

# WIELAND



**Reflex dimension**  
- Unlimited Dimensions!

Reflex  
dimension



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# WIELAND Dental + Technik & WIELAND Dental Ceramics



Ever since Dr. Theodor WIELAND founded the company as a family business in 1871, the WIELAND name has represented a unique combination of tradition and innovation as well as high-quality products and the best in customer service.

Today we have a staff of over 250 employees and are a market leader in products and services for the dental and precious metal industries. Our production sites are located in Pforzheim and Rosbach-Rodheim.

In recent years a constant process of organisational optimisation together with numerous technical innovations has enabled us to considerably strengthen our market position. Both on a national level and in the international markets. In this way we have founded subsidiary companies for distribution of dental products, for example in Austria, USA and China.

At WIELAND Dental + Technik we are proud of our competent dedicated staff who understand how to exploit the synergy effects of our differing but interrelated product lines within our flexible, customerfriendly structure.

One major aspect of our business is products and services in the field of high-quality dental restorations.

Ranging from dental alloys made of noble metals, AGC® electroplating technology, the innovative ZENOTEC CAD/CAM system for automated production of ceramic and metal framework up to individually finished veneer ceramics, WIELAND Dental + Technik offers everything for any crown shapes to 14-unit bridges. WIELAND Dental + Technik offers their customers solutions and complete systems so that they can produce their work quickly and at low cost.

## **WIELAND Dental Ceramics – The Experts for High-Class Ceramics**

WIELAND Dental Ceramics GmbH was founded in Rosbach-Rodheim as a subsidiary of WIELAND Dental + Technik GmbH & Co. KG, Pforzheim. The company commenced operations at the beginning of 2002 and has continued to grow ever since. There are now over 30 employees.

The company's goal is the development and production of veneering ceramics and ceramic systems that will set benchmarks in materials technology and aesthetic standards. Dental technicians, dentists and schools of dentistry collaborate closely in this research.

The company currently supplies veneering ceramics for all standard framework materials on the market.

Expertise, good customer relations and innovation are the fruits of close cooperation and integration of research, development, applied technology and production processes.

# WIELAND Ceramics – Expect the difference

## **Mastering aesthetic challenges - WIELAND optimises their successful veneer ceramics**

Even successfully tried and tested ceramics with high aesthetic quality can be further developed and refined. Patients and dentists but also dental technicians in their role of a user of dental ceramics have specific requirements for advanced dental ceramics which are subject to a large number of criteria - and economic aspects are often in the foreground.

Users and experienced ceramists play a decisive role in creation and development of this new dimension of advanced veneer ceramics. Beginning with material handling during layering, safe firing properties also for multiple firing up to a brilliant result with a natural appearance we can create fascination. The emotional aspects of dental aesthetics result in perfection when patients and attending dentists are equally convinced by the quality of our work. In this way materials and creative working are combined to an inseparable symbiosis. Safety for the users and clinical performance are the primary concerns of WIELAND.

Already with the development of REFLEX NP safe for almost all non-precious alloys WIELAND made a contribution for more safety. REFLEX NP safe conditions the substructure surface and thus prevents uncontrolled oxidation processes during firing.

This innovative impetus was consistently applied to other fields, including further development of the highly modern and widely used Reflex veneer ceramics for metal ceramics. Modifiers that were previously only used for covering of oxide ceramics are now also used for Reflex dimension ceramics. This allows for even better adaptation between all-ceramic and metal ceramic restorations.

The heart and creative storage place for ceramic materials and composites is the Creative Box. It is a compact, variable, and creative ceramics system offering a high degree of working freedom. Everything is possible - ranging from single-layer ceramics One, to the classic standard three-layer technology up to individual layering, including Bleach and 3D colours.

This ceramics system is compact, it delivers what you really need and can be individually equipped in a new Dimension.

*Reflex dimension – be creative !*

# Indication range

## Indication range:

Reflex dimension veneer ceramic materials are suitable for covering precious alloys in the CTE range from  $13.8 - 15.1 \times 10^{-6} \text{K}^{-1}$  (25 – 500 °C).

In addition, it is suitable for covering AGC® electroplating gold, Au-reduced, Pd-alloys and non-precious metal alloys.

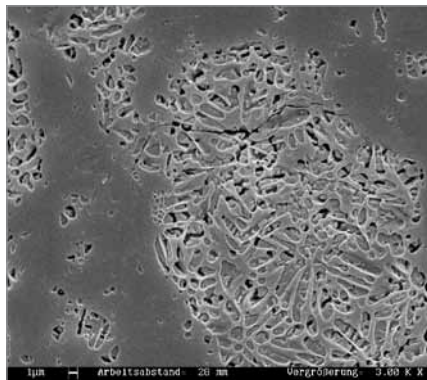
## Innovative Nanoleucite structure

**Fissure-free microstructure with homogenous distribution of minute leucite crystals. Many of the crystals have dimensions on the nanometre scale ( $< 1 \mu\text{m} = < 1000 \text{ nm}$ ) thus giving their name to the structure.**

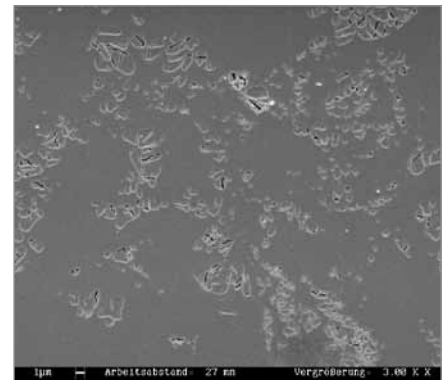
By comparison, human hair has a diameter of approx. 40,000 nm. Fissure-free microstructure with homogenous distribution of minute leucite crystals.

## The advantages of the innovative microstructure

- Very smooth, homogeneous and plaque resistant surface
- Gingiva-friendly and kind to opposing teeth
- Easily polished to a high shine in the mouth



conventional veneering ceramic  
(leucite crystals up to  $60 \mu\text{m}$ )



Reflex dimension: Nanoleucite Structure

## Technical data:

Coefficient of thermal expansion (CTE 25 - 500 °C)	$13,1 \pm 0,5 \cdot 10^{-6} \text{K}^{-1}$
Transformation temperature (EN ISO 6872)	$520 \pm 20 \text{ °C}$
Bending strength 3-point (EN ISO 6872)	approx. 120 MPa
Chemical solubility (EN ISO 6872)	approx. $15 \mu\text{g} / \text{cm}^2$
Type / class (EN ISO 6872)	I/1

# New Dimension Ceramics – With metal ceramics into new dimensions

Reflex  
dimension

## One Layer

- Straightforward and convincing with only one layer
- Economical colouring

## 3-Layer

- Layering over opaquer, dentine and incisal paste
- Above average requirements

## Professional

- Any indications are possible
- High aesthetics requirements of patients

Increased aesthetics

## Aesthetic

- Perfect colour match with all WIELAND veneering ceramics
- Exceptionally natural colour effects
- Fulfil the highest aesthetic requirements
- Light dynamics are standard for us
- Improved colours with more chroma
- Refined opale incisals with higher translucency and brilliance
- Natural fluorescence and opalescence appearance
- Iridescent opale effect composites for fascinating enamel effects
- Ergonomic design of the ceramics system
- Bleaching colours can now also be created thanks to the new Bleach module of the WIELAND A-D shade guide

## Reliable

- Bond very well to all the indicated substructures
- Simple und reliable firing programme cf. T.Klinke, R.Biffar, Quintessenz Zahntechnik 26 (12) 1317-30 (2000)
- Slow cooling not usually necessary
- High fracture strength
- 3D-colours can now be easily reproduced

