

DUCERAM LOVE

Step-by-step guide for
veneering non-precious
metal frameworks

www.love-ceramic.com

love
all you need



Contents

- Introduction
- Framework design
- Framework preparation
- Applying
NE-Bonder Powder
- Applying
NE-Bonder Paste
- Applying the opaque
- Basic build-up
- Firing recommendations
- Material design

This description does not replace the regular Instructions for Use.
It is solely intended as a visual guide to aid production.

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Veneering non-precious alloys – the path to success

The innovative Duceram love ceramic veneering material can be safely employed on precious and non-precious alloys alike, for a broad range of indications.

Since non-precious alloys and precious alloys react differently to ceramic firing, ensure that the following parameters are observed for safe veneering of non-precious alloys with a CTE $13.8 - 14.9 \mu\text{m/m} \cdot \text{K}$ (25-500 °C):



Conditioning
the framework



Applying
NE-Bonder



Applying
the opaque



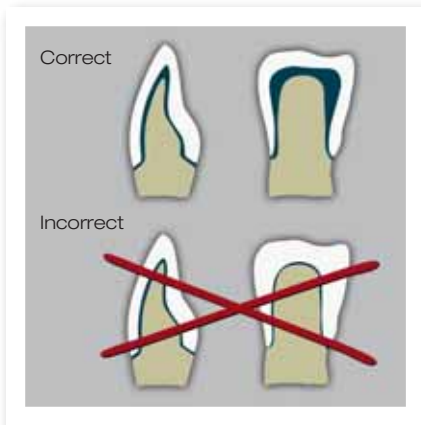
Dentine and
incisal edge
build-up



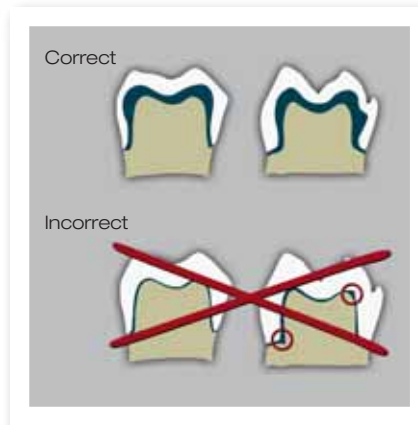
Firing sequence
according to firing
recommendations

Framework design

During finishing, the framework must be free of any sharp edges.



Anterior crowns

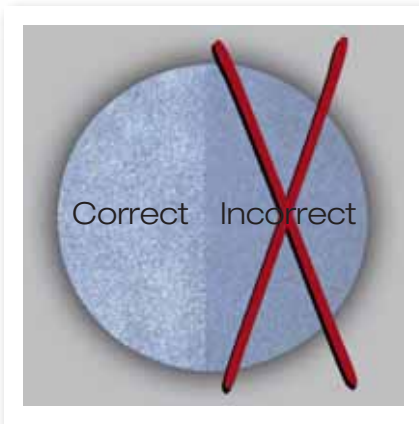


Molar crowns

When casting non-precious alloys, it is recommended to use only ceramic crucibles and to use only new material.

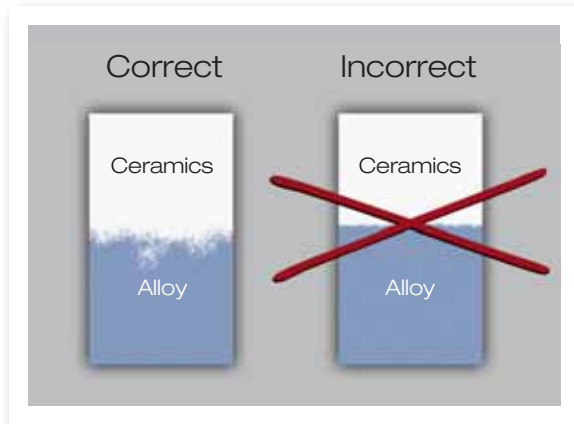
Framework preparation

The frameworks are sandblasted using alumina oxide 250 μm at a pressure of 3–4 bar.



250 μm / 4 bar

110 μm / 2 bar



250 μm / 4 bar

110 μm / 2 bar

An oxide firing cycle is recommended to check cast non-precious frameworks. Compartis CoCr frameworks will have been oxidized at the factory, requiring no separate oxide firing. Post-finishing of Compartis CoCr frameworks requires **a new round of sandblasting**.

Applying NE-Bonder Powder

Apply a thin but covering bonder layer of Ducera Liquid B or Ducera Liquid OCL universal. Oxides will not be able to penetrate the layer.



