



User instructions

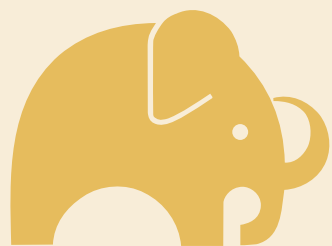




Elephant Dental's mission statement:

Our aim is to make a positive contribution to society through the development, manufacture and distribution of innovative, high quality product systems that are guaranteed to facilitate the work of dental professionals and increase patient satisfaction.

Elephant



dental health products

Indication:

Carrara Interaction is the high expanding, low melting dental ceramic for universal alloys.

Carrara Interaction can be easily fired on sub-structures with a thermal expansion coefficient between 15.8 and 16.9 $\mu\text{m}/\text{m}\cdot\text{K}$ (25-500°C).

Contraindication:

If patients are known to be allergic to any of the components, the material should not be applied.





Controlled interaction

Carrara Interaction Porcelain is the new high-expansion, low-fusing generation of controlled-interactivity ceramics within the existing Carrara System. With this ceramic, it is possible to exercise precise control over light and colour characteristics during the preparation of the restoration and after it has been placed in the patient's mouth. Applying the prescribed powders in accordance with the layering scheme creates a natural interaction of opalescence and fluorescence. With this intelligent ceramic, the restoration reflects every incidence of light as naturally as a normal tooth would.










Control and precision

The layering structure is created in the usual way. The dental technician can exercise precise control over the restoration's layers, ensuring that the result meets all requirements. The highly pragmatic and simple organisation of the harmonised system of colours and powders is reflected in all the components of our product range, the ceramic powders (jar labels), the *layer organiser* and the layering instructions.



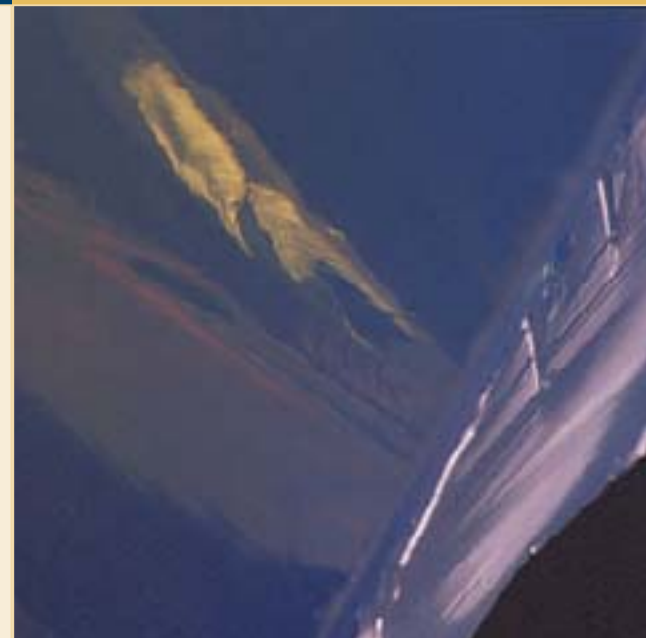
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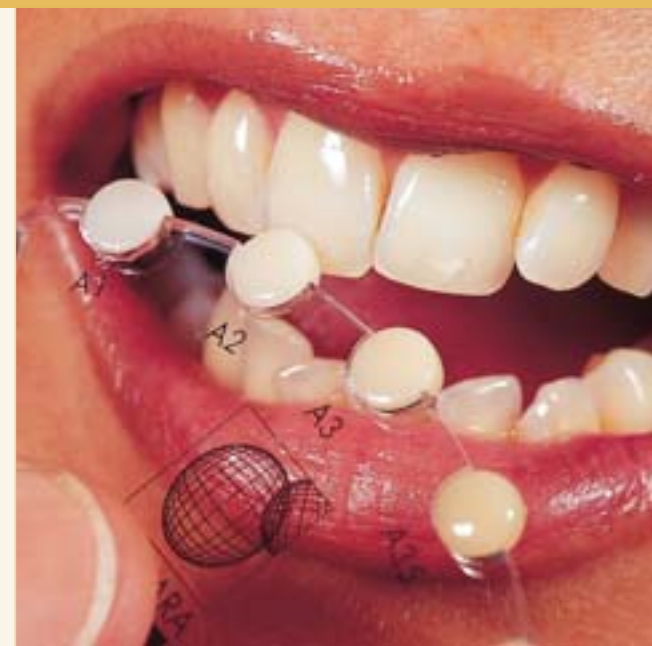
The interaction of fluorescence, opalescence, colour and light yields natural aesthetics

With its functional, layered structure, Carrara Interaction is the first ceramic to emulate completely the functional layered structure of natural teeth. Consequently, all layers, whether deep in the restoration or close to the roots are fluorescent, while the remaining layers are predominantly transparent and opalescent. This functional division of properties – where properties are geared to one another precisely – makes this patented system unique and gives rise to the interplay (interaction) that occurs automatically in normal structures. As a result, crowns have a completely natural appearance.



Colour determination and Carrara Interaction Shade guides

Carrara Interaction is 100% compatible with Lumin® Vacuüm/Vitapan® Classical. However, it is vital that technicians working on the restoration use the same reference material and communicate clearly with one another. The Carrara Interaction Shade guides' pellets are made of the original ceramic, which enables simple and accurate colour determination.



Accurate colours

The Carrara Interaction system employs colour information in a consistent manner. The colour of the completed restoration matches the tooth's natural colour. Powder combinations can easily be determined using the *layer organiser*.



