EN

ceramotion® Me

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Handling Tips

DENTAURUM

Dear Customer,

In purchasing Dentaurum 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 Dentaurum ceramic systems can be found on the internet at **www.dentaurum.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® Me.

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Handling tips for ceraMotion® Me ceramics

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® Me ceramics

No.	Problem	Cause	Solution
1	**Irregular coloration of framework surface after oxide firing.**	■ Unsuitable or contaminated grinding tools.	■ Use grinding tools suitable for the alloy. Use a different grinding tool for each alloy.
		■ Wrong or old casting crucible.	■ Use crucible for one metal only. If there is too much slag, use new crucible. Use ceramic crucibles only.
		■ Contamination through incorrect sandblasting and cleaning.	■ Sandblast the metal framework using a clean abrasive at a 45° angle, 2–3 bar pressure. Ultrasound cleaning using distilled water or steam clean.
		■ Porosity in metal framework with inclusions causing gas formation. Cause: – not enough casting metal – old casting metal (used too often) – not kept to correct proportion of old and new metal 50:50 – incorrect location of sprues – grinding in alternating directions during finishing – results in overlaps, particularly with precious-metal alloys – unsuitable diamond grinding tools used for finishing metal frameworks	■ Follow alloy manufacturer's instructions. Different alloy types (precious and non-precious metal alloys) require different procedures (finishing, oxidizing, pickling etc.).

Tips for ceraMotion® Me ceramics

No.	Problem	Cause	Solution
1	**Irregular coloration of framework surface after oxide firing.**	■ Inadequate grinding of framework surface. ■ Soldering. ■ Carbon, hydrogen and/or oxygen accumulations in alloy.	■ Grind again entire surface to be veneered. Reduce oxides, surface porosity and investment material residues. This also applies to milled or laser-melted frameworks. ■ Grind soldered areas carefully, pickle and sandblast. ■ Follow processing instructions of alloy manufacturer. Observe recommended flame adjustment, casting temperatures and crucible recommendations.
2	**Deforming of metal frameworks.**	■ Final temperature too high. ■ Heating rate too high. ■ Connector too thin.	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.
3	**Shades too light and not transparent enough.** **Ceramic material porous.**	■ Pre-heating temperature too high. ■ Final temperature too low. ■ Vacuum was turned on too late. ■ No vacuum or insufficient vacuum during program. ■ Moisture in the furnace chamber. ■ Unsuitable separating agent and/or separating layer too thick. ■ Use of metal spatulas for mixing. ■ Ceramic repeatedly mixed with modelling liquid. ■ Contaminated cleaning water for brush.	Use Transpa T material mixed with Modelling Liquid (REF 254-000-10) and run the first dentin firing. 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. Do not use baby oil or similar material as separating agent. ■ Use glass or agate spatula for mixing to prevent metal abrasion. ■ Use distilled water only to re-mix ceramics. ■ Exchange cleaning water for brush.

Tips for ceraMotion® Me ceramics

No.	Problem	Cause	Solution
4	**Ceramic surfaces too rough.**	■ Final temperature too low.	
5	**Ceramic surfaces too smooth.** **Edges and contours lose shape.**	■ Final temperature too high.	
6	**Poor adhesion between the ceramic layers.**	■ Final temperature too low. ■ See No. 12. ■ Ceramic was not evenly moist and/or dry during layering. ■ Surface of ceramic was contaminated prior to the firing cycles.	The right firing temperature produces a ceramic with a glossy appearance and sharp edges. If the ceramic is rough, the temperature is too low. Increase temperature in steps of 10 °C/50 °F and fire a new test piece. ■ Check the furnace temperature see solutions 2, 3, 4, 5. ■ Check vacuum. ■ See No. 12. ■ Make sure ceramic is evenly moist during layering. ■ After grinding and before firing, remove and steam-clean grinding dust or any other form of contamination (oil, separating medium, etc.).
7	**Insufficient glaze.**	■ Contamination of ceramic surface by grinding dust or residues of silicon and rubber polishers.	■ Clean well. ■ Increase the final temperature by 10 °C/50 °F and and repeat firing.
8	**Length cracks after dentin bake.**	■ Ceramic material had not been separated down to opaque before first dentin bake.	■ Use the Me Standard Modelling Liquid (REF 254-001-10). ■ To control shrinkage, separate build-up down to opaque before the first dentin firing.

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No.	Problem	Cause	Solution
9	**Cracks after firing.**	■ Incorrect framework design.	■ Framework design should be a reduced anatomical tooth form. Build stable framework.
		■ Framework finished with edges too sharp.	■ Round off edges with suitable burs.
		■ Framework completely covered with ceramic material.	■ Fabricate garlands or escape surfaces on frame to allow heat dispersion.
		■ No oxide firing.	■ Oxide firing according to instructions of alloy manufacturer.
		■ Ceramic material had not been separated down to opaque before the first dentin firing.	■ See No. 8.
		■ Slow cooling.	■ Quick cooling, open furnace immediately after firing, the furnace should be completely open at the latest within 15 sec. Repair cracks with Me Glaze (REF 252-270-02) and run 2nd dentin firing, no slow cooling.
		■ CTE of framework not within indicated range or marginal.	■ The CTE should be between 13.9 - 15.0/25-500 °C/77-932°F. If the indication refers to the range of temperature 26-600 °C/77-1112°F, it can be a little lower: 25-500 °C/77-932°F.
10	**Cracks or micro-bubbles, basal or at shoulder.**	■ Oily separating agent.	■ Use separating agent for low-fusing ceramics.
11	**Cracks and chipping in cervical area.**	■ Corrections from interior of frame, grinding too rough when adjusting fit.	■ Test framework fit in cases of inaccurate impressions or unfavorable preparations.
		■ Unfavorable die preparations.	■ Defined preparation limits, chamfer preparations if necessary.