Wet the surface evenly using a glass instrument, avoiding striping.



The thin but covering layer results in a smooth and even surface.



If the bonder is not applied correctly, the framework will shine through.

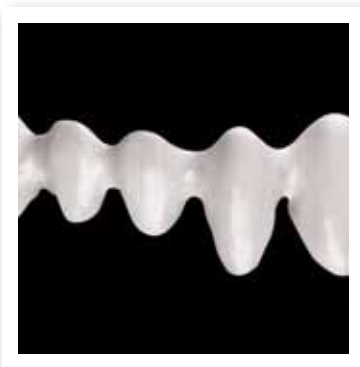
Heat the bonder to 980 °C by 55 °C/min (best bond through complete vitrification).

Applying NE-Bonder Paste

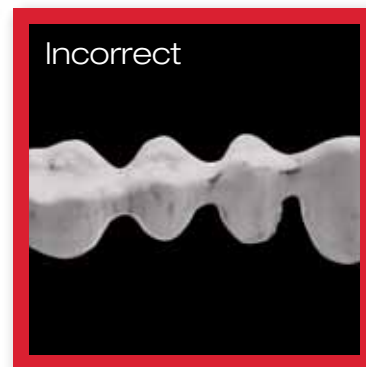
NE-Bonder Paste must be applied as a fully covering layer. Prior wetting of the framework with a very thin layer of paste opaque liquid greatly facilitates application of NE-Bonder Paste.



Apply a covering layer of NE-Bonder Paste with a paste opaque brush.



If the object is correctly fired, the bonder will present a homogeneous semi-matt surface.



Uneven application may compromise bond strength. Areas where wetting was unsuccessful must be treated and subjected to an additional paste bonder firing step.

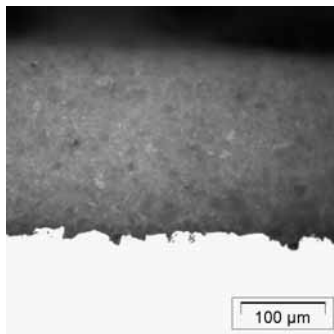
Heat the bonder to 980 °C by 55 °C/min (best bond through complete vitrification).

Applying the opaque

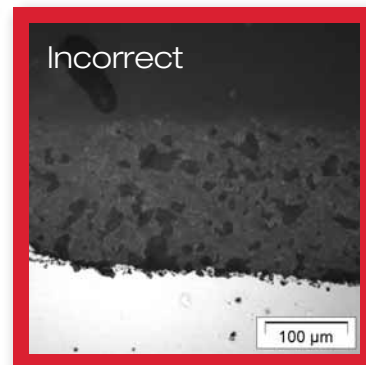
The framework is prepared by applying opaque. The opaque gives the crown its basic shade and matches the appropriate V-Classic or V-3D shade.



Perform the opaque firing at 910 °C. The surface is homogenous with an eggshell finish.



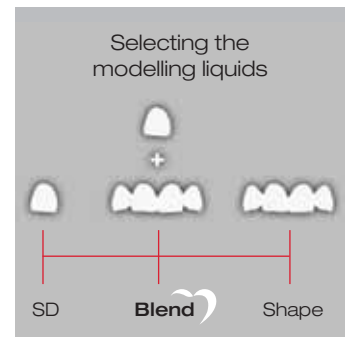
The homogenous and void-free opaque layer (section) bonds securely with the framework.



“Under-firing” of the opaque will result in voids (porous regions) that will compromise bond strength.

Basic build-up

Highly aesthetic restorations of excellent quality can be created with dentines/incisals within a minimum of time.

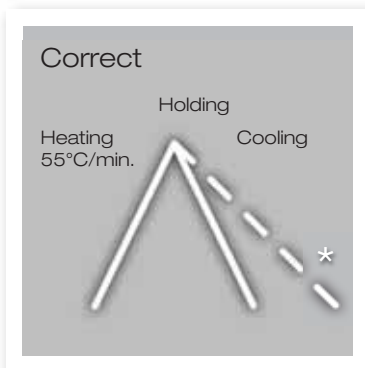


The ceramic powders are mixed with the modelling liquids available within the love system. Ducera Liquid Blend is the new modelling liquid especially designed for love ceramics.

Ducera Liquid Blend combines the advantages of excellent modelling properties and longer working times.

