EN

ceraMotion® Me

Photo: © Christian Ferrari®

Processing Instructions ceraMotion® Me

Veneering ceramic for dental alloys

DENTAURUM 1886

Contents

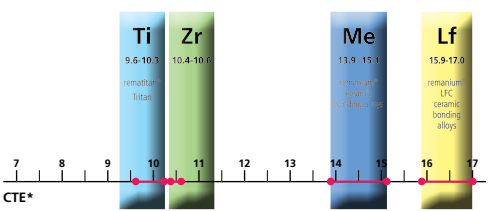
Classification

ceraMotion® Me is a veneering ceramic Type I Class 1 (according to DIN EN ISO 6872) for veneering frameworks made of precious metal alloys or non-precious metal alloys.

Indication

Allocation of ceramic to framework material

ceraMotion® veneering ceramics



ceraMotion® Me is suitable for veneer dental alloys with a thermal expansion of 13.9 · 10^{-6} K^{-1} to 15.1 · 10^{-6} K^{-1} (25 °C to 500 °C).

ceraMotion® Me must not be used for veneering frameworks made of high-performance ceramics (Al_2O_3, ZrO_2), titanium/titanium alloys, alloys containing more than 30% silver, or dental alloys outside the specified CTE range.

If there are known intolerances to any of the ingredients, ceraMotion® Me must not be used.

***CTE – coefficient of thermal expansion (10^{-6} K^{-1}, 25 °C to 500 °C).**

Framework design

The framework replicates the tooth in an anatomical form reduced in size; it is necessary to avoid corners and edges in the framework. The veneering ceramic can only be fired at a maximum layer thickness of 2 mm.

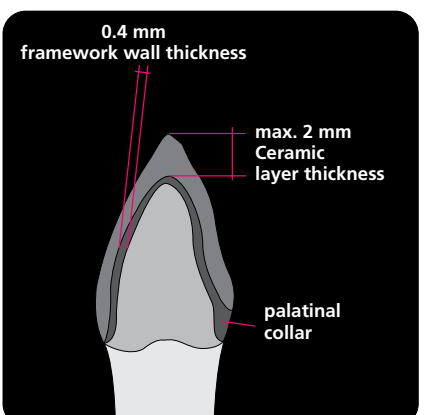


Fig. 1: Framework design, anterior crown

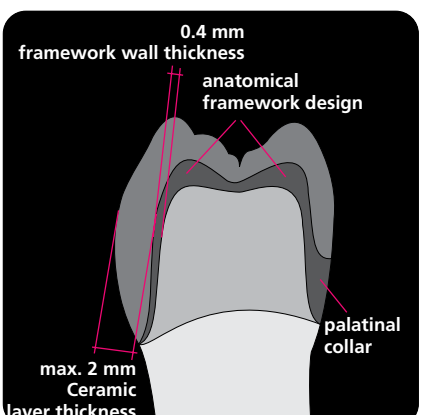


Fig. 2: Framework design, posterior tooth crown

Framework preparation

Please observe the manufacturer's instructions for finishing, blasting and oxidation firing.

Finish remanium® alloys with a cross-cut tungsten carbide bur, blast with Al_2O_3 (125 µm) and clean. Oxidation firing is not necessary for remanium®(Fig. 3), but is recommended as cleaning and control firing.

Further information on framework preparation for non-precious alloys can be found online at www.remanium-kompendium.de

Fig. 3: Framework

Note:

Dental alloys containing zinc (Zn) must be treated in an acid bath for 5 – 10 min after oxidation according to the manufacturer's instructions.

Fig. 4: Correctly fired firing sample

Fig. 5: Underfired firing sample

Firing check

To adjust the firing temperature of your furnace, we recommend carrying out a test firing. This is the only way to find the right firing procedure for your furnace.

To prepare the test sample, mix Transpa material T with Me Standard Modelling Liquid (REF 254-001-10).