Shadeguide of original ceramic



opaque dentin shade guide



dentin shade guide

Instructions for optimal colour determination

Ask yourself the following questions from time to time:

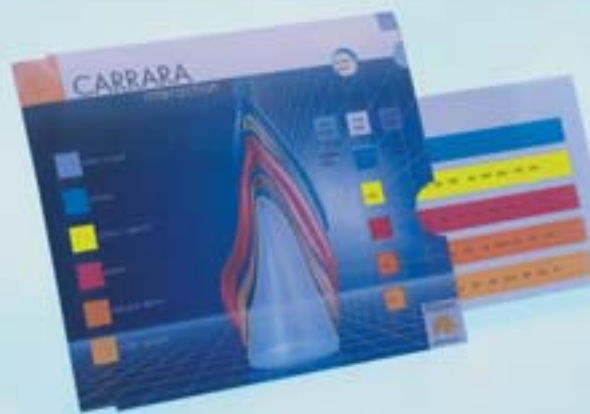
- Am I determining the colour under consistent light conditions?
- Is my perception affected by the environment (e.g. sharp colour contrasts)?
- Am I using the right *shade guide*?
- Am I examining the patient's mouth under the optimal 45° angle?



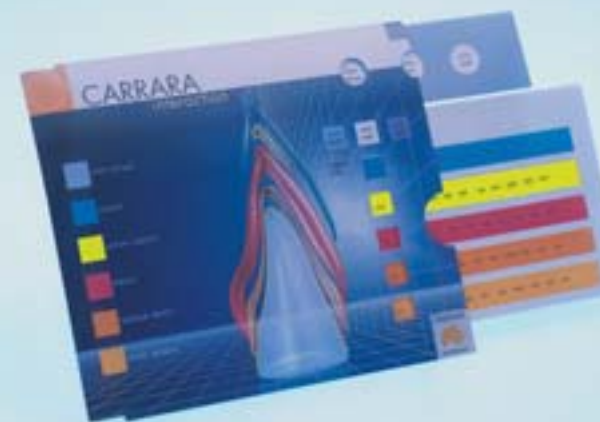
incisal shade guide



Layer organiser



Indication of the powders to be used



Indication of the x-tra incisals that may be used

The layer organiser

The *layer organiser* is a practical and easy-to-use tool to determine which powders are needed to create the intended colour. From bottom to top – *paste opaque* to *incisal* –, the powders associated with the colours involved can be determined accurately.

Slide open and read

If you slide open the large lower part of the *layer organiser*, you can read, in logical order, which colour combinations are required to create the layer structure displayed. When applying the *incisals* or colour corrections between the first and second dentin firing, the colour can be lightened or darkened using *x-tra i bright*, *x-tra i medium* or *x-tra i dark*.

Individual wishes are easily met

The upper part of the *layer organiser* shows the options for specific colours. During the final construction phase of the layered structure, the incisal third section of the element can be adjusted to the patient's wishes. The 'x-tra incisals' are all opalescent and yield a natural result due to their interaction with the underlying layers.



paste opaque	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
opaque dentin	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
dentin	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
action-i dentin	1A2		3A4			1B2		3B4		1C2		3C4		1A2	1B2	1C2
x-tra incisal	x-tra i blue/x-tra i red/x-tra i grey/x-tra i orange/x-tra i clear															
	x-tra i bright/x-tra i medium/x-tra i dark															
incisal	58		59		60	57	59		60	59		60		59		



Carrara PdF: high gold content

Carrara PdF: a yellow gold, universal alloy with high gold content

Observe the following guidelines when preparing a Carrara PdF underlying coping:

- Oxydation: 3 min. at **860°C** without vacuum.
- Oxide reduction: sandblast with 125 µm aluminum oxide (max. pressure 2 bar) or pickle the material in a clean pickling solution for a maximum of 1 minute.
- Cool down quickly (0 min) after each firing.



Carrara Press: press ceramic

Carrara Press Core: press ceramic

To produce objects using Carrara Press Core, we recommend following the Carrara Press step-by-step user instructions.



Cera E: palladium-silver

Cera E: Universal palladium-silver alloy

Observe the following guidelines when preparing a Cera E underlying coping:

- Oxydation: 3 min. at **890°C** without vacuum.
- Oxide reduction: NONE!
- Cool down normally (2-3 min.) after each firing.



A single firing ceramic for alloys and press ceramic

Cera F and Cera R Plus: a light yellow, universal alloy with reduced gold content

Observe the following guidelines when preparing a Cera F and Cera R Plus underlying coping:

- Oxydation: 3 min. at **860°C** without vacuum.
- Oxide reduction: sandblast with 125 µm aluminum oxide (max. pressure: 2 bar) or pickle the material in a clean pickling solution for a maximum of 1 minute. Afterwards clean again.
- Cera F: cool down normally (2-3 min.) after each firing.
- Cera R Plus: cool down slowly (5-7 min.) after each firing.



Cera F and Cera R Plus: reduced gold content



1 Oxidized underlying coping

2a Processing:

First opaque layer:

- Take the required quantity of *paste opaque* from the syringe.
- Use the enclosed *paste opaque brush*.
- Mix the material thoroughly.
- Apply the first opaque layer evenly from the incisal edge to the cervical. Make sure that it covers the entire surface.
- For a smoother surface, vibrate the applied layer to increase its density.

Firing chart:

Drying temp.	Starting temp.	Vacuum starting temp.	Rate of heat increase
6 min.	450°C	450°C	55°C/min.
Final temp.	Hold time	Surface appearance	
860°C	1-2 min.	eggshell gloss	

1 Finishing

Finish the material using carbide burs or ceramic bonded stones, or both. In the final stage, the material may only be polished in one direction using delicate crosscut carbide burs! Sandblast with 125 µm aluminum oxide (max. pressure: 3 bar). Clean the material using a steam cleaner or in an ultrasonic bath with distilled water.

Oxydation: See page 6 for the right oxydation treatment for each alloy!

