

INSPIRATION CTI

Step by Step to Individuality



INSPIRATION CTI

the latest chroma intensified,
translucent individual materials
for natural teeth.



INSPIRATION

Up-to-date, 2-phase leucite glass ceramic.

Perfectly matching conventional bonding alloys with CTE values of 13.8 to $14.8 \times 10^{-6} \text{ K}^{-1}$ ($25 - 500^\circ \text{C}$).

In regard to colors, the basic materials – opaque, opaque-dentin, and dentin materials – are matching the standard VITA®-color classification from A1 – D4 with additional modifications of A0 and B0. Together with trans-parent materials, enamels, effect enamels, neck transparent, chroma, dentin modifier, stain colors and glaze pastes, dental restorations of natural impression can be produced easily and safely.

VITA® is a registered trademark of Vita Zahnfabrik, Bad Säckingen, Germany

The appreciated high quality of the veneered crowns and bridges are resulting from the special characteristics of the synthetic basic components.

- Minimum firing shrinkage in the occlusive as well as in the inter-dental area due to reduced firing temperature of $900 - 840^\circ \text{C}$.
- Even major ceramic bridges can usually be accomplished with just a few main firing circles.
- Even with several correctional firing, the color stability remains. No long-term cooling required.
- Best modeling abilities.
- Excellent firing stability and stability of form and edges.
- High translucency, opalescence, and depth effects due to the micro-crystalline structure.



HEIMERLE + MEULE

Founded in 1845 as classic gold and silver refinery, Heimerle + Meule belongs to the pioneers of the dental field. For more than 160 years, the company has been engaged in development and production of precious metal alloys. PLATINOR®, AUROPLADENT®, and ECONOR® are well-known and approved brands. As a natural consequence, the innovative company has expanded its competence and experience to the field of dental ceramics: INSPIRATION, PLATINA®m, and PLATINA®press have been generated.

With a staff of more than 250, latest production-, testing-, and analysis facilities as well as with its quality management system, HEIMERLE + MEULE has earned world-wide reputation for its quality standards and competence.

The chroma intensified, translucent individual kit (CTI)

Increasing demands for even more individuality are also increasing the requirements and demands of labs striving for effectiveness.

To meet these demands, HEIMERLE + MEULE has, in close co-operation with leading dental technicians, developed and practically tested new CTI materials. The CTI materials may be applied in their original form or can be mixed with the INSPIRATION basic materials. Thus, the ceramic technicians creates his/her individual color palette with just a few materials.

The effect of the colors may be increased when they are layered with strong contrasts next to each other: light next to dark, opaque next to translucent. Such contrasts give the tooth a vital look.

When layering a VITA® sample tooth, the named colors are layered exactly on top of each other. The result will be a sample tooth with the required opaque effect. The intensity of the INSPIRATION materials can be controlled sensitively and can be covered against each other so that the required contrasts are being created.

Of course, entering the individual area requires a slightly different way of procedure – and also a little courage for colors.





Firing samples

When selecting a color according to the VITA® sample tooth scheme, usually only some degree of approach to the original tooth can be reached. More significant than the color shade is therefore the question of lightness.

When individual layering is performed, the colors required have to be exactly defined in advance. Original firing samples are available for the individual CTI materials. If the CTI materials are mixed among each other or with other INSPIRATION materials, we advise to first finish some firing samples of such mixtures. These samples are to be compared to the sample teeth.

The colors applied in the following are samples which of course differ depending on the individual case. The principle, however, remains the same.



The indications for mixture are individual and not firmly set. The material named first is the so-called carrier material and constitutes the main component. The second material has a respectively less share – etc. As every tooth is created differently, it is only possible to indicate directions – these should be tried and evaluated personally.

In the sample shown in the following, a more intensive A3 and towards occlusive an A2 is layered.



Opaque dentins carry the decision on lightness and color intensity of a tooth. The mixtures showed here are from left to right

Chroma Modifier A · Opaque Dentin salmon (lachs)
Opaque Dentin caramel + Dentin Modifier orange + terra + yellow
Opaque Dentin A2



Dentins are layered either pure or as mixtures on the opaque dentins in order to diminish the opaque effect. They are more translucent than the opaque dentins. In a similar color shade they are giving more depth effects, in a differing color shade they are giving more contrasts.