## Economical

- Easy and accurate shade reproduction with the logical two-stage build-up (dentine/incisal)
- Single layer ceramics Reflex dimension One, a highly economical solution
- Robust in application
- Perfect Handling properties and minimized shrinkage
- Extremely compact ceramic kit

## Innovative


- Nanoleucite structure
- Opalescence remains stable even through multiple firings.
- Easy layering techniques from Standard to Premium




Reflex dimension – The entry

Reflex dimension – The modular supplements

<b>Reflex dimension One Modul</b>	Bleach	3D	dimension One	Stain	Chromatix
<b>Reflex dimension Basic I Modul</b>	Bleach	3D	dimension One	Stain	Chromatix
<b>Reflex dimension Basic II Modul</b>	Bleach	3D	dimension One	Stain	Chromatix

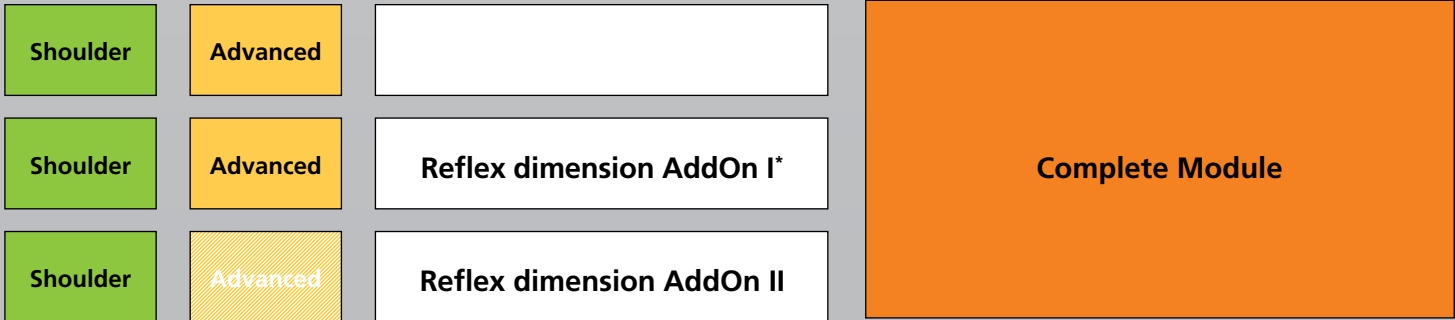
 These supplements are to be recommended

 To complement better with single mass purchase.





Reflex dimension –  
The Add-on's



\*Now to the complete assortment is absent only dimension One module.

# Reflex dimension Product Ranges

## - Set your own standards!



### Why using a Creative Ceramic Box?

It is more than a mere means of storage. The C-Box is a compact and variable design object that does not only provide a decorative aspect for your laboratory but also allows you to contribute your own creativity, particularly as a dental technician. The composites and materials are delivered in individual trays that can easily be inserted into the support devices of the C-Box. Since the trays can be easily removed at any time you are always flexible to transport the materials and composites to your work site. All individual composites that constitute the Reflex dimension Complete System can be stored in the Creative Box. And of course, the contents of the box can be changed to your individual requirements.



### Reflex dimension Test Module

With the test module WIELAND offers you the possibility of gaining first experience with and getting a positive impression of the new Reflex dimension high-quality veneer ceramics. In this module you can already experience the easy handling and perfect firing properties of this unique ceramics type and have a chance to test it in practice.

The kit comprises a total of 12 composites. It includes transparent porcelain, coloured translucencies as well as modifiers and opale effects. It goes without saying that the test module is equipped with the required liquids and glazing material, body stain as well as a brush so that you can immediately try it out. Just test it!



### Reflex dimension Basic I Module

For customers who prefer the classic three-layer technology as an alternative for professional layering. This set includes all 16 tooth colours and in addition 4 bleaching colours, the opaquers, dentines and incisal pastes. Moreover, this module is also equipped with 2 transparent porcelain composites, 2 opale effect composites one opale incisal composite and the corresponding mixing liquids and glazing material.

### Reflex dimension Basic II Module

The Basic II Module is a classic 8-colour kit that is excellently suitable for multi-layer working. It contains both 8 opaquers and the dentine and chromatic composites. Moreover this kit is completed by 6 dentine modifiers, 2 incisal pastes, 2 opal incisal pastes, 3 shoulder ceramics (high-fusing), 2 transparent porcelain composites, 3 colouring stains, 1 glazing material and correction ceramic.

Naturally, the appertaining liquids, glazing materials and stains are also included in the set.

## **Reflex dimension One Module**

This module represents another method of becoming familiar with the new Dimension of this ceramic. With only two translucent dentine porcelains and four body stain colours you can efficiently reproduce all 16 tooth colours of the A-D shade guide. For this, 16 opaquers are also available. This form of work represents the low-budget range of dentistry and dental restoration.

## **Reflex dimension Bleach Module**

The Basic I module already contains the bleaching stains. Should, however, the entry to the world of Reflex dimension be via the Basic II module, the assortment must be supplemented by the Reflex dimension Bleach module. The Bleach module includes four bleach dentines, three bleach opaquers (B1, A1 and B2), three opal incisal materials (Opale Effect Snow, Opale Effect Milky und Opale Incisal 1) that are used as bleach incisals, as well as one bleach shoulder porcelain.

## **Reflex dimension 3D Module**

If the dentist chose 3D colours these can be easily reproduced with the help of the 3D module. By using the twelve dentines, two incisal materials and five opaquers you can reproduce the entire range of 12 3D colours. In order to reproduce the additional 14 3D Master Shades with as easy 1:1 mixture, dentine A2, A3, A4 and B3 are necessary. (see chart page 32).

## **X Stain RZ Module**

The X Stain RZ module includes 16 staining colours and four body stains. It also contains the corresponding mixing liquids.

## **Reflex dimension Chromatix Module**

The set contains all chromatix ceramics for support and supplementation of all 16 tooth colours.

## **Reflex dimension Shoulder Module**

Comprising 18 shoulder ceramics this module covers your working range with regard to shoulder moulding. It includes six shoulder composites to be fired at 930 °C, six shoulder composites for a firing temperature of 960 °C and the six correction shoulder composites to be fired at 720 °C. The specific shoulder composite liquids are also included in this kit.

## **Reflex dimension Advanced Module**

The Advanced module contains the remaining structural composites. The advantage of this kit is the price, above all, since the set price is more economical in contrast to purchasing the composites individually. Consequently, this kit includes six gingiva composites, three opal incisal composites, a transparent composite, 10 coloured translucencies, four opale effect composites, 10 dentine modifiers, four opaquer modifiers and one correction ceramic as well as the corresponding mixing fluids.

## **Reflex dimension AddOn I Module**

The AddOn I module is the upgrade kit for Basic I and contains all modules described above except the Reflex dimension One Module. With this module customers can easily and comfortably extend the Basic I module without having to think about individual composites.

## **Reflex dimension AddOn II Module**

This AddOn II module contains all the powders and liquids required to expand the Basic II module to a complete assortment.

## **Reflex dimension Complete Module**

The entire world of Reflex dimension can be accessed with this complete kit. This module allows for any options of ceramics working. Covering the entire range from cost-effective veneers to high-end layering. The Complete module comprises all composites.

Through the C-Box the Reflex dimension Complete Module becomes a highly aesthetic, ergonomic, creative and fascinating tool for any kind of ceramic work. As a reward for your trust in our products we provide free modern design and storage ergonomics aspects with the complete kit.

## **Reflex dimension Freestyle Module**

Reflex dimension is committed to creativity without compromise. Therefore the C-Box provides the possibility of individually equipping it complying with the specific requirement profile of your field of work. That's what we call Freestyle. You define the contents and we equip your C-Box according to your creative requirements.

