	<ul style="list-style-type: none"> ■ Oily separating agent. 	<ul style="list-style-type: none"> ■ Use separating agent for low-fusing ceramics.
7	Length cracks after firing.	<ul style="list-style-type: none"> ■ Ceramic material had not been separated down to opaque before first dentin firing. 	<ul style="list-style-type: none"> ■ To control shrinkage, separate build-up down to opaque before first firing. Do not use dry, saw-like tools for this.
8	Bubbles in ceramic material.	<ul style="list-style-type: none"> ■ Dirt particles embedded. ■ Isolation on ceramic surface. ■ Poorly-cleaned surfaces (grinding particles act as separating layer). ■ Use of metal spatulas for mixing. ■ Liner and Dentin/Base Dentin not sufficiently pre-dried for connecting firing. ■ Sandblasted between firings with aluminium oxide and with too much pressure. 	<ul style="list-style-type: none"> ■ Cover material ■ Use clean water to clean brush. ■ Make sure to provide a clean work place. ■ Use suitable separating agents. ■ Clean surfaces thoroughly after grinding. ■ Use glass or agate spatula for mixing to prevent metal abrasion. ■ Check pre-drying time and temperature. ■ Avoid sandblasting.

Tips for ceraMotion® Zr ceramics

No.	Problem	Cause	Solution
9	Bubbles when temporary restorations are fired.	<ul style="list-style-type: none"> ■ Restorations worn were not dried properly. 	<ul style="list-style-type: none"> ■ Clean the restoration. The surface must be roughened or sandblasted. ■ Place in the pre-heating furnace at room temperature and raise 5 °C/41 °F per minute to 600 °C/1112 °F.
10	Shade is incorrect.	<ul style="list-style-type: none"> ■ Liner has been forgotten. ■ Discolored stump. ■ Wrong opacity with lithium disilicate. 	<ul style="list-style-type: none"> ■ Always apply a layer of liner on white ZrO₂ frameworks (see Mixing table), continue working with Base Dentin and Dentin. ■ Check stump shade, if necessary cover and bleach. ■ Select appropriate blanks.
11	Milky looking results, shade too light.	<ul style="list-style-type: none"> ■ Furnace temperature too low or holding time too short. ■ Very massive ZrO₂ frameworks. 	<ul style="list-style-type: none"> ■ Prolong holding time with ZrO₂ to compensate the poor thermal conductivity of ZrO₂, if necessary reduce heat rate.
12	Cracks after firing.	<ul style="list-style-type: none"> ■ Incorrect framework design. ■ Sharp edges and transitions. ■ Framework walls too thin. ■ Holes in ZrO₂ framework. ■ Ceramic build-up too thick or uneven. ■ Very massive ZrO₂ frameworks. 	<ul style="list-style-type: none"> ■ Incorrect framework design. ■ Sharp edges and transitions. ■ Framework walls too thin. ■ Holes in ZrO₂ framework. ■ Ensure anatomical framework design. ■ If necessary, work with slow cooling in the main firing cycles.

Tips for ceraMotion® Zr ceramics

No.	Problem	Cause	Solution
		<p>Use of unsuitable pins.</p> <ul style="list-style-type: none"> ■ Too much heat radiation during ceramic processing. 	<ul style="list-style-type: none"> ■ Do not use metal pins for ZrO₂. In lithium disilicate frameworks, round off metal pins or cover with platinum foil to avoid wrong adhesion of the restoration. ■ Do not use blunt diamonds. When using a turbine, always ensure water cooling. ■ Avoid selective steam-cleaning.
13	Chipping after firing.	<ul style="list-style-type: none"> ■ Incorrect framework design. ■ Occlusal ceramic layer too thin. ■ Use of unsuitable pins. 	<ul style="list-style-type: none"> ■ Ensure anatomical framework design, analogous to metal ceramic system. ■ Do not use metal pins for ZrO₂. In lithium disilicate frameworks, round off metal pins or cover with platinum foil to avoid wrong adhesion of the restoration.
14	Chipping in mouth.	<ul style="list-style-type: none"> ■ Incorrect framework conditioning (micro cracks in ZrO₂). ■ Incorrect framework design. ■ Incorrect firing cycles. ■ Contraindication for ZrO₂ in patients, e.g. patients with bruxism or other parafunctions, insufficient dental hard tissue or insufficient preparation result. 	<ul style="list-style-type: none"> ■ Always follow the manufacturer's instructions for use. ■ Ensure anatomical framework design, analogous to metal ceramic system. ■ Ensure to smooth or round off all edges and transitions of the framework. ■ Observe correct wall thickness according to manufacturer's instructions for use. ■ Observe holding times of veneering ceramic.

Dentaurum Group

Germany | Benelux | España | France | Italia | Switzerland | Australia | Canada | USA
and in more than 130 countries worldwide.



DENTAURUM
QUALITY
WORLDWIDE
UNIQUE

➔ For more information on our products and services, please visit
www.dentaurum.de

Date of information: 06/14
Subject to modifications



www.dentaurum.de

D
DENTAURUM