Dentin A3 + Dentin Modifier orange + yellow
Dentin A3 · Dentin A2



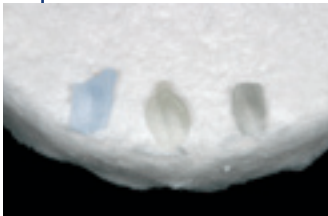
The new chroma intensified, translucent individual materials (CTI materials) enable creation of effects even in thin layers. They may, as shown in the given sample, be applied either pure or in individual mixtures. This allows to increase the translucency on one side, on the other side the chroma. The CTI materials allow broad application areas.

CTI orange-pink · CTI amber · CTI orange · CTI yellow

INSPIRATION CTI



Cuts through natural teeth show a distinct seam between the dentin and the actual enamel. This seam comes in different color shades – from bluish to greenish. The degree of translucency of the enamel is significantly differing from that of the seam laying thereunder.



For imitation of the seam, a blue-gray shade has been selected for this tooth.

Effect Enamel light-blue
Effect Enamel grey
CTI anthracite

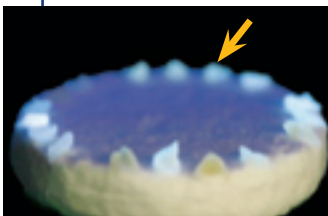


As enamel coat laying on top, a light enamel and a slightly yellowish enamel as well as an enamel with a little more opacity have been selected.

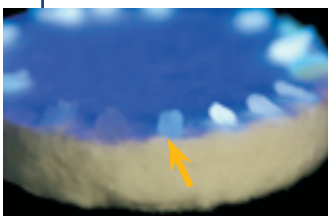
Enamel 1 + Dentin B0 (light enamel with some opacity)
Enamel 1
Enamel 3



All firing samples are placed on a fireproof cotton tray.



Under UV light, the CTI materials show their fluorescent effect.



Even the very intense "anthracite" shows fluorescence.

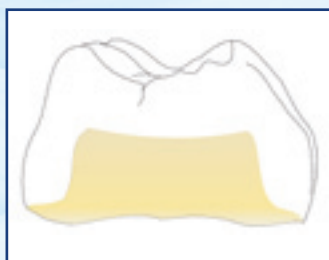
Layering of a molar according to the anatomical model

Only nature is able to provide guidelines for layering a tooth. In doing so, nature can accomplish things which the dental technician is restraint from. Unfortunately nature's materials are not available to us. The natural tooth receives its individual effect out of the ensemble of the most different materials.

Even though, the entire ceramic palette of the dental technician contains – in simplified speaking – “the same basic materials”: from opaque to transparent materials. Various mixtures of differently shaded materials are used. By mixing differently shaded materials, the natural impression is tried to be approached.

In doing so, the ceramic systems are evidently differing. INSPIRATION is an up-to-date, synthetic, 2-phase leucite glass ceramic based on aluminum silicate. These synthetic basic components ensure significantly improved characteristics which can be reproduced. They guarantee an excellent and very pure final product.

Lightness of the tooth can be controlled in several areas, for example by selection of the opaque material. An otherwise identical color mixture will appear lighter with a white opaque material than with an A4 opaque material. Generally, the opaque material should match the lightness required later on.





Application of opaque dentins and mixtures thereof

(used in this sample)



Chroma Modifier A
Opaque Dentin salmon (lachs)
Opaque Dentin caramel + Dentin modifier orange + terra + yellow
Opaque Dentin A2



In order to reach real color intensity as at the natural teeth, approximal an intensive color, color mixture respectively, is required. The color has to come out of the depth.

Chroma Modifier A



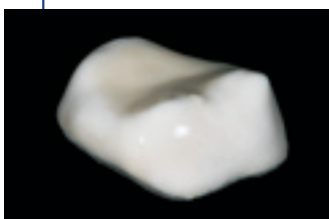
Especially if the work is done without leveling within the buccal area, it is important to already control a particular color effect or intensity coming out of the depth.

Opaque Dentin salmon (lachs)



In order to hide the level crossing from cap to ceramic, the edge of the metal cap is covered with opaque dentin.

Opaque Dentin A2



In order to provide the chewing area with the required intensity coming from the inside, a very intensive and opaque mixture has to be taken here as substructure, too.