Carry out the first dentin firing. Place the firing sample on platinum foil and not on firing cotton, as otherwise there is a risk of clouding.

The furnace temperature is correct if the firing sample comes out of the furnace clear, translucent, and with sharp edges (see Fig. 4).

If the temperature is too high, the sample is very shiny and no longer has any sharp edges. If the final temperature is too low, the sample is milky white (see Fig. 5).

Please lower or raise the final temperature accordingly in increments of 10 °C. Then fire another sample.

Fig. 6: Application with a brush

Fig. 7: Paste Opaque after the first firing

Paste Opaque

Paste Opaque:

Paste Opaque is suitable for all precious and non-precious bonding alloys as well as galvano gold.

Apply Paste Opaque evenly to the framework; no wash firing is required (observe the instructions of the alloy manufacturer).

Note:

Gently mix Paste Opaque in the jar with a glass or agate spatula before use. The paste should have a creamy consistency. To restore the correct consistency after mixing, Paste Liquid (REF 254-006-02) may be added in very small amounts.

Avoid contact between Paste Opaque and water; clean the brush with Paste Liquid.

Fig. 8: Second application of Paste Opaque

Fig. 9: Paste Opaque fully fired

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time
Me Primer CAD/CAM	500	8	75	500	980*	980*	1 min (with vacuum)
Paste Opaque 1 + 2	500	8	75	500	950/980*	950/980*	1 min (with vacuum)

This replaces the first firing Paste Opaque if ceraMotion® Me Primer CAD/CAM is used.
* For non-precious alloys, fire Paste Opaque 1 or ceraMotion® Me Primer CAD/CAM at 980 °C.

Powder Opaque

Opaque can be used on all indicated dental alloys. Apply Opaque evenly to the framework in 1 or 2 layers; no wash firing is required.

Fig. 10: First application of Opaque

Fig. 11: Opaque fully fired

Note: Mix Opaque with Powder BOL Liquid (REF 254-008-10) to a creamy consistency. Opaque can also be sprayed on using a spray-on system.

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time
Powder Opaque 1 + 2	500	6	75	500	930	930	1 min (with vacuum)

Layering scheme: Basic layering

Fig. 12: Basic layering scheme

Layering

Build up the complete anatomical tooth shape with Dentin, then cut back the Dentin in the incisal third. We recommend the mixing liquid Me Standard Modelling Liquid (REF 254-001-10).

Note:

Stains / Body Stains can be mixed into the ceramic materials at up to 10 %.

Fig. 13: Complete anatomical shape

Fig. 14: Cutback of the dentin in the incisal third

Fig. 15: Addition of incisal material

Fig. 16: Layering prior to the first firing

Layering

Addition of incisal material

Incisal allocation table:

Dentin shade	Incisal Standard	Incisal Opal	Incisal Transpa
A1, A2, B1	I 1	IO 1	IT 1
A3, A3.5, B2, B3, B4, C1, C2, C3, D2, D3, D4	I 2	IO 2	IT 2
A4, C4	I 3	IO 3	IT 3

Note:

The layers should be somewhat over-contoured to compensate for shrinkage during sintering (Fig. 15 + 16). To control shrinkage on bridges, the layering should be separated interdentally down to the framework before the first dentin firing.

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time	Long-term cooling
Dentin 1	500	6	55	500	870	870	2 min	–

Firing

ceraMotion® Me was developed for rapid cooling.
This also applies to use with non-precious alloys.
The surface should appear shiny after firing.
For long-span bridges and restorations with large pontics, support pins are recommended in all crowns.

The values specified here are guidelines and must be adjusted individually according to the manufacturer's instructions and age-related deviations of the dental furnaces.
The firing charts assume furnaces that are regularly calibrated with fine silver.
All information has been compiled carefully, but is provided without guarantee.

Correction layering

Results after the first dentin firing and correction layering.