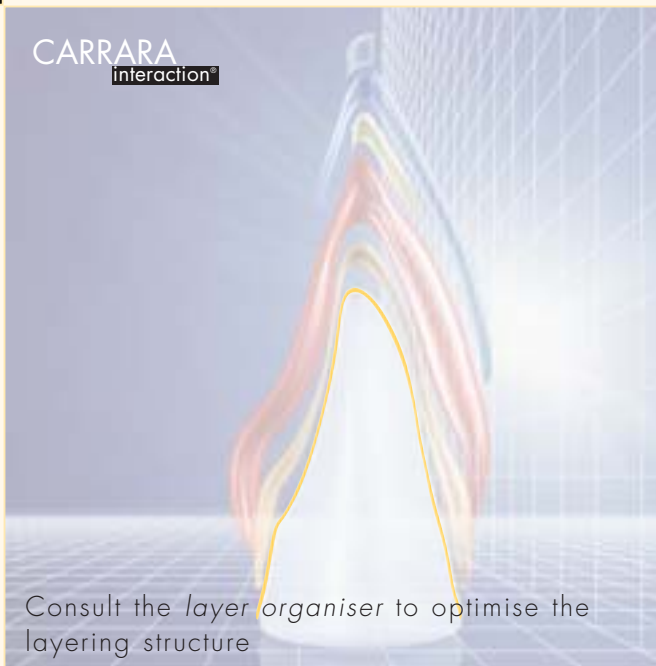


Recommended tools

i Pencil and Pencil (Brush) Cleaner:

Important: After removing it from its package, the *paste opaque* is ready for immediate use. Use the enclosed *brush cleaner* only to moisten or clean the brush. During processing, do not use water to clean the brush. If *paste opaque* comes into contact with water, cracks or air bubbles may form in the opaque layer during firing.

CARRARA
interaction®



Consult the *layer organiser* to optimise the layering structure

2b Processing:

Second opaque layer:

- Apply the second opaque layer evenly.
- For a smoother surface, vibrate the applied layer to increase its density.

Firing chart:

Drying temp.	Starting temp.	Vacuum starting temp.	Rate of heat increase
6 min.	450°C	450°C	55°C/min.
Final temp.	Hold time	Surface appearance	
860°C	1-2 min.	eggshell gloss	



Available colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4

2 Applied paste opaque





3 Applying margin



Available colours:

margin 1A2, 3A4, 1B2, 3B4, 1C2, 3C4 & Booster
margin correction * Bright, Medium & Dark



4 Shoulder after firing

3 Processing:

First margin firing:

- Seal the die by applying a die hardner agent and allow to dry well. Apply a ceramic separation agent to the die and dry with compressed air.
- Use *margin liquid* to mix the margin into a cream-like consistency.
- Apply the *margin* material in the usual manner. Before proceeding, condense the material and dry it with a hairdryer, if required.
- Remove the object from the die.
- Fire the ceramic in accordance with the firing chart.

Firing chart:

Drying temp.	Starting temp.	Vacuum starting temp.	Rate of heat increase
8-10 min.	450°C	450°C	55-80°C/min.
Final temp.	Hold time	Surface appearance	
860°C	3 min.#	matte finish	
# 2 min. with vacuum and 1 min. without			



Consult the *layer organiser* to optimise the layering scheme

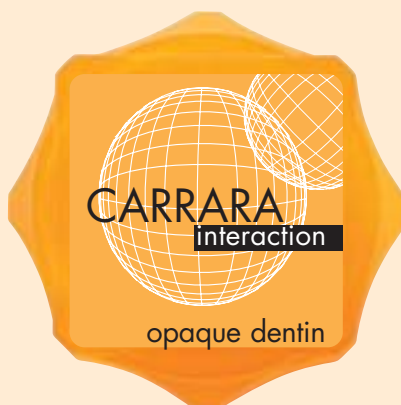
4 Processing:

Second margin firing:

- Use *margin liquid* to mix the *margin* into a cream-like consistency.
- Apply the *margin* material in the usual manner. Before proceeding, condense the material and dry it with a hairdryer, if required.
- Remove the object from the die.
- Fire the ceramic in accordance with the firing chart.

Firing chart:

Drying temp.	Starting temp.	Vacuum starting temp.	Rate of heat increase
8-10 min.	450°C	450°C	55-80°C/min.
Final temp.	Hold time	Surface appearance	
860°C	2 min.#	matte finish	
#1 min. with vacuum and 1 min. without vacuum			
* For more information, see the Carrara Interaction margin user instructions.			



Available colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4

5 Processing:

Together, the *opaque dentin* and *dentin* constitute the basic layer of colour of the entire layering structure. With Carrara Interaction, the fluorescent layers are concentrated in more deeply lying powders. As a result, the reflected white light enhances the opalescent characteristics of the transparent upper layers. The *opaque dentin* can also be applied where little space is available and less translucency is required, for instance at the gingival or palatal/lingual area of intermediate elements and at places where there is little space for a standard ceramic structure.



5 Applying the opaque dentin



6 Applied dentin

6 Processing:

- Use *carving liquid* to mix the selected *dentin* to a cream-like consistency.
- *Superwet liquid* may be used for larger restorations to enable longer working time.
- Examine the unreduced restoration to determine the proper dimensions of the crown and remove any excess material (cutback technique).
- The restoration may also be worked directly in a final form.



Available colours: A1, A2, A3, A3.5, A4, B1, B2, B3, B4, C1, C2, C3, C4, D2, D3, D4



7 Reduced dentin (cutback)

7 Processing:

- Cutback the material to create the desired space for the incisal material.
- More material must be removed when *action-i dentin* is used.
- An irregularly shaped dentin core ensures optimal distribution of light (see photo).