# The colour dimensions of the etiquettes



## Paste Opaque

Provides a thin coat for the metal substructure and ensures good adhesion between the substructure and the ceramic. The opaque also ensures true shade identity of all-type ceramics. If desired, the paste opaque can be thinned with Reflex dimension paste opaque thinner.



## Powder Opaque

Provides a thin coat for the metal substructure and ensures good adhesion between the substructure and the ceramic. The opaque also ensures true shade identity of all-type ceramics. To use, mix with Optimix powder opaque liquid.



## Dentine

For constructing the dentine core of the restoration and enhancing the primary shade effect.



## Uni

With only one mass it is possible to build-up the dentine as well as the incisal. With the single layer ceramic Reflex dimension One the ceramic veneer is only layered with one specially translucent dentine composite.



## Dentine Modifier

Dentine modifiers allow for a more individual creation of nuances of the dentine body in different colour shades and chroma variations. Inclusion of individual characteristics is also carried out with the help of these composites.



## Chromatix

Chromatix materials are dentine modifiers and are used to control and individualise chroma and opacity. Chromatix has a slightly higher opacity than the dentines, plus a slightly higher degree of chroma.



## Gingiva

The gum dentine with their wide shade spectrum and excellent handling characteristics offer an optically and anatomically exact reproduction of the gingiva as expected from both dentist and patient.



## Incisal

For imitating the natural incisal enamel. The descriptions of the incisal refer to specific shades. Incisal 2 is needed, for example, to produce an overall A2 shade when using a standard A2 veneer.



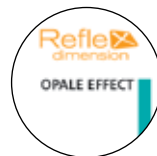
## Colored Translucency

For creating individual accents of the special enamel characteristics, particularly in the incisal area of the restoration.



## Opale Incisal

Opale Incisal provides a natural opalescence even with multiple firings. Opale Incisal can be mixed with regular incisal material or used on its own. „Dynamic light reflection is a WIELAND standard.“



## Opale Effect

Opale effect composites, in contrast to the colour-coded standard opale incisals, are characterised by individual transparency, colour pigments and mother-of-pearl opalescence. Consequently, these composites can ideally be used for precise individualisation, increase and control of brightness values and creation of subtle contrasts in incisal and intermediate range of layering. For these purposes you can use the Transpa Opal, Milky, Snow, Oyster White, Light Coral, Pale Shell, Pink Pearl composites.



## Shoulder 930/Shoulder 960/ Shoulder Correction

Shoulder 930 and Shoulder 960 composites can be used for aesthetic, metal-free ceramic shoulders. Shoulder Correction, on the other hand, is suitable for low-fusing corrections of ceramic shoulders, e.g. after glazing firing, because Shoulder correction is fired at 720 °C.





### **X Bodystain RZ**

The X Bodystain RZ are applied to the restoration after the final contour in order to achieve the base shade when fired.



### **Transpa Clear / Neutral**

Translucencies with a wide variety of characteristics can be created using Transpa Clear / Transpa Neutral. As well as adding a nuance to incisal areas, it can be used to create translucent incisal edges.



### **X Stain RZ**

Final adjustments, for example in the cervical or occlusal areas, can be carried out using Stain.



### **Correction**

This material can be used to correct veneers which have already been built up. The low firing temperature of 700 °C prevents any change in the shape or lustre of the veneer.



### **X Glaze RZ**

The glaze bake determines the surface finish of the ceramic veneer. Glaze is applied thinly and evenly. When Glaze is used, the firing temperature can be reduced by about 10 °C. Because REFLEX provides a homogeneous surface finish, glaze firing is not absolutely necessary. The glaze can also be purchased as ZENOSTAR Magic Glaze for spray application.



### **X Carving Liquids**

X Carving Liquids are used for making up X-type veneering porcelain dentines, modifiers and incisals. They guarantee optimum modelling characteristics and a wide processing range together with excellent firing properties.

### **X Carving Liquid Standard**

can be used to mix all ceramic powders.

### **X Carving Liquid Retain**

Slow drying liquid. Also used for mixing shoulder masses.

### **X Carving Liquid Speed**

Fast drying with minimum shrinkage.

### **X Carving Liquid Red, Yellow und Blue**

Used as an optical helper to colour code the individual materials during build-up.



### **X Stain Liquid / X Stain Liquid Special**

For mixing X-Type stains on both Reflex dimension and Zenoflex dimension ceramics.



### **Reflex dimension Paste Opaque Thinner**

For diluting Reflex dimension paste opaque. In order to ensure the best handling, firing and bonding properties, only this thinner may be used. Use sparingly.



### **Reflex dimension Opaque Liquid Optimix**

Use for mixing Reflex dimension powder opaque. In order to ensure the best handling, firing and bonding properties, only this liquid should be used.

### **Shoulder Liquid SH Spezial / Shoulder Correction Liquid**



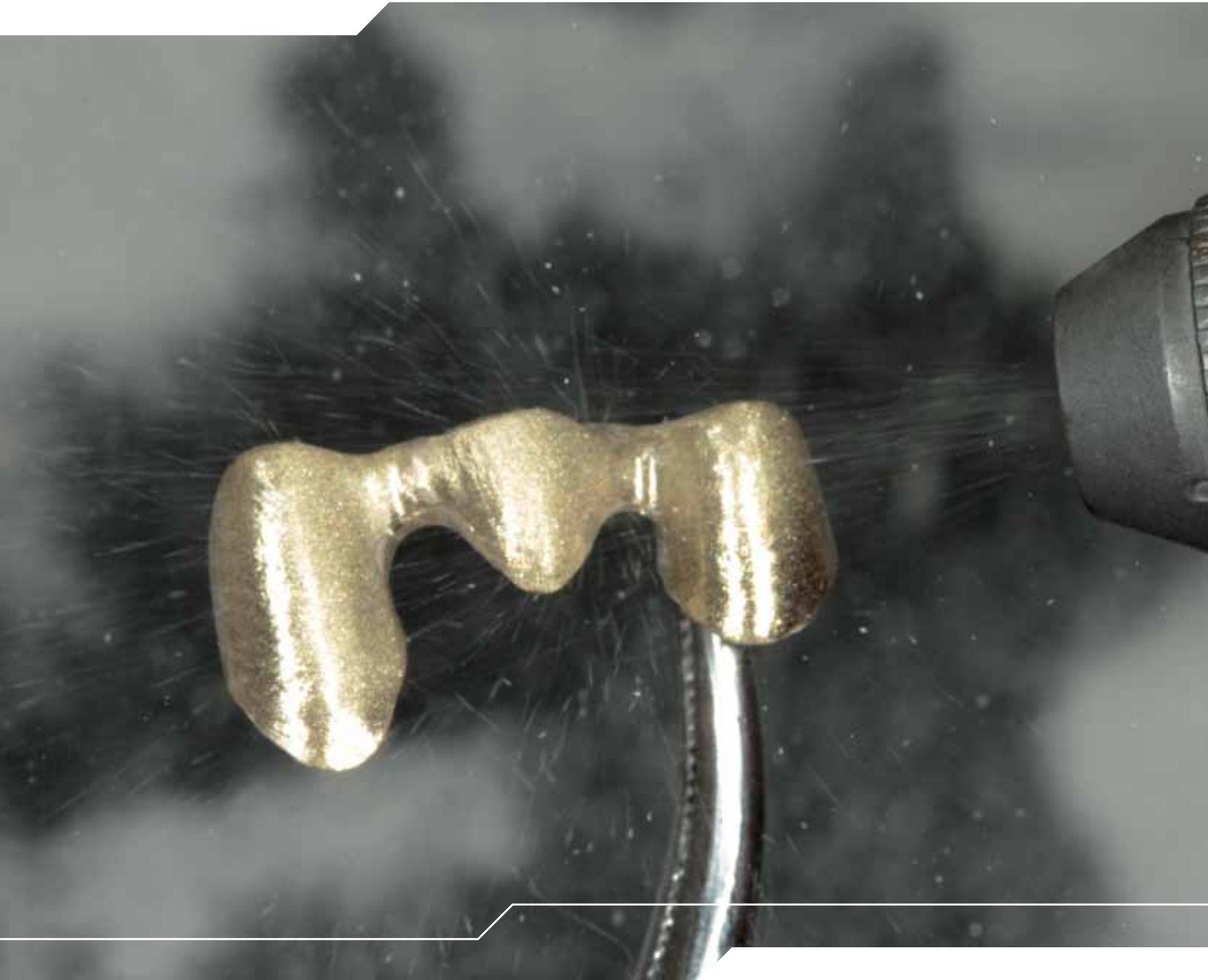
### **Shoulder Liquid SH Special**

Should only be used for mixing Shoulder 930 and Shoulder 960 powders.