Fig. 17: Result after the first dentin firing

Fig. 18: Shape corrections with Dentin and Incisal after the first dentin firing

Correction layering

Fig. 19: Shape corrections with Dentin and Incisal after the first dentin firing

Note:

For bridge designs, first fill the inter-dental spaces and the basal surface of the pontic with Dentin.

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time	Long-term cooling
Dentin 2	500	4	55	500	870	870	1 min	–

Processing

Shape corrections and finishing

Make the desired shape corrections with suitable instruments.
Grind the entire surface evenly and clean thoroughly before the glaze firing.

Fig. 20: Completion

Glaze firing

Individual shade effects can be achieved by applying Stains/Body Stains to the surface (Fig 21). If required, apply Glaze (glaze material), mixed with Stains Liquid REF 254-010-02 to the entire restoration.

Fig. 21: Application of Stains/Glaze

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time	Long-term cooling
Fixing Stains	500	4	75	500	860	860	20 s	–
Shine without glaze	500	4	75	500	870	870	1 min	–
Shine with glaze	500	6	75	500	860	860	1 min	–

Completion

The finished restoration after glaze firing.

Fig. 22: Finished restoration labial

Fig. 23: Finished restoration labial

Framework preparation with ceramic shoulder

Please observe the manufacturer's instructions for finishing, blasting and oxidation firing.

Finish remanium® alloys with a cross-cut tungsten carbide bur, blast with Al_2O_3 (125 µm) and clean. Oxidation firing is not necessary for remanium® (Fig. 1).

Further information on framework preparation for non-precious alloys can be found online at www.remanium-kompendium.de

Fig. 1: Reduced framework, blasted

Opaque

Fig. 2: Individual Paste Opaque

Fig. 3: Application with a brush

Opaque

Fig. 4: Paste Opaque fired with white band inserted

Fig. 5: Paste Opaque fired with orange effect inserted

Layering scheme: Individual layering

Fig. 6: Individual layering system

Mixing table for shoulder materials

ceraMotion® Me offers four shoulder materials, divided into the shade groups A-B-C-D. The shoulder material "white" can be mixed accordingly to produce all shade graduations from A1 to D4, as specified in the mixing table. Adding the shoulder material "transparent" increases the translucency of the shoulder. Use Shoulder Liquid mixing liquid (REF 254-004-02).

Tooth shade	A	B	C	D	white
A1	50%				50%
A2	65%				35%
A3	70%				30%
A3.5	100%				
A4	100%				
B1		35%			65%
B2		80%			20%
B3		90%			10%
B4		100%			
C1			50%		50%
C2			75%		25%
C3			85%		15%
C4			100%		
D2				60%	40%
D3	60%			30%	10%
D4				100%	

Notes

Shoulder

Fig. 7: First application of Shoulder material

Fig. 7: First application of Shoulder material

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time	Long-term cooling
Shoulder 1 + 2	500	6	55	500	900	900	1 min	–

Fig. 9: Second application of Shoulder material

Fig. 10: Fired shoulder

Layering

Build up the complete anatomical tooth shape with Dentin.

Fig. 11: Complete anatomical shape

Fig. 12: Cutback of the dentin in the incisal third

Fig. 13: Application of the Transpa margin

Fig. 14: Application of Dentin Modifier Fluo

Note: The individual layering shown is a suggestion and must be adapted to achieve the desired effects.

Layering

Fig. 15: White band added,
orange effect in the cervical area

Fig. 16: Alternate layering with I 2 and IO 2

Fig. 17: Cutback, application of Dentin Modifier Fluo orange, blended out to the incisal edge

Fig. 18: Addition of Dentin and Incisal Opal

Build-up

Fig. 19: Result after the first dentin firing

Fig. 20: Result after the first dentin firing

Correction layering and completion

Fig. 21: Layering with Dentin, Incisal and Transpa 1/1

Fig. 22: Processing and finishing of the surface

Completion

Fig. 23: Application of Stains/Glaze

Fig. 24: Finished restoration

Fig. 25: Finished restoration

Fig. 26: Finished restoration

Creative firing / additional firing:
a) Creative firing

- Natural-looking marginal and incisal ridges
- Individual gaze levels on a single restoration
- Correction and glaze firing in one step