Consult the *layer organiser* to optimise the layering scheme

i Standard or individual

Use of either a standard or individual layering structure is determined by the amount of cutback of the dentins. To create a standard layering structure, follow the steps indicated on the pictures on page 14. *Incisal* is added to the reduced *dentin*, after which the crown is fired. To achieve individual layering characteristics, use *action-i dentins* and *x-tra incisals*.

paste opaque	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
opaque dentin	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
dentin	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
action-i dentin	1A2		3A4			1B2		3B4		1C2		3C4		1A2	1B2	1C2
x-tra incisal	x-tra i blue/x-tra i red/x-tra i grey/x-tra i orange/x-tra i clear															
	x-tra i bright/x-tra i medium/x-tra i dark															
incisal	58	59	60	57	59	60	59	60	59	60	59	60	59	60	59	60



8 Applied *action-i dentin*



Available colours:

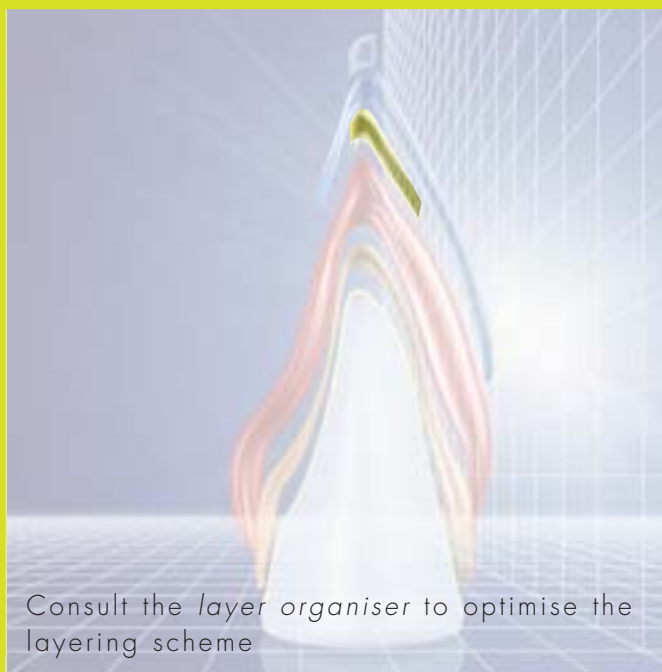
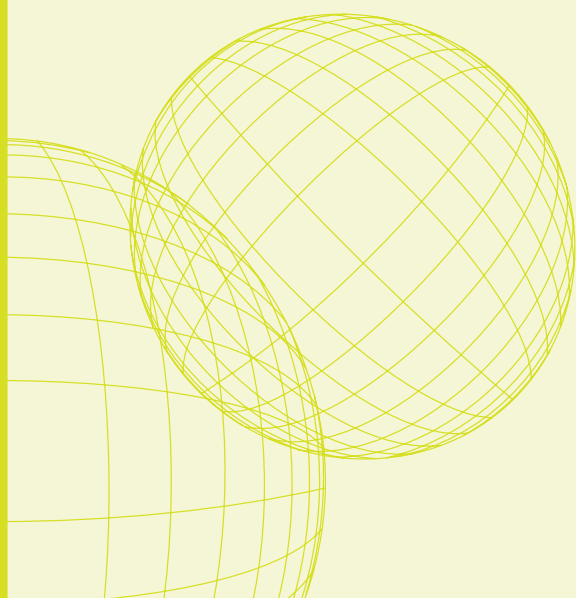
1A2, 3A4, 1B2, 3B4, 1C2, 3C4

8 Processing

action-i dentins are fluorescent dentins that have been sorted according to colour and brightness. They can be used to accentuate the characteristics in the incisal section of the element (e.g. mamelons) and to influence the crown's chroma.

i=incisal, i=individual, i=intensive, i=interactive

- Use *carving liquid* to mix the *action-i dentins*, like the *dentins*, into a cream-like consistency.
- *Supervet liquid* may be used for longer spans to enable a longer working time for the restoration.



Consult the *layer organiser* to optimise the layering scheme



Available colours: x-tra i blue, x-tra i red, x-tra i orange, x-tra i grey, x-tra i clear

9 Accurate individual characteristics.

X-tra incisals can be divided into those that provide added value (i.e. powders that determine the colour value – see pages 11 and 12) and those that allow for the expression of individual characteristics. The latter are available in the colours *x-tra i red*, *x-tra i grey*, *x-tra i orange*, *x-tra i blue* and *x-tra i clear*. *X-tra incisals* are opalescent, making it very easy to add individual characteristics to the incisal sections. Always cover *X-tra i blue* with an incisal layer.



9a *x-tra incisals* to create individual characteristics



9b Applying various *x-tra incisals*



10a Covering the edges with *incisal*



Available colours: 57, 58, 59, 60



10b Incisal sandwich structure

10a Processing

The opalescent properties of Carrara Interaction *incisals* have a natural and aesthetic effect on the crown, even with changing light conditions. Opalescence is guaranteed through five firings. For optimal effect, Carrara Interaction *incisal* powders must be applied in **relatively thin** layers.

- Use *carving liquid* to mix the Carrara Interaction *incisal*, like the *dentin*, into a cream-like consistency.
- *Superwet liquid* may be used for larger objects to enable a longer working time of the restoration.



Consult the *layer organiser* to optimise the layering scheme.

10b Processing:

Apply a small quantity of the material on the desired location only. *X-tra incisals* and *incisal layers* can be alternated.



11a Fully covered with *incisal*

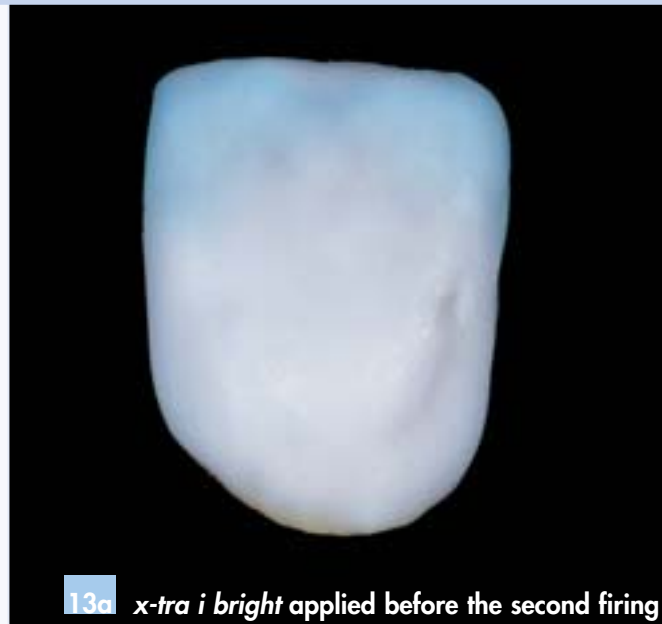
11 A slightly darker tone

The colour value can be very accurately controlled using *x-tra incisals bright, medium and dark*. For example, you can use *x-tra i dark* if the processing instructions indicate that the cervical should be a bit darker.