### **Shoulder Correction Liquid**

Should only be used for mixing Shoulder Correction powders.





# Instructions for use – Preparing the substructure

## Indication

Reflex dimension is suitable for veneering all precious metal alloys with a CTE of  $13.8 - 15.1 \times 10^{-6} \text{K}^{-1}$  (25 – 500 °C).

We recommend the use of WIELAND high-gold alloys, AGC® electroforming gold and all low-gold and Pd-alloys.

## Note for the non-precious metal alloys

There is a plethora of non-precious metal substructure materials available. However, these composites are difficult to cover due to their chemical composition and the resulting physical properties. We recommend Denta NEM.

## The new REFLEX NP safe conditioner is the solution for this problem!

With REFLEX NP safe a 90 % higher success rate can be obtained when veneering non-precious alloys. That provides security for Reflex dimension that can thus be applied on any non-precious metal alloy. REFLEX NP safe is thinly applied on the non-precious metal substructure and fired as a wash. Oxide firing is not required. Subsequently, the Reflex dimension veneer can be applied.

## The following list provides an overview of the REFLEX NP safe advantages:

- All substructure materials can be covered without long-term cooling
- High-degree adhesive bond
- No oxide firing (time saving)
- Increased veneer adhesion safety on laser-sintered and milled substructure materials
- One firing programme for all non-precious metal substructure materials

For more detailed processing notes, please see instructions for use of NP safe!

## Preparing the substructure

Prepare the substructure according to the manufacturer's recommendations. When using WIELAND alloys please also observe the recommendations given in the relevant instructions for use.

# Reflex dimension One – The processing of the one layer technique



## What is single-layer technology?

Single-layer method is a fast and easy process for production of ceramic restoration elements. In this process an anatomically shaped crown or bridge is layered using only one layer composite and is subsequently fired. Aesthetic finishing is created by means of special stain materials (X Bodystain RZ and X Stain RZ).

Reflex dimension One is a conventionally expanding high-fusing ceramic material for veneering of alloys with a CTE value of  $13.8 - 15.1 \times 10^{-6}K^{-1}$  (25 – 500 °C).

Single-layer technology makes layering easier, faster and thus more economical. Whereas previously a minimum of two ceramic composites (dentine and incisal composite and/or transparent composite) was used for production of a ceramic restoration element, with this method only one composite, Uni light or Uni intense, is required for layering of all 16 tooth shades.

For reproduction of the 16 tooth shades of the A-D Shade Guide the metal substructure is taken as a basis. Opaquer is applied on the substructure in accordance with the natural tooth colour. These 16 opaques are identical with the Reflex dimension paste and powder opaques. This is the advantage of this complete system. The opaques are always the same, regardless of the type of layering. Subsequently, layering of the entire anatomical structure of the restoration element is carried out using one of the two supplied dentine composites.

## Colour allocation of one layer technique

(Uni light = 1, Uni intense = 2)

Tooth colour A-D Shade Guide	Opaque	One layer technique	Bodystain	Stain
A1	A1	1	A	individuell
A2	A2	1	A	
A3	A3	2	A	
A3,5	A3,5	2	A	
A4	A4	2	A	
B1	B1	1	B	
B2	B2	1	B	
B3	B3	2	B	
B4	B4	2	B	
C1	C1	1	C	
C2	C2	1	C	
C3	C3	2	C	
C4	C4	2	C	
D2	D2	1	D	
D3	D3	2	D	
D4	D4	2	D	



# The Reflex dimension One ceramic materials

## Reflex dimension One Dentine

Shade, chroma and translucency of the two dentine materials supplied are adjusted such that a dentine / incisal layering appearance can be reproduced by staining the Reflex dimension with body stains. It can be distinguished between Uni light for bright tooth colours and Uni intense for darker tooth colours (see colour allocation chart on page 16).

## X Bodystains RZ

The four Body stains are used to obtain the basic shade of the restoration element. They are easily applied on the layered, fired and finished work piece as glazing firing.

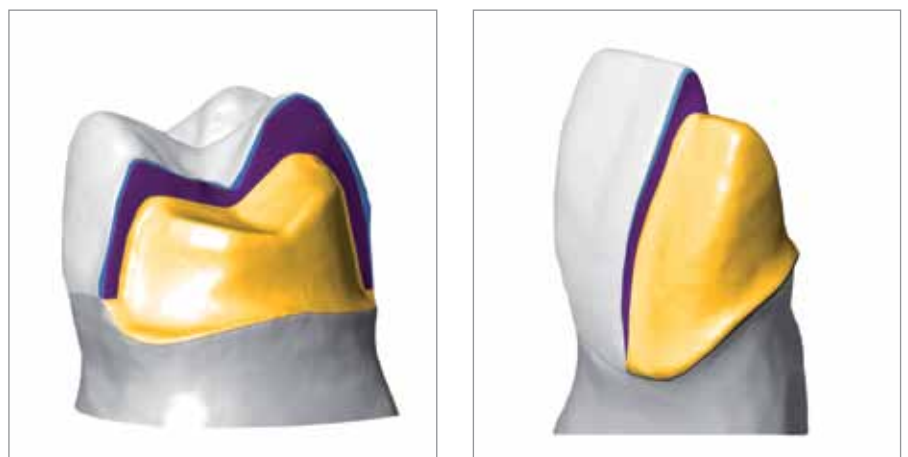
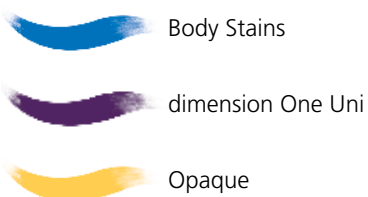
## X Stains RZ

These stain materials can be used to create individual characteristics or colour corrections.

## X Stain Liquid and X Stain Liquid Special

For mixing the glaze and stains these liquids are to be used exclusively. Only this guarantees perfect brilliance and surface homogeneity of the stains and the glaze. Due to the special constitution of X Stain Liquid Special and X Glaze RZ (glazing composite) can be mixed to produce a mass of gelatinous texture. This makes the stains, body stains and glaze easier to apply.

## Layering pattern



### Note!

Processing instructions for substructure design, substructure working and conditioning of noble metal and base metal substructure are described in chapter „Processing/substructure preparation“.

### Important!

Lead-free biocompatible alloys containing zinc (Zn) should be sandblasted and oxidised and then after the oxide firing they should be pickled in a clean, hot bath of Wilacid (or similar) for approx. 5 minutes.

# Processing steps

## 1. Opaquer application

### a. Opaquer application of powder opaquer

Due to handling requirements, powder opaquer cannot be applied with distilled water. Using Reflex Dimension Opaque Liquid Optimix prevents running of the opaque powder during application. The powder opaquer is applied in two evenly covering layers and baked accordingly.

**Attention:** A so-named wash firing is not carried out.

After the second firing process the opaquer must cover the substructure completely so that uniform shading of the work piece is guaranteed.