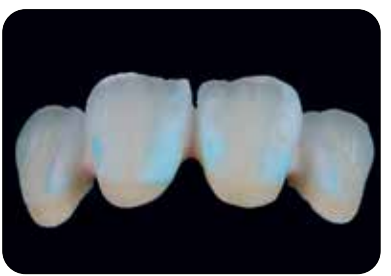


Fig. 27: Application of Dentin/Incisal TU materials mixed with Modelling Liquid

Fig. 28: Finished restoration

Note: It can be carried out with or without glaze material. When using glaze material, first wetten the entire surface, apply the staining, then apply the Touch Up materials over it.

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Final temperature °C	Holding time	Long-term cooling
Glaze and correction with or without glaze material	500	6	75	500	860	860	20 s	–

b) Additional firing

- Subsequently add occlusal contact points
- Basal relining

Fig. 29: Application of Touch Up for missing occlusion

Fig. 30: Basal relining

Note: It can be carried out with or without glaze material. When using glaze material, first wetten the entire surface, apply the staining, then apply the Touch Up materials over it.

Repair

□ Repair of a worn restoration

Fig. 31: Preparing the framework

Fig: 32: Finished restoration after glaze firing

Note: Restorations that have been worn in the mouth must be dried in the preheating furnace. Clean the restoration; the surface must be roughened or blasted. Heat the restoration in the preheating furnace from room temperature to 600 °C at 5 °C/min; holding time 2–4 hours. After the holding time, remove the object from the furnace immediately.

Apply Opaque medium and fire using the specified firing procedure.

For repair work, mix 50% Touch Up with 50% Base Dentin, Dentin or Incisal.

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Final temperature °C	Holding time	Long-term cooling
Touch Up Opaque	500	8	75	500	860	860	20 s	–
Dentin firing for repair	500	6	75	500	860	860	20 s	–
Glaze firing without glazing materials for repair	500	4	75	500	860	860	20 s	–
Glaze firing with glazing materials for repair	500	6	75	500	860	860	20 s	–

Firing chart (universal)

	Start temperature °C	Drying time (min)	Heating rate °C /min	Vacuum start °C	Vacuum end °C	Firing temperature °C	Holding time	Long-term cooling
Me Primer CAD/CAM	500	8	75	500	980**	980**	1 min (with vacuum)	–
Paste Opaque 1 + 2	500	8	75	500	950 / 980**	950 / 980**	1 min (with vacuum)	–
Powder Opaque 1 + 2	500	6	75	500	930	930	1 min (with vacuum)	–
Shoulder 1 + 2	500	6	55	500	900	900	1 min	–
Dentin 1	500	6	55	500	870	870	2 min	–
Dentin 2	500	4	55	500	870	870	1 min	–
Correction material*	500	4	75	500	860	860	20 s	–
Fixing Stains	500	4	75	500	860	860	20 s	–
Shine without glaze	500	4	75	500	870	870	1 min	–
Shine with glaze	500	6	75	500	860	860	1 min	–
Touch Up Glaze and correction with or without glaze material	500	6	75	500	860	860	20 s	–

This replaces the first firing Paste Opaque if ceraMotion® Me Primer CAD/CAM is used.

* The correction material must be mixed 1:1 with Base Dentin, Dentin or Incisal.

** For non-precious alloys, fire Paste Opaque 1 or ceraMotion® Me Primer CAD/CAM at 980 °C.

Firing

ceraMotion® Me was developed for rapid cooling.
This also applies to use with non-precious alloys.
The surface should appear shiny after firing.
For long-span bridges and restorations with large pontics, support pins are recommended in all crowns.