Tips for ceraMotion® Me ceramics

No.	Problem	Cause	Solution
11	**Cracks and chipping in cervical area.**	■ Test-wearing of workpiece without bonding agent (cement). ■ Rough removal after testing framework fit. ■ Margin area is too thin.	■ Avoid provisional wearing of non-cemented workpieces. ■ Use "crown remover" only in interdental area. ■ Metal framework should not be less than 0.3 mm thick.
12	**Chipping during dentin firing.**	■ Furnace base temperature too high.	■ Reduce base temperature to 450 °C/842 °F.
		■ Furnace opening too narrow.	
		■ Firing trays and pins too hot.	■ Use cold firing trays and cold pins.
		■ Pre-drying time too short.	■ Prolong pre-drying times for larger objects.
		■ Measurement reading does not always reflect actual chamber temperature (dependent on position of thermocouple and heat radiation).	■ Do not place workpiece on firing tray too early.
		■ Surface dirty, possibly because of separating agent, grinding dust (acts as a separating layer).	■ Clean surface well before application to ensure good bond.
13	**Late cracking of ceramics.**	■ Heavy sandblasting of inner crown, possibly with excessive pressure and wrong grain size.	■ Blasting with 50 µm, pressure under 2 bars, with aluminium oxide or glass beads. ■ Avoid thin areas on frame – minimum 0.3 mm.
		■ Excessive steam-cleaning at certain points.	■ Steam-clean workpiece carefully. ■ Repair with Me Glaze (REF 252-270-02) and run 2nd dentin firing, no slow cooling.

Tips for ceraMotion® Me ceramics

No.	Problem	Cause	Solution
14	**Bubbles in opaque material.**	■ Opaque pre-drying phase too short and/or pre-heating temperature too high. Excess of opaque liquid: If the pre-drying phase is too short or pre-heating temperature too high, the liquid compounds evaporate too rapidly, causing bubbles, cracks and reduction of adhesion (chipping).	■ Reduce pre-heating temperature down to 450 °C/842 °F. Make sure that the firing trays and the pins are at room temperature. Observe radiated heat of furnace. Bottom lift position. Increase the pre-drying time to 1 or 2 minutes. Always place the piece in the furnace at pre-heating temperature, i.e. the furnace must have completely cooled down to the pre-heating temperature after the previous firing. ■ Clean brush for Paste Opaque with Paste Opaque Liquid (REF 254-006-02). Avoid contact with water. Adjust opaque consistency by adding a little Opaque Liquid.
		■ Oil residues caused by using compressed air.	■ Check compressed-air system. Avoid using compressed air.
		■ Separating agents, skin grease and cream residues on surface impair adhesion of ceramic material and cause bubbles and cracks in the opaque.	■ Clean treatment of surfaces.
15	**Bubbles with gold alloys with a high zinc content.**	■ No or insufficient sandblasting or pickling.	■ Please follow the alloy manufacturer´s instructions regarding sandblasting and pickling.
16	**Bubbles originating from framework.**	■ Incorrect framework conditioning: "smearing" processing causes unfavorable changes on the framework surface, especially with precious-metal alloys.	■ Use only carbide burs. Grind in one direction only. Carefully sandblast the surface of the frame with a microblaster using aluminium oxide (125–250 µm) and 2–3 bars air pressure at 45° angle. Then steam-clean. Oxide firing according to instructions of alloy manufacturer.

Tips for ceraMotion® Me ceramics

No.	Problem	Cause	Solution
16	**Bubbles originating from framework.**	■ Contamination: contaminated furnaces (if these are also used for other ceramic systems), bonder firings for Galvano, furnace solders, die investment materials etc.	■ Regularly carry out furnace cleaning firing with carbon fiber chips (REF 260-317-00). Furnace cleaning: – 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 – Firing program without vacuum – Follow furnace manufacturer's instructions for use!
		■ Shrinkage cavities or porosity holes after casting of the alloy.	■ Open shrinkage cavities and porosity holes and sold or weld.
17	**Bubbles in ceramic material.**	■ Dirt particles embedded.	■ Cover material (close the ceramic pots after using and protect the powders on your plate). After each grinding clean the restoration with running water.
		■ Separating agent on ceramic surface, poorly-cleaned surfaces (grinding particles act as separating layer).	■ Work more cleanly.
		■ Ceramic repeatedly mixed with modelling liquid.	■ Use distilled water only to re-mix ceramics.
		■ Bubbles originating from framework (see No. 16).	■ See No. 16.
		■ Bubbles in opaque material (see No. 14).	■ See No. 14.

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No.	Problem	Cause	Solution
18	**Bubbles when temporary restorations are fired.**	■ Worn restorations were not dried properly.	■ 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. ■ Minimum holding time: 2–4 hours. Remove directly from the furnace and start the correction firing.

Notes

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