### b. Opaquer application of paste opaquer

Before processing, the paste opaquer must be well mixed with a ceramic spatula and a small portion is taken out.

#### Note!

- If required, the Reflex dimension past opaquer thinning (paste opaque thinner) agent can be used to create the required consistency of the mass. Please do not attempt to thin the paste in the jar. Take out the required amount and thin it on a glass plate.

This paste is then applied to the substructure in an evenly covering layer using a brush. Then the first opaquer firing is carried out.

Subsequently, the process is repeated and the second opaquer firing is carried out. After the second firing process the opaquer must cover the substructure completely so that uniform shading of the work piece is guaranteed.

#### Note!

- Drying the specimen too fast may cause problems. If the recommended drying times are not adhered to, cracking, small cavities or peeling of the opaquer may occur. The cause of all that is that the opaquer liquid was transformed from liquid to gaseous state in too short a time.
- Do not extensively vibrate the surface and do not have thick opaquer layers flow together in occlusal, approximal or edge areas. Thick opaquer layers may lead to uncontrolled discharge of liquid during the pre-heating process which may result in formation of bubbles and consequent cracking during firing.
- If the temperature is too high or too low, bubbles may form, so please make sure that the radiant temperature at the workpiece is approx. 130 °C.

## 2. Dentine layering

### a. First single layer firing

The Reflex dimension One single layer Uni light and Uni intense composite is mixed with a carving liquid - X Carving Liquid or Carving Liquid Retain, in the same way as a dentine composite. Complying with the layering pattern, this mass is used for layering the entire anatomic shape of the restoration specimen in a slightly larger than natural dimension. After layering, the ceramic is baked in accordance with the corresponding firing recommendations.

### b. Second single layer firing

After shaping the first single layer firing with the help of diamond grinding tools and cleaning (steam cleaning) the second single layer firing is carried out analogously. Any missing ceramic is corrected by another layer of single layer mass, if required.

### 3. Shading characteristics

#### a. Colouring with body stains

After completed shaping and carving the specimen is cleaned. The Reflex dimension body stains and stains are used in accordance with the required colour intensity, i.e. the shades are intensified by repeated colouring and firing. However, extremely thick application of the colouring agents must be prevented since this results in unnatural and uneven surface appearance. After giving the specimen the required shade characteristics using the body stains and individual appearance using the stain components, the specimen is baked according to the firing recommendations.

#### b. Glazing firing

If required, the restoration piece can subsequently be glazed with ZENOSTAR Magic Glaze or X Glaze RZ. This ensures that the surface is particularly shiny and smooth.

#### Important!

- Only use the recommended liquids for mixing each material.
- There is always a risk of failure of the restoration piece through uncontrolled reactions, CTE-incompatibility or unsuitable firing parameters if not product-specific components are used.

### 4. Shaping of veneer ceramics

When working veneer ceramics with rotating tools it must always be considered to work with very low contact pressure and using a means of cooling (e.g. water). Localised overheating must be prevented in any case. In any case excessive grinding of any kinds of ceramics will lead to formation of microcracks within the ceramic structure and consequently result in failure of the restoration through cracks and chipping of the veneer ceramic or breakage of the restoration element.

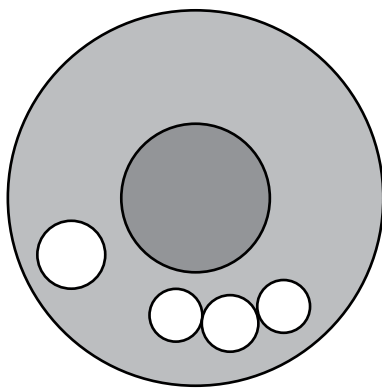
#### Important!

- After significant working of the ceramic veneer using rotating instruments a glazing firing process must always be carried out.
- This helps reduce stresses and remove possible damage (microcracks) in the veneer.
- This also applies for substantial grinding of the occlusal and approximal contact points by the dentist.



## Firing recommendations

- Solid firing support elements will absorb more heat during firing and consequently have an effect on the firing result of the ceramic. Therefore, for achieving optimum results it is recommended to use firing supports with a honeycomb structure or, if solid firing supports are used, to increase the final firing temperature by approx. 10 °C.
- The same applies to solid firing pins. We recommend using fan pins.
- Never position objects in the centre of the firing support, always align them towards the heater elements.



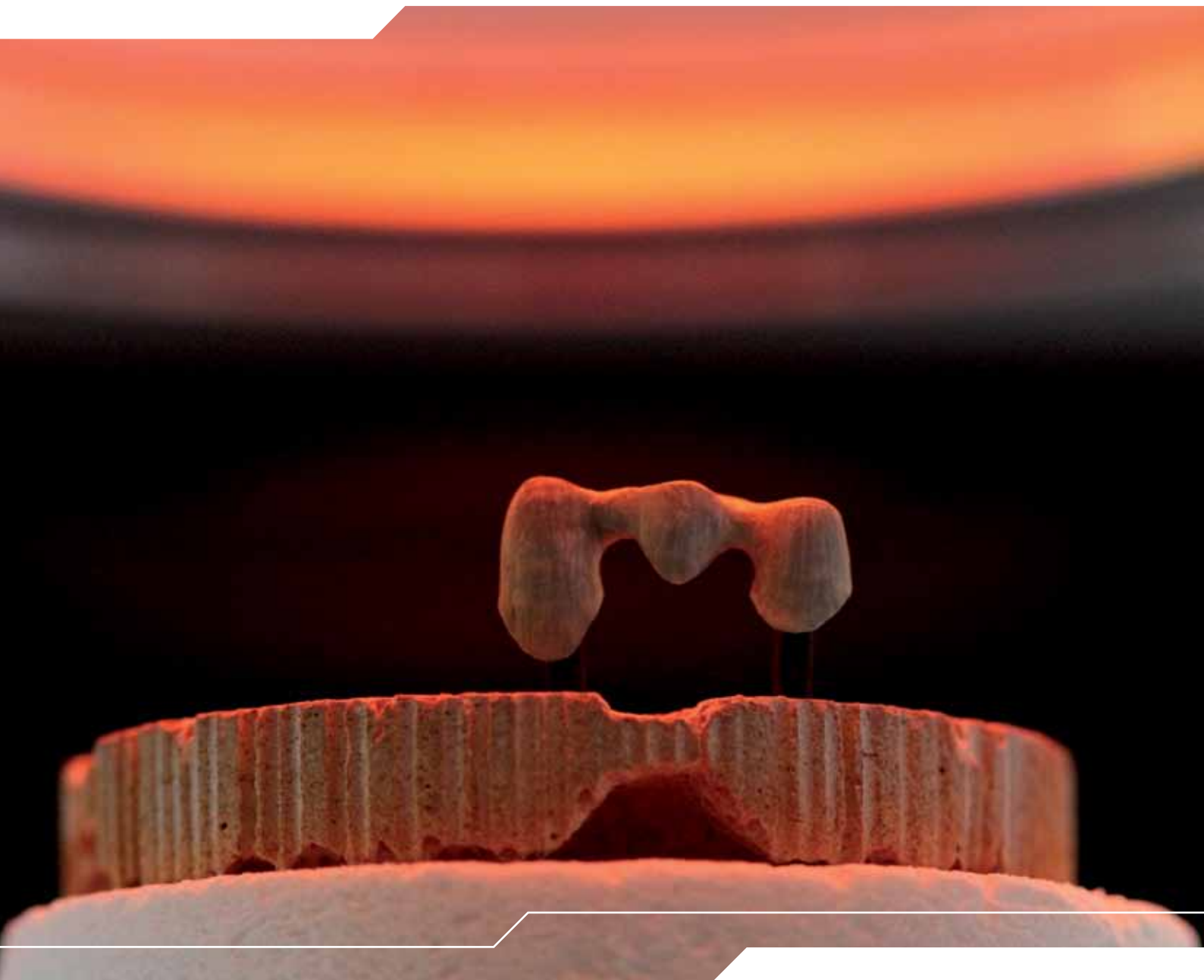
Do not place too many objects on one firing support since more objects require higher firing temperatures.