Physicochemical data (according to DIN EN ISO 6872) ceraMotion® Me

ceraMotion® Me	Type	Class	Coefficient of thermal expansion α (25 °C to 500 °C or T_G) in $1 \cdot 10^{-6}$ K^{-1}	Glass transition temperature T_G in °C	Chemical solubility L in µg/cm²	Flexural strength σ in MPa
Primer	I	1	12.1	610	40	120
Opaque	I	1	12.3	590	35	125
Dentin	I	1	12.5	550	35	95
Incisal	I	1	12.5	550	35	95
Modifier	I	1	12.5	550	35	95
Touch Up	I	1	12.3	520	30	100
Glaze	I	1	10.9	480	50	130
Stains	I	1	8.4	530	45	130

Product overview

Opaque, Paste Opaque	O, PO	OA1- OD4
Opaque Modifier	PO	gingival, orange
Paste Opaque Modifier	POM	gingival, orange
Primer CAD/CAM	PR	
Shoulder	SM	A, B, C, D, white, transpa
Gingival	G	1, 2, 3, 4
Incisal Value	IV	1, 2, 3
Value Modifier Bright	VM B	incisal opal, dentin opal
Incisal Modifier Value	IM V	opal pure, opal pink, opal violet
Transpa Modifier Value	TM V	orange, lemon, salmon
Transpa Value	TV	Transpa
Base Dentin	BD	A-D
Base Dentin Modifier	BDM	salmon, caramel, ochre, ivory, lemon, vanilla, brown
Dentin	D	A-D
Dentin Modifier Chroma	DM C	A, B, C, orange
Dentin Modifier Fluo	DM F	cream, yellow, orange
Incisal	I	1, 2, 3
Incisal Opal	IO	1, 2, 3
Incisal Transpa	IT	1, 2, 3
Transpa	T	Transpa
Incisal Modifier	IM	opal honey, opal white, opal blue, grey, opal grey
Chroma Concept Paste Opaque Chroma Concept Opaque	CC PO CC O	1, (bleach), 2, 3, 4
Chroma Concept Dentin	CC D	1 (bleach), 2 (bleach), 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
Chroma Concept Incisal	CC I	1 (bleach)
Touch Up Paste Opaque	TU BD	light, medium, dark
Touch Up Base Dentin	TU BD	light, medium, dark
Touch Up Dentin	TU D	light, medium, dark
Touch Up Incisal	TU I	medium, opal, transpa
Touch Up Gingival	TU G	2, 4
Correction	C	Transpa
Glaze	GL	Transpa
Body Stains	B ST	A, B, C
Stains	ST	1 white, 2 vanilla, 3 yellow, 4 orange, 5 pink, 6 purple, 7 blue, 8 grey, 9 olive green, 10 olive yellow, 11 medium brown, 12 red brown, 13 black
Liquids		Standard Modelling Liquid, Modelling Liquid, Modelling Liquid +, Paste Liquid, Powder BOL Liquid, Shoulder Liquid, Stains Liquid, Contrast Marker

Notes

Note

- The basis for fabricating good ceramics is the exact firing temperature of your ceramic furnace. We therefore recommend you regularly check the temperature controls on your furnace.
- The chambers should be cleaned from time to time to avoid contamination of the ceramic.
- Keep furnaces closed. To avoid moisture entering the chamber, always close the furnace after use and change to night mode where appropriate.
- For restorations temporarily worn in the mouth with ceraMotion® Me, the furnace cleaning instructions are crucial for successful further processing.

Furnace cleaning

Ceramic furnaces should be cleaned regularly to remove deposits on the inner walls of the firing chamber.

We generally recommend:

- Cleaning the furnace with carbon fire chips REF 260-317-00
- Also clean the firing tray
- Base temperature: 600 °C
- Drying time: 1 min
- Heating rate: 100 °C – 120 °C / min
- Final temperature: 1050 °C
- Holding time: 10 min

Carry out the firing program without vacuum. Observe the furnace manufacturer's instructions!