11b Palatinal covering

Lighter? => x-tra i bright



13a x-tra i bright applied before the second firing



13b The crown after the second firing



12 The crown after the first firing

Neutral? => x-tra i medium



13 The use of *bright*, *medium* and *dark* x-tra incisal enables the adjustment of the crown's colour in the final stage without having to polish the restoration.

Firing chart for second phase:

Drying temp. Starting temp. Vacuum starting temp. Rate of heat increase

3-4 min. 450°C 450°C 55-80°C/min.

Final temp. Hold time Surface appearance

830°C 1-2 min. matte finish

Cooling down: depends on the underlying coping

12 Firing chart for first phase:

Drying temp. Starting temp. Vacuum starting temp. Rate of heat increase

5-7 min. 450°C 450°C 55-80°C/min.

Final temp. Hold time Surface appearance

835°C 1-2 min. matte finish

Cooling down: depends on the underlying coping

Darker? => x-tra dark



Example: A3 crowns with ... *





i Processing 1:

- Use *carving liquid* to mix Carrara Interaction *correction* into a cream-like consistency.
- Apply the desired quantity to the location to be corrected and condense it thoroughly.
- Fire the material in accordance with the firing chart.

Firing chart 1:

Drying	Starting temp.	Vacuum starting temp.	Rate of heat increase
3-5 min.	450°C	450°C	55-80°C/min.
Final temp.	Hold time	Vacuum	Surface appearance
830°C	1-2 min.	no	semi-glossy

Cooling down: Depends on underlying coping

i Processing 2:

- Use *stain liquid* (and selected *stains*, if required) to mix the material into a cream-like consistency.
- Apply the desired quantity to the location to be corrected and increase its density.
- Fire the material in accordance with the firing chart.

Firing chart 2:

Drying	Starting temp.	Vacuum starting temp.	Rate of heat increase
6 min.	450°C	up to 795°C	55-80°C/min.
Final temp.	Hold time	Vacuum	Surface appearance
795°C	1-2 min.	no	glossy

Cooling down: Depends on underlying coping

i Easy correction material

Carrara Interaction *correction* is an unpigmented and low-fusing material with physical properties that are compatible with those of Carrara Interaction.

It can be used to:

- correct contact points
- correct occlusal or incisal edges
- improve the surface shape



i Shaping the surface: essential for optimal opalescence

The shape of the surface is key to the restoration's aesthetic properties, especially those related to the incidence of light. The surface structures of the neighbouring elements on the plaster model can be highlighted using silver powder. This helps to determine what the surface structure should be like.

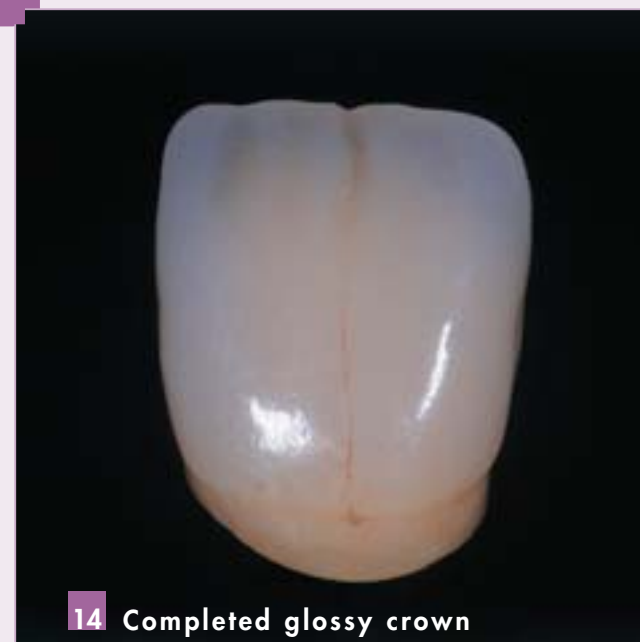
14 Processing:

- Mix *Antagon+Carrara Interaction glaze* and *stain liquid* until it is an even and cream-like mass.
- Apply the material evenly. Make sure that it covers the entire surface.
- Fire the material in accordance with the firing chart.

Firing chart:

Drying	Starting temp.	Vacuum starting temp.	Rate of heat increase
2-3 min.	450°C	no	55-80°C/min.
Final temp.	Hold time	Vacuum	Surface appearance
825-830°C	1-2 min.	no	glossy

Cooling down: depends on the underlying coping





1 *paste opaque*



2 *opaque dentin*



3 *Fully built-up dentin*

Carrara Interaction layering scheme for a standard layered structure with underlying metal copings



4 *Reduced dentin (cutback)*



5 *Covering edges with incisal*



6 *Fully covered with incisal*



7 *First firing*



8 *Second firing*



9 *Completed crown*



1 *opaque dentin*



2 *Reduced dentin (cutback)*



3 *action-i dentin*

Carrara Interaction individual layering scheme for Carrara Press Core press ceramic