For larger specimen, solid bridge units or many smaller units the drying and closing times must be extended accordingly. In addition, it is required to increase the firing temperatures for the first and second dentine firing process. For glaze firing the firing temperature and sustaining time can be individually adjusted according to the required degree of lustre.

### Note!

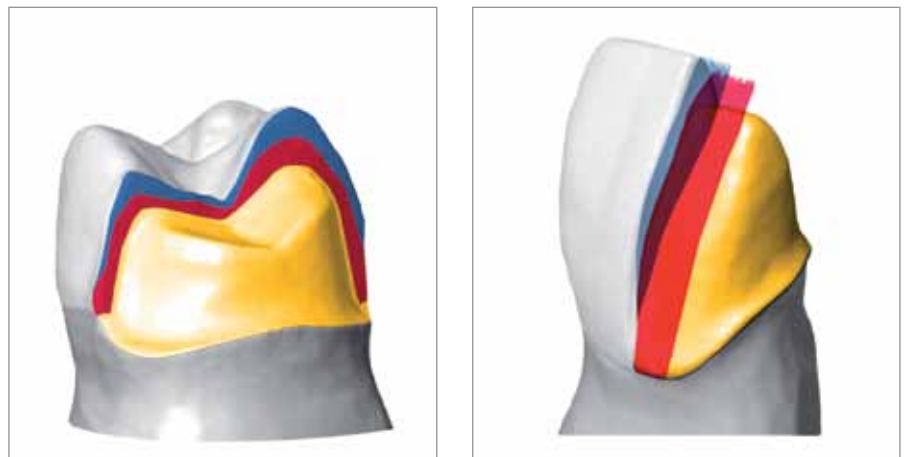
Generally it must be noted that veneering ceramics are more sensitive to under-firing - i.e. physical properties such as CTE and strength are not obtained at the required value which may result in cracks and chipping - than to over-firing. The latter case can be easily identified through rounding of the edges and may be rectified by slightly decreasing the firing temperature (depending on the situation: 5 to 10 °C).

The appropriate firing programme can be found in the instructions for use and also corresponds to the standard and professional layering with Reflex dimension.



# Reflex dimension – Standard build-up

Processing instructions for substructure design, substructure working and conditioning of precious and non-precious substructure are described in chapter „Processing/ substructure preparation“. In addition, you will find notes on the application of opaques in the chapter „Single layer ceramics“.



## Colour allocation for standard build-up

Shades	Opaque	Dentine	Incisal	Opale Incisal
A1	A1	A1	1	1
A2	A2	A2	2	2
A3	A3	A3	3	3
A3,5	A3,5	A3,5	3	3
A4	A4	A4	4	4
B1	B1	B1	1	1
B2	B2	B2	2	2
B3	B3	B3	3	3
B4	B4	B4	4	4
C1	C1	C1	1	1
C2	C2	C2	2	2
C3	C3	C3	3	3
C4	C4	C4	4	4
D2	D2	D2	2	2
D3	D3	D3	3	3
D4	D4	D4	4	4

*The tips to the stratification of 3D colours are in the chapter "Reflex dimension 3D"*

# Processing steps

## 1. Opaquer application

### a. 1<sup>st</sup> Opaque bake

After the substructure has been suitably prepared, the first layer of opaque can be applied.

The opaque is supplied as a paste or a powder. More information on opaquer application is provided in the chapter „Single layer ceramics“. To apply the opaque, use the paste brush provided or a suitable powder opaque applicator. The shape and flexibility of the brush are designed to suit the viscosity of paste opaque. For that purpose, WIELAND offers a comprehensive brush range suitable for optimum working of the specimen. Apply a thin layer of opaque evenly (semi-coating) to the coping or bridge framework. Please ensure that this first layer is not too thick. If the paste opaque is applied too thickly, uncontrollable amounts of liquid can evaporate during preheating and cause bubbles to form.

Then the first opaque bake is carried out. For firing temperatures and times please refer to the firing programmes given at the end of these instructions.



*Crowns after the 2<sup>nd</sup> opaque bake: The opaque has a smooth and shiny appearance*

### b. 2<sup>nd</sup> Opaque bake

The second step is to apply opaque once more. Here too, it is important for the reasons given above that the opaque is not applied too thickly. Even so, the opaque must completely cover the substructure so as to ensure that the crown is uniform in colour.

Problems can also occur if the opaque is dried too quickly. If the recommended pre-drying and drying times are not adhered to, small cavities may form or the opaque may flake off. This occurs if the opaque passes too quickly from a liquid to gaseous state.

#### Please note!

The opaque should be applied evenly with an applicator or a brush. The consistency should be neither too thick nor too thin. A "wash bake" is not required. Avoid excessive riffling and do not allow thick layers of opaque to coalesce in the occlusal, approximal or marginal areas. Thick layers of opaque can crack during firing.

#### Important!

Lead-free biocompatible alloys containing zinc (Zn) should be sandblasted and oxidised and then after the oxide firing they should be pickled in a clean, hot bath of Wilacid (or similar) for approx. 5 minutes.

#### Powder Opaque

For handling reasons, Reflex dimension powder opaque must not be mixed with distilled water. Reflex dimension powder opaque liquid ensures that the material stays in place during application.

## 2. Dentine layering

### a. 1<sup>st</sup> Dentine bake

Mix the dentine and incisal powders in the usual manner together with the carving liquid provided.

Then build the crown up, starting with dentine and then completing with the incisal area.

Although the shrinkage of Reflex dimension after firing has been minimized, it is still necessary to build the crown up in a slightly larger dimension.

Now bake the ceramic according to the recommendations in the table attached

#### Please note!

The nanoleucite structure of Reflex dimension gives the surface an extremely high shine after the 1<sup>st</sup> and 2<sup>nd</sup> dentine bakes.

### b. 2<sup>nd</sup> Dentine bake

After the 1<sup>st</sup> dentine bake, correct the shape by grinding with a medium grain diamond bur. During this stage, please ensure adequate cooling (using water drops).

Then fill in any missing areas in the shape of the crown by adding a further layer of dentine or incisal materials. Use the same method as described for the 1<sup>st</sup> dentine bake.

#### Warning!

Do not mix Reflex dimension ceramic materials together with any other types of ceramic material. REFLEX dimension has a unique nanoleucite structure and is not compatible with other ceramics.

## 3. Stains and glazing

After the shape has again been trimmed and corrected, X Stain RZ and/or X Glaze RZ can be used to give the crown its individual character.

#### Please note!

Please use only X Stains RZ and X Glaze RZ. If other products are used there is a risk of uncontrolled stress in the ceramic causing the restoration to fail through tension or pressure cracks. Please mix stains and glaze only with the stain and glaze liquid supplied. Apply with a conventional staining brush.

When firing, follow the recommendations shown in the table.

#### Please note!

Avoid applying too much pressure since this can cause localised overheating. As with all ceramics, excessive grinding causes micro cracks to occur in the ceramic structure and can result in failure through flaking, cracks or fissures.

#### Please note – glaze!

By modifying the firing temperature and holding time, the degree of glaze can be varied from matt to a high shine to suit individual requirements.





# Reflex dimension – Professional build-up



In addition to the standard threelayer technique, it is also possible to produce an advanced, professional build-up. The following materials are available for this purpose:

- Chromatix
- Modifier
- Opale Incisal
- Opale Effects
- Colored Translucency
- Transpa Neutral / Transpa Clear
- Stains



## Chromatix and Modifier

These modifier composites can be randomly mixed with each other. The preferred fields of application of these composites are described in the tooth model.