Processing tips for ceraMotion® Me ceramic

NO.	PROCESSING TIPS FOR THE FOLLOWING PROBLEM
1	Irregular shade of the framework surface after oxidation firing.
2	Metal frameworks are distorted.
3	Shades are too light and not sufficiently transparent. Ceramic is porous.
4	Ceramic surfaces too rough.
5	Surfaces are too smooth. Edges and contours become rounded.
6	Poor bond between the ceramic layers.
7	Glaze level insufficient.
8	Longitudinal cracks after firing.
9	Cracks after firing.
10	Cracks or microbubbles basally or on the shoulder after firing.
11	Cracks and chipping in the marginal region.
12	Chipping during dentin firing.
13	Delayed cracks in the ceramic.
14	Bubbles in the opaque.
15	Bubbles in high-gold alloy with high zinc content.
16	Bubbles originating from the framework.
17	Bubbles in the ceramic.
18	Bubbles during firing of temporarily worn bridges.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
1	**Irregular shade of the framework surface after oxidation firing.**	• Unsuitable or contaminated abrasive tools.
		• Wrong or old casting crucible.
		• Contamination due to incorrect blasting and cleaning.
		• Porosities in the metal framework with inclusions that generate gas. Cause: – Too little casting metal – Old casting metal (reused too often) – 50:50 old-to-new rule not met – Incorrect positioning of sprues – Grinding in different directions during finishing – which creates overlaps, especially with precious alloys – unsuitable diamond grinding point for finishing metal frameworks

	Remedy
	• Use abrasive tools suitable for the type of alloy. Use separate abrasive tools for each type of alloy.
	• Use the casting crucible for one metal only. Use a new crucible if too much slag is formed. Only use ceramic crucibles.
	• Blast the framework at a 45° angle using a disposable blasting unit at 2–3 bar pressure. Ultrasonic cleaning with distilled water or steam blasting.
	• Observe the manufacturer's instructions. Different types of alloy (precious and non-precious alloys) require specific procedures (finishing, oxidation, pickling, etc.).

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
1	**Irregular shade of the framework surface after oxidation firing.**	• Insufficient grinding of the framework surface.
		• Soldered joints.
		• Carbon, hydrogen and/or oxygen enrichment in the alloy.
2	**Metal frameworks are distorted.**	• Final temperature too high.
		• Heat rate too high.
		• Connector too thin.
3	**Shades are too light and not sufficiently transparent. Ceramic is porous.**	• Preheating temperature too high.
		• Final temperature too low.
		• Vacuum switched on too late.
		• Insufficient or no vacuum during the ongoing program.
		• Moisture in the furnace chamber.
		• Unsuitable and/or too thickly applied separating medium.

	Remedy
	• Rework the entire surface to be veneered. Reduce oxides, surface porosities and investment material residues. This also applies to milled frameworks or those fabricated by laser melting.
	• Thoroughly rework, pickle and blast the solder joints.
	• Observe the alloy manufacturer's processing instructions. Take the flame setting, casting temperature and crucible recommendations into account.
	We recommend you run a test firing to find the right firing temperature for your furnace, as this is the only way to assess the correct firing procedure. Use Transpa T material, mixed with Modelling Liquid (REF 254-000-10) and carry out the first dentin firing. Place the firing sample on platinum foil and not on firing cotton, as otherwise there is a risk of clouding. The furnace temperature is correct if the firing sample comes out of the furnace clear and translucent, with sharp edges. Do not use baby oil or similar products as separating media.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
3	**Shades are too light and not sufficiently transparent. Ceramic is porous.**	• Use of metal spatulas during mixing.
		• Ceramic remixed with modeling liquid.
		• Contaminated brush water.
4	**Ceramic surfaces too rough.**	• Final temperature too low.
5	**Surfaces are too smooth. Edges and contours become rounded.**	• Final temperature too high.
6	**Poor bond between the ceramic layers.**	• Final temperature too low.
		• See point 12.
		• The ceramic was not evenly moist during layering and may have been dry.
		• The surface of the ceramic was contaminated prior to the subsequent firings.