4 *Sandwich layering scheme using x-tra incisal*



5 *Individual characteristics: x-tra incisal*



6 *Covering edges with incisal*



7 *Alternating incisal layering scheme*

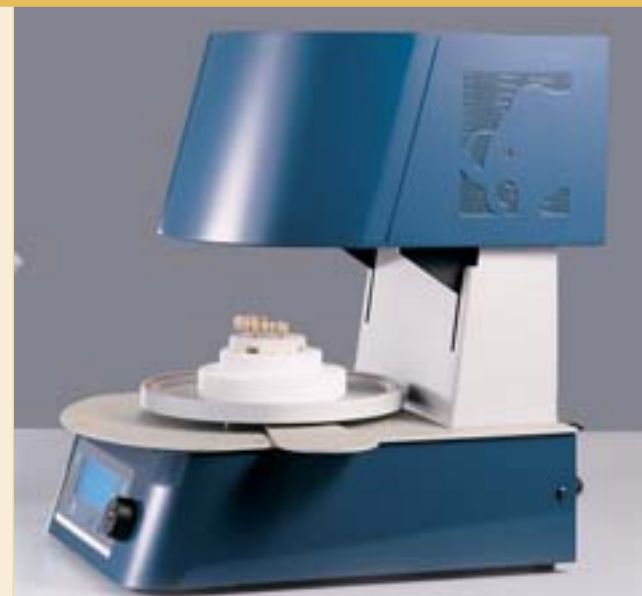


8 *Fully covered with incisal*



9 *Palatinal covering*

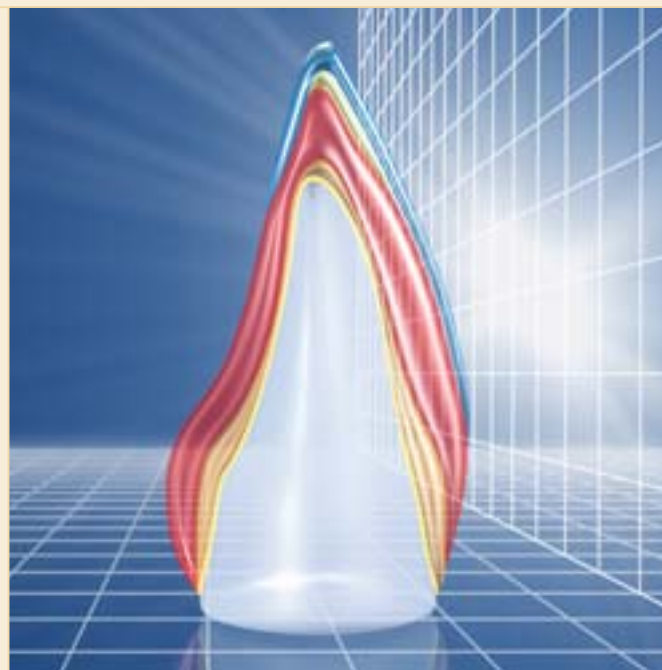
StratoPlus (general firing programme)		1st paste opaque firing	2nd paste opaque firing	1st margin firing	2nd margin firing	1st dentin firing	2nd dentin firing	glaze firing	correction firing	margin correction firing
Preheat or starting temperature:	(°C)	450	450	450	450	450	450	450	450	450
Drying and preheating time:	(min.)	6	6	8-10	8-10	5-7	3-5	4	4	6
Rate of heat increase:	(°C/min.)	55	55	55-80	55-80	55-80	55-80	55-80	55-80	55-80
Final temperature:	(°C)	860	860	860	860	835	830	830	795	795
Vacuum starting temperature:	(°C)	450	450	450	450	450	450	-	450	450
Vacuum final temperature:	(°C)	860	860	860	860	835	830	-	795	795
Hold time (with vacuum):	(min.)	1	1	2	1	1	1	-	2	-
Hold time (without vacuum):	(min.)	1	1	1	1	1	1	1:30	1	2



StratoPlus

Important:

The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly.



Cooling down phase:

- *Carrara Pdf*: Cool down quickly (0 min.) after each firing.
- *Cera E*: Cool down normally (2-3 min.) after each firing.
- *Cera F*: Cool down normally (2-3 min.) after each firing.
- *Cera R Plus*: Cool down slowly (5-7 min.) after each firing.

paste opaque	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
opaque dentin	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
dentin	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
action-i dentin	1A2	3A4			1B2	3B4	1C2	3C4	1A2	1B2	1C2					
x-tra incisal	x-tra i blue/x-tra i red/x-tra i grey/x-tra i orange/x-tra i clear															
	x-tra i bright/x-tra i medium/x-tra i dark															
incisal	58	59	60	57	59	60	59	60	59	60	59	60	59	60	59	



Vacumat 2500	Stand-by temp.	Final temp.	Drying time	Heating rate	Hold time	Time vacuum ON
1st paste opaque firing	450°C	860°C	6.0	55	1.0	1.8
2nd paste opaque firing	450°C	860°C	6.0	55	1.0	1.8
1st margin firing	450°C	860°C	10.0	55-80	3.0	1.7
2nd margin firing	450°C	860°C	10.0	55-80	2.0	1.7
1st dentin firing	450°C	835°C	5.0	55-80	1.0	1.5
2nd dentin firing	450°C	830°C	4.0	55-80	1.0	1.4
glaze firing	450°C	830°C	4.0	55-80	1.5	0.0
correction firing	450°C	795°C	4.0	55-80	1.0	1.1
margin correction firing	450°C	795°C	6.0	55-80	2.0	0.0

Important:

The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly.

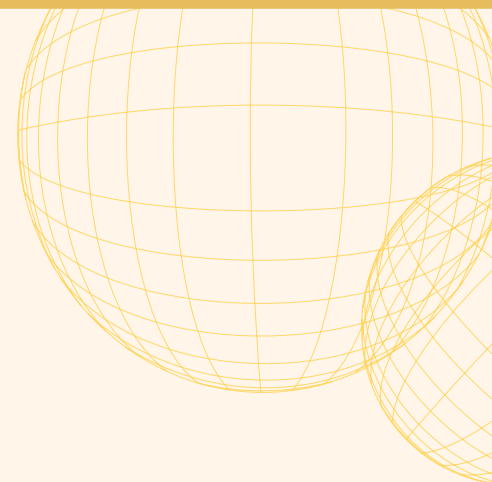
- *Carrara PdF*: Cool down quickly (0 min.) after each firing
- *Cera E*: Cool down normally (2-3 min.) after each firing.
- *Cera F*: Cool down normally (2-3 min.) after each firing.
- *Cera R Plus*: Cool down slowly (5-7 min.) after each firing.