Opaque Dentin caramel + Dentin Modifier orange + terra + yellow



Application of the dentins and mixtures thereof

(used in this sample)



Dentin A 3 + Dentin Modifier orange + yellow
Dentin A3
Dentin A2



At the body area, molars are mostly color intensive. In order to emphasize this, the actual basic color is intensified. The chroma is increased. This mixture is then applied at the body area. This can be done either in the form of a strip or can be further distributed.

Dentin A3 + Dentin Modifier orange + yellow



As the occlusive area requires a little more lightness, the principles of opaque dentin are further complied with. Towards the occlusive area a lighter opaque dentin is applied. Consequently, a lighter dentin is now also used for layering.

Dentin A2



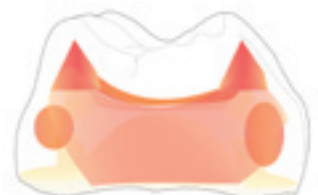
Now the more intensive part is connected to the lighter one with the actual basic color.

Dentin A3

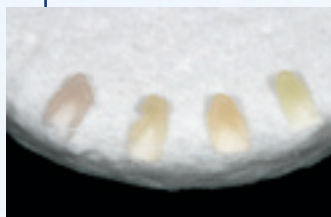


At the occlusive area the more intensive mixture is applied as color. This serves as support for the later image of the outer form. Up to the tips of the cusps the mixture ends thinly. Otherwise the tooth may easily become too fade.

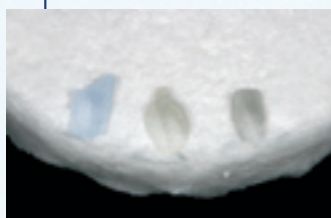
Dentin A3 + Dentin Modifier orange + yellow



Use of the effect enamels and CTI materials



CTI orange-pink
CTI amber
CTI orange
CTI yellow



Effect Enamel light blue
Effect Enamel grey
CTI anthracite

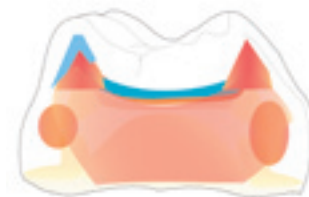


From opaque dentin over the translucent dentin mixture, work is done, even more translucent, however color intensive. CTI amber is always to be applied at the occlusal side.
CTI amber



Light reflection at shear cusps is differing from that at tamper cusps. In the upper jaw the shear cusps are in buccal position, therefore more light passes through here. In order to reach the seam mentioned before, a bluish seam is aspired buccal in this sample.

Effect Enamel light blue

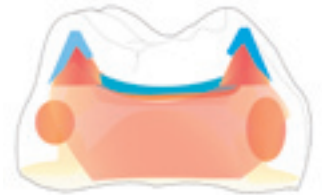


INSPIRATION CTI



Less light passes approximal. Palatal it is even less. Even though, a slight greyish effect can be reached if materials are used which let less light pass thus showing some more opacity.

Effect Enamel grey (approximal) · CTI anthracite (palatal)

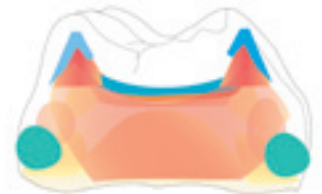


These materials are also built up in the chewing area. If less space is available and more dentin should be visible, the dentin may even be built up in the cusp slightly towards the occlusive side.



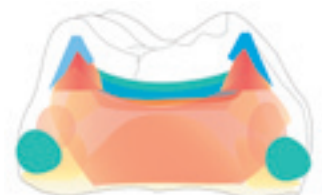
As already mentioned, the CTI materials can be applied either in the pure form or as mixtures. In this sample they were applied in their pure form.

CTI orange-pink (buccal)
CTI orange (approximal)



Occlusal a CTI material is applied, too.

CTI yellow



Enamel and mixtures thereof

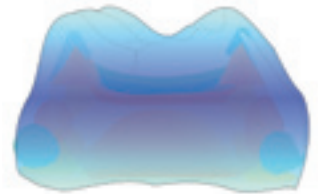


Enamel 3
Enamel 1
CTI molar-white



The tooth structure is supplemented with various enamel materials. In cervical and approximal areas yellowish to orange materials are used more often.