	Remedy
	• Use glass and/or agate spatulas for mixing to prevent metal abrasion.
	• Only use distilled water to remix the ceramic.
	• Replace brush water.
	The correct firing temperature results in a shiny ceramic with sharp edges. If the ceramic is rough, the temperature is too low. Increase the temperature in 10 °C increments and fire a new test sample. • Check the furnace temperature; see remedies 2, 3, 4 and 5. • Check the vacuum.
	• See remedy point 12.
	• Maintain a consistent moisture level during layering.
	• After grinding and prior to the subsequent firing, remove any grinding dust or other contaminants, such as grease or separating medium, and steam clean.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
7	**Glaze level insufficient.**	• Contamination of the ceramic surface by grinding dust or residues from silicone and rubber polishers.
8	**Longitudinal cracks after firing.**	• Ceramic material not separated down to the opaque prior to the first dentin firing.
9	**Cracks after firing.**	• Incorrect framework design.
		• Framework finished with edges too sharp.
		• Framework completely covered with ceramic.
		• No oxidation firing carried out.
		• Ceramic material not separated down to the opaque prior to the first dentin firing.
		• Long-term cooling.
		• CTE of the framework outside the specified range or very close to the limit.

	Remedy
	• Clean well.
	• Increase the final temperature by 10 °C and fire again.
	• Mix the materials with Me Standard Modelling Liquid (REF 254-001-10).
	• Separate the build-up down to the opaque prior to the first firing in order to control shrinkage.
	• Model reduced tooth shapes, design the framework to be stable.
	• Round off edges using suitable burs.
	• Model collars or cooling surfaces on the framework such that heat can dissipate from the framework.
	• Oxidation firing according to the alloy manufacturer's instructions.
	• See point 8.
	• Fast cooling; opening the furnace immediately after the firing process, i.e., the ceramic furnace should be fully open within 15 seconds at the latest. Wetten cracks with Me glaze material (REF 252-270-02) and carry out a second dentin firing; no slow cooling.
	• CTE should be in the range 13.9 °C – 15.0 °C / 25 °C – 500 °C. If the specification refers to the temperature range 25 °C – 600 °C, it may be slightly lower at 25 °C – 500 °C.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
10	**Cracks or microbubbles basally or on the shoulder after firing.**	• Oil-based separating media.
11	**Cracks and chipping in the marginal region.**	• Corrections to the inside of the framework; coarse reworking in the event of fit inaccuracies.
		• Unfavorable stump preparations.
		• Trial wearing of the restoration without bonding (cement).
		• Coarse removal after framework try-in.
		• Framework too thin in the marginal region.
12	**Chipping during dentin firing.**	• Furnace start temperature too high.
		• Furnace opening too narrow.
		• Firing tray and pins too hot.
		• Predrying time too short.
		• The displayed temperature does not always reflect the actual conditions in the furnace chamber (depending on the positioning of the thermocouple and heat radiation).
		• Surface contaminated, possibly by separating medium or grinding dust, (acts like a separating layer).

	Remedy
	• Use separating media for low-fusing ceramics.
	• Carry out framework try-ins in case of inaccurate impressions or unfavorable preparations.
	• Defined preparation margins; chamfer preparations where necessary.
	• Avoid trial wearing of non-cemented restorations.
	• Use the shepherd's hook only in the interdental region.
	• Framework must not be thinner than 0.3 mm.
	• Lower the base temperature to 450 °C.
	• Use cold firing trays and pins.
	• Increase the predrying times for larger restorations.
	• Do not place the object on the firing tray too early.
	• Clean the surface thoroughly prior to application to ensure bonding.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
13	**Delayed cracks in the ceramic.**	• Excessive blasting of the inner crown, possibly with too much pressure and the incorrect grain size.
		• Excessive localized steam cleaning.
14	**Bubbles in the opaque.**	• Insufficient predrying of the opaque and/or too high preheating temperature. If the proportion of opaque liquid is too high and the predrying time is too short, or the preheating temperature is too high, the liquids escape explosively. This results in bubbles, cracking and impaired bonding (chipping).
		• Oil residues caused by blowing with compressed air.
		• Separating media, finger grease and cream residues on the surfaces to be veneered weaken the bond and cause bubbles and cracks in the opaque.