Austromat 3001

1st opaque firing	C450 T180 T240•L9V9 T060•C860 T60 VO T60 CO LO T2 C450
2nd opaque firing	C450 T180 T240•L9V9 T060•C860 T60 VO T60 CO LO T2 C450
1st dentin firing	C450 T120 T180•L9V9 T060•C835 T60 VO T60 CO LO T2 C450
2nd dentin firing	C450 T120 T120•L9V9 T060•C830 T60 VO T60 CO LO T2 C450
glaze firing	C450 T120 T120•L9 T060•C830 T120 CO LO T2 C450
1st margin firing	C450 T240 T300•L9V9 T060•C860 T120 VO T60 CO LO T2 C450
2nd margin firing	C450 T240 T300•L9V9 T060•C860 T120 VO T60 CO LO T2 C450
correction firing	C450 T120 T90•L9V9 T060•C795 T60 VO T60 CO LO T2 C450
margin correction firing	C450 T180 T240•L9V9 T060•C795 T60 VO T120 CO LO T2 C450

Programat P90/P95	Stand-by temp.	Heating rate	Firing temp.	Closing time	Hold time	Vacuum ON	Vacuum OFF
1st paste opaque firing	400°C	55	860°C	7	1	450°C	860°C
2nd paste opaque firing	400°C	55	860°C	7	1	450°C	860°C
1st margin firing	400°C	55-80	860°C	10	3	450°C	860°C
2nd margin firing	400°C	55-80	860°C	10	2	450°C	860°C
1st dentin firing	400°C	55-80	835°C	5-7	1	450°C	835°C
2nd dentin firing	400°C	55-80	830°C	3-5	1	450°C	830°C
glaze firing	400°C	55-80	830°C	4	1.5	450°C	Without vacuum
correction firing	400°C	55-80	795°C	4	1	450°C	795°C
margin correction firing	400°C	55-80	795°C	6	2	450°C	795°C

Vacumat 200/250/300	Stand-by temp.	Final temp.	Drying time	Heating rate	Hold time	Time vacuum ON
1st paste opaque firing	450°C	860°C	6.0	7.5	1.0	8.0
2nd paste opaque firing	450°C	860°C	6.0	7.5	1.0	8.0
1st margin firing	450°C	860°C	10.0	7.5	3.0	9.5
2nd margin firing	450°C	860°C	10.0	7.5	2.0	8.5
1st dentin firing	450°C	835°C	5.0	7.0	1.0	7.5
2nd dentin firing	450°C	830°C	4.0	7.0	1.0	7.5
glaze firing	450°C	830°C	4.0	7.0	2.0	0.0
correction firing	450°C	795°C	4.0	6.5	1.0	7.0
margin correction firing	450°C	795°C	6.0	6.5	2.0	6.5



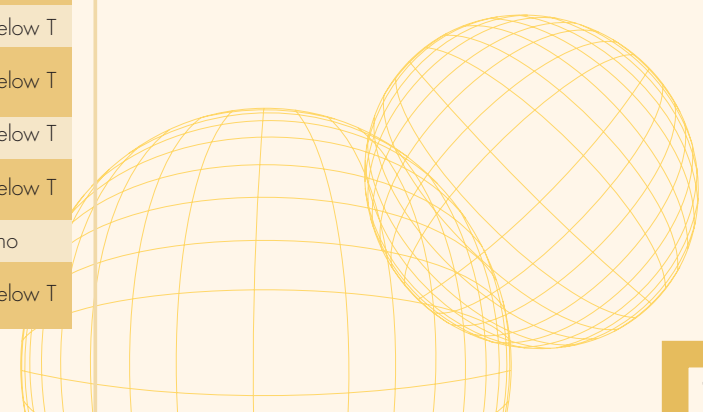
Important:

The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly.

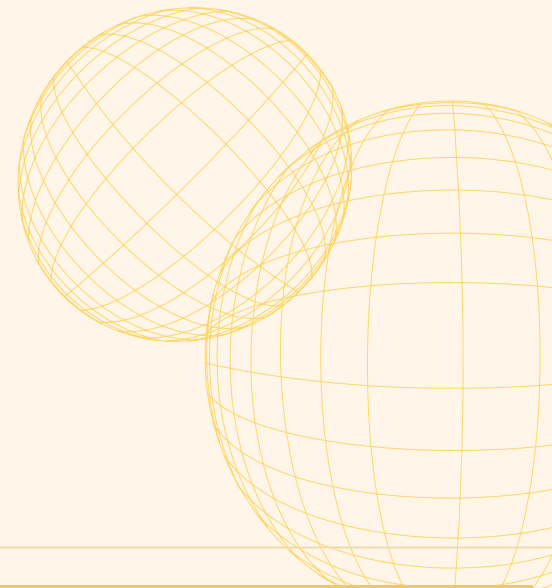
- *Carrara PdF*: Cool down quickly (0 min.) after each firing.
- *Cera E*: Cool down normally (2-3 min.) after each firing.
- *Cera F*: Cool down normally (2-3 min.) after each firing.
- *Cera R Plus*: Cool down slowly (5-7 min.) after each firing.