### Chromatix

#### Applications

- Chromatix materials are dentine modifiers used to control and individualise chroma and opacity.
- By increasing opacity the metal framework can be more effectively concealed whilst simultaneously intensifying the chroma (depth of shade), even with relatively thin layers of ceramic.
- Chromatix can be mixed with normal dentine to modify chroma and opacity. Alternatively, it may, if the case requires, be used on its own.



### Modifier

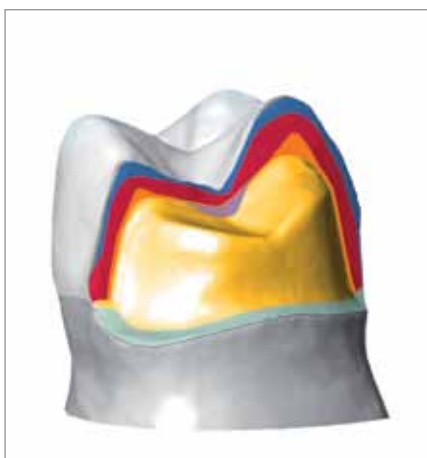
- Dentine modifiers allow for a more individual creation of nuances of the dentine body in different colour shades and chroma variations. Inclusion of individual characteristics is also carried out with the help of these composites.

<b>Ivory</b>	A1 A2 B1 B2	For all shades, to be used for increasing the brightness value and as mamelons in bright teeth
<b>Caramel</b>	A3,5 A4 B3 B4 D3	Specially for cervical area and approximal, as well as in the fossa area of the lateral teeth
<b>Flamingo</b>	A1 A2 A3 B1 B2	Ideal for mamelons of young teeth
<b>Creme</b>	A2 A3	For Chroma increase of the A-shades and as mamelons
<b>Peach</b>	A3 A3,5 A4	For chroma increase and in fossa area
<b>Amber</b>	A3,5 A4	For chroma increase and in fossa area
<b>Bamboo</b>	B2 B3	For chroma increase and as mamelons
<b>Honey</b>	B3 B4	Chroma increase, secondary dentine
<b>Pearl</b>	D2 D3	As mamelons and secondary dentine
<b>Taiga</b>	C2 C3 C4	Chroma increase, secondary dentine

# Opale Incisals, Opale Effects and Colored Translucencies

## Field of application

- These composites provide even more options for precise individual creation and characterisation of ceramic restoration specimen.
- For that purpose 10 Colored translucencies, 4 opale incisals and 7 opale effects are available.
- The various composites can be used on their own or in a mixture, depending on requirements.



## Opale Incisal

Colour-coordinated opalescent incisals.

## Opale Effect powders

Opale effect composites, in contrast to the colour-coded standard opale incisals, are characterised by individual transparency, colour shades and opalescence. Consequently, these composites can ideally be used for precise individualisation, increase and control of brightness values in the incisal range of layering. For these purposes the Transpa Opal, Milky, Snow, Oyster White, Light Coral, Pale Shell, Pink Pearl composites are available. Fascinating light-optical phenomena, such as opalescence and translucency of the natural enamel in the surface area of the teeth have been taken as a model for the development of these effect composites. Brightened areas of the tooth as well as cusp tips and margin ridges in the lateral areas are accentuated.

<b>Transpa Opale</b>	Offers the highest transparency and opalescence
<b>Milky</b>	With Opale Effect Milky and Snow the brightness value of the incisal materials can be further controlled.
<b>Snow</b>	
<b>Oyster White</b>	bluish opalescence
<b>Light Coral</b>	yellowish/reddish opalescence
<b>Pale Shell</b>	yellowish opalescence
<b>Pink Pearl</b>	reddish opalescence

All opale effect powders can be individually used without attention of a special colour allocation for all V-colours.

## Colored Translucencies / Transparent Porcelain

Contrasts created with the warm-shaded Colored Translucencies in the cervical area result in a harmonic blending to the gingiva and a slightly increased intensity of shade while simultaneously maintaining translucency. (Mandarin, Melon, Papaya, Orange, Topas, Lemon, Rubin Opal). For use in incisal areas and for framing of discreetly layered mamelons the various opalescent blueish and greyish porcelains are best suitable (Amethyst Opal, Aquamarin Opal, Smokey Opal). The composites can be mixed with any transparent porcelains for thinning purposes.

The various transparent porcelains are only applied in very thin layers and provide better control of translucency and of the brightness value (Transpa Neutral, Transpa Clear).

<b>Mandarin</b>	slightly yellowish	These composites can be used for any shades in accordance with the desired shade effect without considering any specific colour-coding.
<b>Melon</b>	orange	
<b>Papaya</b>	khaki	
<b>Orange</b>	foggy amber	
<b>Topas</b>	Intensive orange	
<b>Lemon</b>	yellowish	
<b>Rubin Opal</b>	reddish	
<b>Amethyst Opal</b>	greyish purple	
<b>Aquamarin Opal</b>	intensive blue	
<b>Smokey Opal</b>	greyish	
<b>Transpa Neutral</b>	transparent	
<b>Transpa Clear</b>	highly transparent	



### Please note!

Chromatix, Modifier, Opale Incisals, Opale Effects and Colored Translucencies can be used in connection with the X Carving Liquid, the X Carving Liquid Retain and the X Carving Liquid Speed agents. Only then are you assured of maximum brightness, translucency and ideal handling properties.

## Firing Temperature

For firing programmes please follow the recommendations set out in the firing tables for the 1<sup>st</sup> and 2<sup>nd</sup> dentine bakes on page 39. You will find the firing temperatures and times at the end of these instructions.

## Shade guides

The individual colour shades and translucency are shown on the enclosed shade guide. Like all Reflex dimension shade guides this has colour samples in the original ceramic, which enables you to make an exact colour identification of the individual powders in a wide variety of lighting conditions (incident light and transmitted light). With individual colour matching for a professional ceramic layer, the colour samples can be applied using digital photography for the optimal colour coordination.

## Colour allocation

The modifier of the reflex dimension are an important part of a creative colour harmony system for the design of individual dental restoration. They can be mixed with dentins to achieve an individual hue or a higher chroma but can also be inserted as mamelons or secondary dentins.



# X Stain RZ Module

## Indication

The staining shades can be used for REFLEX, Reflex dimension and for ZIROX, Zenoflex dimension and ZENOSTAR. The firing temperature of the staining shades and the body stains corresponds to the temperatures for glazing firing of the respective ceramic powder used.

## The shade palette is a logical and easy to use stain mixing system

- It enables the dental technician to reproduce all the 75 shades depicted on the palette in a simple and logical way, using the eight colours shown on the angles of the octagon plus white and grey.
- In addition to the colours shown on the angles, the eight additional most commonly used colours are standard components of the stain set.
- Using the measures included in the set (small and large measures) together with the mixing chart ensures an exact reproduction of the various shades.
- Select the size of the measure according to the total volume required.

### Important!

Do not change the measure during colour mixing since these bear no relationship to one another. Exact reproduction of the required shade is guaranteed only if measuring is exact.

## Procedure

- Select a shade on the shade palette shown on the left.
- Note the number on the colour tab.
- Find this number in the chart below.
- Mix the components according to the chart to obtain the required shade nuance.