	Remedy
	• Blast with 50 µm aluminum oxide or glass beads at a pressure below 2 bar.
	• Avoid thin areas on the framework – min. 0.3 mm.
	• Carefully steam clean the restoration.
	• Wetten cracks with Me glaze material (REF 252-270-02) and carry out a second dentin firing; no slow cooling.
	• Lower the preheating temperature to 450 °C. Ensure that both the firing tray and the pins are as close to room temperature as possible. Take account of the radiant heat from the furnace. Lift position fully lowered. Increase the predrying time to 1–2 min. Ensure that the object is placed in the furnace once the preheating temperature has been reached, i.e., the furnace must have cooled back down fully to the preheating temperature after a previous firing.
	• Clean the brush for paste opaque with Paste Liquid (REF 254-006-02). Do not allow contact with water. Adjust the opaque consistency with a small amount of Opaque Liquid.
	• Check compressed air system; avoid compressed air if necessary.
	• Handle the surfaces cleanly.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
15	**Bubbles in high-gold alloy with high zinc content.**	• No blasting or pickling.
16	**Bubbles originating from the framework.**	• Incorrect framework conditioning: smeary finishing leads to unfavorable changes to the framework surface, especially with precious metal alloys.
		• Contamination: Severely contaminated furnaces (if also used for other ceramic systems, bonder firings), bonder firings for electroformed restorations, furnace soldering, stump investment materials, etc.
		• Voids or porosities after casting.

	Remedy
	• Strictly follow the alloy manufacturer's instructions regarding blasting or pickling.
	• Use only hard metal burs and grind in one direction. After finishing, blast the framework with aluminum oxide (125 µm–250 µm) in a disposable blasting unit at a pressure of 2–3 bar and at a 45° angle. Then steam clean. Oxidation firing according to the alloy manufacturer's instructions.
	• Carry out furnace cleaning firing with carbon fibre pads more frequently. (REF 260-317-00). **Furnace cleaning:** – Also clean the firing tray – Base temperature: 600 °C – Drying time: 1 min – Heating rate: 100 °C–120 °C/min – Final temperature: 1050 °C – Holding time: 10 min – Carry out the firing program without vacuum. – Observe the furnace manufacturer's instructions!
	• Open the voids and porosities and laser-weld or solder them.

Tips for ceraMotion® Me ceramic

No.	Problem	Cause
17	**Bubbles in the ceramic.**	• Dirt particles incorporated during layering.
		• Separating media on the ceramic surface, poorly cleaned surfaces (grinding particles acting like a separating layer).
		• Ceramic repeatedly remixed with modeling liquid.
		• Bubbles originating from the framework (point 16).
		• Bubbles in the opaque (point 14).
18	**Bubbles during firing of temporarily worn bridges.**	• Worn restorations were not dried carefully.

	Remedy
	• Cover the material (close the ceramic jars after use and protect the powder on the mixing plate). Clean the restorations under running water after each grinding operation.
	• Work cleanly.
	• Only use distilled water to remix the ceramic.
	• See point 16.
	• See point 14.
	• Clean the restoration. The surface must be roughened or blasted. Heat the restoration in the preheating furnace from room temperature to 600 °C at a rate of 5 °C per minute. Holding time at least 2–4 hours. Remove directly from the furnace and carry out correction firings.

Notes

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