Enamel 3



Towards the occlusive area (outer side), rather lighter enamels are taking the leading part.

Enamel 1



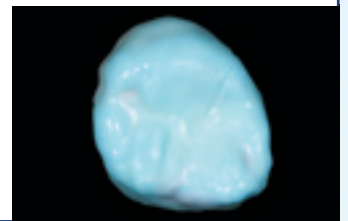
INSPIRATION

CTI



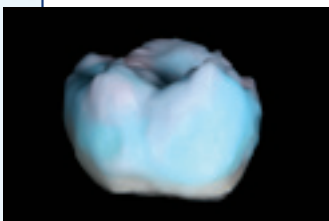
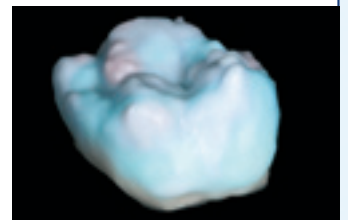
Occlusal inside, at the later fissure area, warmer enamels are applied again.

Enamel 3



From the tip of the cusps to the fissure area lighter enamels are advantageous again. Now the basic form of the tooth with its respective cusp alignment should be recognizable.

Enamel 1

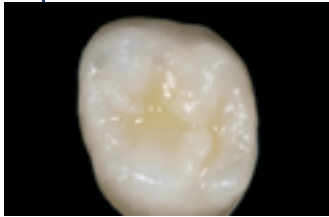


The tips and the actual structure are supplemented with light enamel, however with a little more opacity.

CTI molar-white

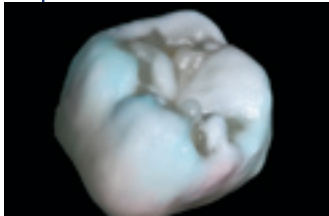


Dentin firing 1 + 2



Dentin firing 1

The work layered accordingly is fired in compliance with the manufacturer's instructions. The result shows at once and without grinding, just slightly water sprinkled, its effect. Prior to firing the fissures should not be scratched up. These scratched up fissures would burst open and could hardly be closed properly.



Dentin firing 2

Correction is done with enamel and mixtures thereof.

Firing program Dentin I:

basic temp.	pre-drying	heating rate	vacuum start	final temp.	holding time
400° C	4 – 6 min.	60° C/min.	450° C	880° C	1 min.

Firing program Dentin I:

basic temp.	pre-heating	heating rate	vacuum start	final temp.	holding time
400° C	4 – 6 min.	60° C/min.	450° C	870° C	1 min.

Finishing

Finishing is done after the second firing. Morphology is considered in doing so. The outer form can be finished to be very even. The chewing area keeps the roughness of diamonds.

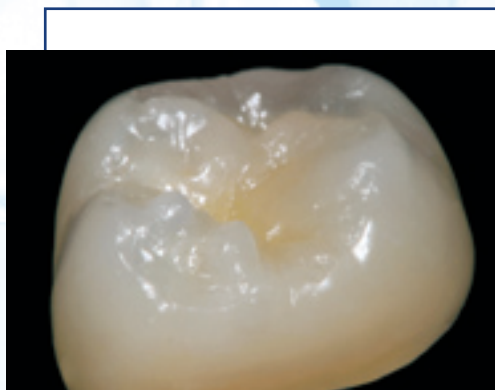
As during firing the smoothness or roughness of the respective area cannot be predefined, the technician will effect this objectively with his/her grinding and polishing devices.



Gloss firing and final polishing

Gloss firing results in natural high gloss of the teeth. Remarkable is the extraordinary firing stability. Grind structures remain preserved. According to the degree of gloss required, the work can be polished additionally. Even without using stain colors this dental restorations shows its effect.

The result of the way of procedure shown here is that through grinding in the depth of the tooth the individual color layers can develop their effect from the depth. The deeper the fossa is grind, the more intensive the color effect will be.



Firing program gloss and glaze:

basic temp.	pre-drying	heating rate	vacuum start	final temp.	holding time
400° C	4 min.	60° C/min.	----	840° C	1 min.

Firing program gloss without glaze:

basic temp.	pre-heating	heating rate	vacuum start	final temp.	holding time
400° C	4 min.	60° C/min.	----	850° C	1 min.



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