Firing sequence

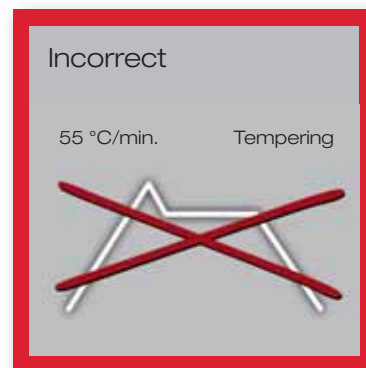
The firing program was specifically developed for the DeguDent range of alloys. Third-party alloys must be processed according to the manufacturers' Instructions of Use.



* Non-precious alloys require 6 min of long-term cooling to relief any stress.



The highly homogenous material presents a beautiful surface lustre.



Maximum stability when veneering DeguDent alloys is obtained without a tempering phase.

General firing recommendations for non-precious alloys



The Duceram love firing programs have been explicitly developed for the DeguDent range of alloys.

General firing programm	Pre-heating	Pre-drying min.	Drying Closing min.	Pre-heating min.	Heating	Firing	Holding		Vacuum hPa	Tempering* min.	Cooling* min.
	°C				°C/min.	°C	Vacuum min.	No Vacuum min.			
NE-Bonder Powder/Paste	575	4/6	2	1	55	980	0	2/3	50	-	-
Opaque	550	6	2	1	100	910	2	2	50	-	-
Shoulder 1	500	1	3	2	100	880	0,5	0,5	50	*3min/850°C	6*
Shoulder 2	500	1	3	2	100	860	0,5	0,5	50	*3min/850°C	6*
Dentine 1	500	4	3	2	55	820	0,5	0,5	50	-	6
Dentine 2	500	4	2	2	55	810	0,5	0,5	50	-	6
Glaze	500	0	2	2	55	800	-	0,5	-	-	6
FSM / Correction	450	1	2	2	55	680	0,5	0,5	50	-	-
Stains	450	1	2	1	55	660	0	1	-	-	-

* For alloys with a CTE ≥ 14.6 $\mu\text{m/m} \cdot \text{K}$ (25–500°C), shoulder firing must be extended by a tempering phase (3 min/850°C) and a cooling phase (6 min).

The firing temperature must be adjusted to the number of units fired. Five to ten units require an increase by 5°C to 10°C; more than ten units require an increase by 10°C to 20°C.

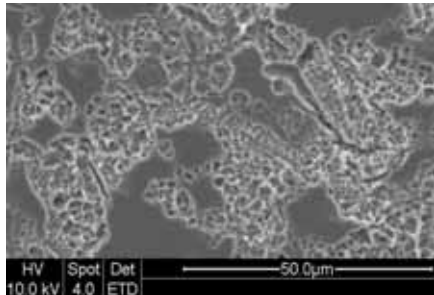
The values listed here are intended for orientation only and should be regarded only as guidelines. Your firing results may differ. All firing results depend on the performance of the furnace used, which in turn depends on the brand, model and age of the furnace. Therefore, the guideline values will have to be adapted individually for each firing. We recommend running a test firing cycle to evaluate the performance of the furnace used. We have compiled and checked all values and other data with great care. However, we cannot under any circumstances be liable for the individual results.

For the latest firing recommendations for various ceramic firing furnaces please visit www.love-ceramic.com

Duceram love – state-of-the-art innovative material design

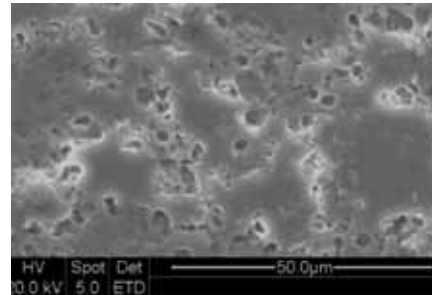
With conventional ceramics, the properties of leucite are used to control the coefficient of thermal expansion. With Duceram love, the preset coefficient of thermal expansion will not change. The leucite is restricted to a stabilizing function thanks to the homogeneous distribution of the fine leucite crystals within the glass phase. The internal tension of the ceramic material will be automatically adjusted to the appropriate value on strict compliance with the suggested firing program.

Conventional ceramics



- Heterogeneous leucite/glass structure with leucite granules > 50 μm in size
- Component strength 60–70 MPa
- Cooling and tempering required to compensate for stress peaks

Duceram love



- Delicate structure of leucite crystals with leucite granules < 5 μm in size for a homogeneous distribution of tension
- Robust component strength at 100 MPa
- No tempering required