Multimat MCII/Mach2	Preheat temp.	Drying	Preheating	Time vacuum ON	Hold time	Firing temp.	Heating rate	Vacuum
1st paste opaque firing	450°C	5.0	2.0	1.0	1.0-2.0	860°C	55	50
2nd paste opaque firing	450°C	5.0	2.0	1.0	1.0-2.0	860°C	55	50
1st margin firing	450°C	9.0	1.0	2.0	3.0	860°C	55-80	50
2nd margin firing	450°C	9.0	1.0	1.0	2.0	860°C	55-80	50
1st dentin firing	450°C	9.0	2.0	1.0	1.0-2.0	835°C	55-80	50
2nd dentin firing	450°C	4.0	2.0	1.0	1.0-2.0	830°C	55-80	50
glaze firing	450°C	3.0	1.0	0.0	1.0-2.0	830°C	55-80	-
correction firing	450°C	3.0	1.0	1.0	1.0-2.0	795°C	55-80	50

Programat X 1	Standby temp. (°C)	Closing time (min.)	Heating rate (°C/min.)	Firing temp.-T (°C)	Hold time (min.)	Vacuum level (%)	Vac. ON (°C)	Vac. OFF
1st paste opaque firing	400	7:00	55	860	1:00	100	450	1° below T
2nd paste opaque firing	400	7:00	55	860	1:00	100	450	1° below T
1st margin firing	400	10:00	55-80	860	3:00	100	450	1° below T
2nd margin firing	400	10:00	55-80	860	2:00	100	450	1° below T
1st dentin firing	400	5:00	55-80	835	1:00	100	450	1° below T
2nd dentin firing	400	5:00	55-80	830	1:00	100	450	1° below T
glaze firing	400	4:00	55-80	830	2:00	-	no	no
correction firing	400	4:00	55-80	795	1:00	100	450	1° below T



Heramat C		1st paste opaque firing	2nd paste opaque firing	1st margin firing	2nd margin firing	1st dentin firing	2nd dentin firing	glaze firing	correction mass firing	margin correction firing
Starting temp.	(°C)	450	450	450	450	450	450	450	450	450
Drying time	(min.)	6:00	6:00	9:00	9:00	4:00	3:00	3:00	3:00	5:00
Preheating time	(min.)	1:00	1:00	1:00	1:00	2:00	2:00	1:00	1:00	1:00
Heating rate	(°C/min.)	55	55	55-80	55-80	55-80	55-80	55-80	55-80	55-80
Final temp.	(°C)	860	860	860	860	835	830	830	795	795
Hold time	(min.)	1:00	1:00	3:00	2:00	1:00	1:00	2:00	1:00	2:00
Tempering temp.	(°C)	-	-	-	-	-	-	-	-	-
Tempering time	(min.)	-	-	-	-	-	-	-	-	-
Cooling down time	(min.)	-	-	-	-	-	-	-	-	-
Vacuum on	(°C)	450	450	450	450	450	450	-	450	450
Vacuum off	(°C)	860	860	855	855	835	830	-	795	795
Time vacuum ON	(min.)	0:30	0:30	2:00	2:00	0:30	0:30	-	-	-



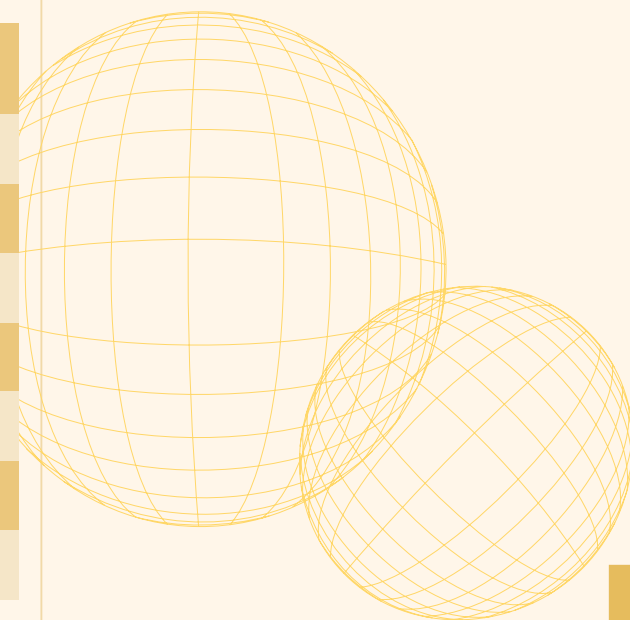
Important:

The firing temperatures indicated are target values. Temperatures may vary from one ceramic furnace to another and must be adapted accordingly.

- *Carrara PdF*: Cool down quickly (0 min.) after each firing.
- *Cera E*: Cool down normally (2-3 min.) after each firing.
- *Cera F*: Cool down normally (2-3 min.) after each firing.
- *Cera R Plus*: Cool down slowly (5-7 min.) after each firing.

Heramat 2002	Vacuum level	Heating rate (°C/min.)	Starting temp. (°C)	Drying time (min.)	Vacuum release (°C)	Final temp. (°C)	Hold time (min.)
1st paste opaque firing	-95	55	450	6:00	860	860	1:00
2nd paste opaque firing	-95	55	450	6:00	860	860	1:00
margin firing	-95	55-80	450	4:00	855	855	1:00
1st dentin firing	-95	55-80	450	5:00	835	835	1:00
2nd dentin firing	-95	55-80	450	5:00	830	830	1:00
glaze firing	-95	55-80	450	4:00	830	830	0:30
correction firing	-95	55-80	450	4:00	795	795	1:00

Austromat M	START	↑	→	Vac	°C ↗ min.	END	→	↘	↘ ²	
1st paste opaque firing	450	3	3	1	9	55	860	1:00	0	0
2nd paste opaque firing	450	3	3	1	9	55	860	1:00	0	0
margin firing	450	3	3	1	9	55-80	855	1:00	0	0
1st dentin firing	450	3	3	2	9	55-50	835	1:00	0	0
2nd dentin firing	450	2	3	2	9	55-80	830	1:00	0	0
glaze firing	450	2	2	2	0	55-80	830	0:30	0	0
correction firing	450	2	3	1	9	55-80	795	1:00	0	0



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A single ceramic for all Carrara System applications

Layering ceramic



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Universal-Alloys




 **Carrara PdF**
high gold
content

 **Cera F**  **Cera R plus**
reduced gold
content

 **Cera E**
palladium-
silver

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all ceramic

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