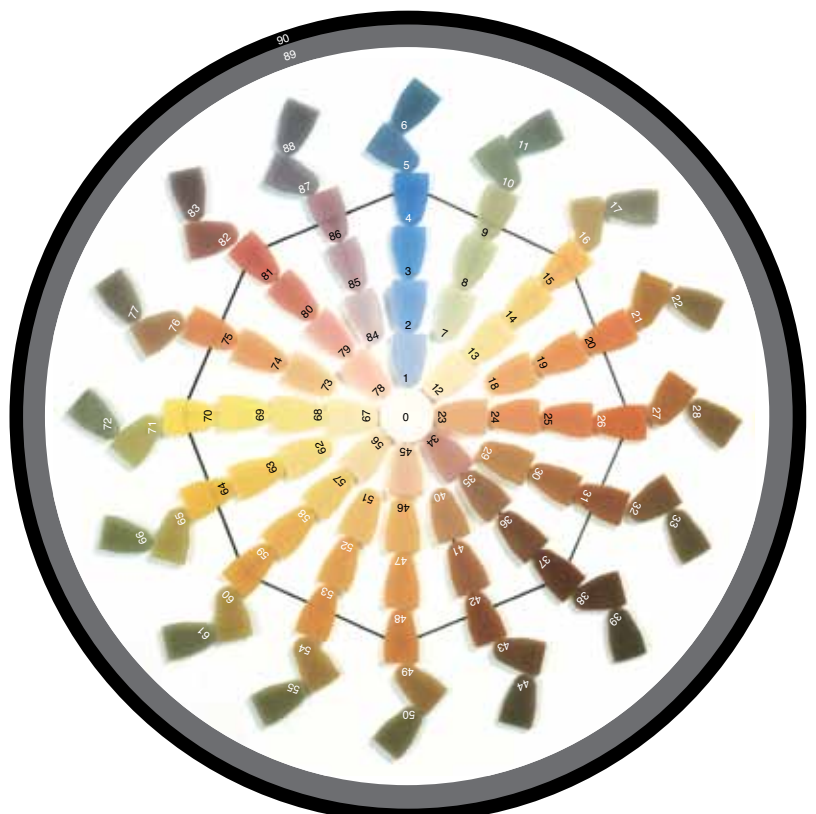
Now the desired colour nuances should have been reached.

### Example: Shade No.18

- 1 x small measure of Peach (No. 15)
- 1 x small measure of Orange (No. 26)
- 2 x small measures of White (No. 0)

or ...

- 1 x large measure of Peach (No. 15)
- 1 x large measure of Orange (No. 26)
- 2 x large measures of White (No. 0)



No. on the shade palette	Mixture of: (p = part(s))
<b>0 white</b>	–
<b>1</b>	1 P. blue + 3 P. white
<b>2</b>	1 P. blue + 1 P. white
<b>3</b>	3 P. blue + 1 P. white
<b>4 blue</b>	–
<b>5 steel</b>	3 P. blue + 1 P. grey
<b>6</b>	1 P. blue + 1 P. grey
<b>7</b>	1 P. blue + 1 P. peach + 2 P. white
<b>8</b>	3 P. blue + 3 P. peach + 2 P. white
<b>9</b>	1 P. blue + 1 P. peach
<b>10</b>	3 P. blue + 3 P. peach + 2 P. grey
<b>11</b>	1 P. blue + 1 P. peach + 2 P. grey
<b>12</b>	1 P. peach + 3 P. white
<b>13</b>	1 P. peach + 1 P. white
<b>14 melon</b>	3 P. peach + 1 P. white
<b>15 peach</b>	–
<b>16</b>	3 P. peach + 1 P. grey
<b>17</b>	1 P. peach + 1 P. grey
<b>18</b>	1 P. peach + 1 P. orange + 2 P. white
<b>19</b>	3 P. peach + 3 P. orange + 2 P. white
<b>20</b>	1 P. peach + 1 P. orange
<b>21</b>	3 P. peach + 3 P. orange + 2 P. grey
<b>22</b>	1 P. peach + 1 P. orange + 2 P. grey
<b>23</b>	1 P. orange + 3 P. white
<b>24</b>	1 P. orange + 1 P. white
<b>25</b>	3 P. orange + 1 P. white
<b>26 orange</b>	–
<b>27</b>	3 P. orange + 1 P. grey
<b>28 olive</b>	1 P. orange + 1 P. grey
<b>29</b>	1 P. orange + 1 P. marone + 2 P. white
<b>30</b>	3 P. orange + 3 P. marone + 2 P. white
<b>31</b>	1 P. orange + 1 P. marone
<b>32</b>	3 P. orange + 3 P. marone + 2 P. grey
<b>33</b>	1 P. orange + 1 P. marone + 2 P. grey
<b>34</b>	1P. marone + 3 P. white
<b>35</b>	1 P. marone + 1 P. white
<b>36</b>	3 P. marone + 1 P. white
<b>37 marone</b>	–
<b>38</b>	3 P. marone + 1 P. grey
<b>39</b>	1 P. marone + 1 P. grey
<b>40</b>	1 P. marone + 1 P. caramel + 2 P. white
<b>41</b>	3 P. marone + 3 P. caramel + 2 P. white
<b>42</b>	1 P. marone + 1 P. caramel
<b>43</b>	3 P. marone + 3 P. caramel + 2 P. grey
<b>44</b>	1 P. marone + 1 P. caramel + 2 P. grey
<b>45 ivory</b>	1 P. caramel + 3 P. white

No. on the shade palette	Mixture of: (p = part(s))
<b>46</b>	1 P. caramel + 1 P. white
<b>47</b>	3 P. caramel + 1 P. white
<b>48 caramel</b>	–
<b>49</b>	3 P. caramel + 1 P. grey
<b>50</b>	1 P. caramel + 1 P. grey
<b>51</b>	1 P. caramel + 1 P. ocker + 2 P. white
<b>52</b>	3 P. caramel + 3 P. ocker + 2 P. white
<b>53</b>	1 P. caramel + 1 P. ocker
<b>54</b>	3 P. caramel + 3 P. ocker + 2 P. grey
<b>55</b>	1 P. caramel + 1 P. ocker + 2 P. grey
<b>56</b>	1 P. ocker + 3 P. white
<b>57</b>	1 P. ocker + 1 P. white
<b>58</b>	3 P. ocker + 1 P. white
<b>59 ocker</b>	–
<b>60</b>	3 P. ocker + 1 P. grey
<b>61</b>	1 P. ocker + 1 P. grey
<b>62</b>	1 P. ocker + 1 P. yellow + 2 P. white
<b>63</b>	3 P. ocker + 3 P. yellow + 2 P. white
<b>64</b>	1 P. ocker + 1 P. yellow
<b>65</b>	3 P. ocker + 3 P. yellow + 2 P. grey
<b>66</b>	1 P. ocker + 1 P. yellow + 2 P. grey
<b>67</b>	1 P. yellow + 3 P. white
<b>68</b>	1 P. yellow + 1 P. white
<b>69</b>	3 P. yellow + 1 P. white
<b>70 yellow</b>	–
<b>71</b>	3 P. yellow + 1 P. grey
<b>72</b>	1 P. yellow + 1 P. grey
<b>73</b>	1 P. yellow + 1 P. gum + 2 P. white
<b>74</b>	3 P. yellow + 3 P. gum + 2 P. white
<b>75</b>	1 P. yellow + 1 P. gum
<b>76</b>	3 P. yellow + 3 P. gum + 2 P. grey
<b>77</b>	1 P. yellow + 1 P. gum + 2 P. grey
<b>78</b>	1 P. gum + 3 P. white
<b>79</b>	1 P. gum + 1 P. white
<b>80</b>	3 P. gum + 1 P. white
<b>81 gum</b>	–
<b>82</b>	3 P. gum + 1 P. grey
<b>83</b>	1 P. gum + 1 P. grey
<b>84</b>	1 P. gum + 1 P. blue + 2 P. white
<b>85</b>	3 P. gum + 3 P. blue + 2 P. white
<b>86 violett</b>	1 P. gum + 1 P. blue
<b>87</b>	3 P. gum + 3 P. blue + 2 P. grey
<b>88</b>	1 Teil gum + 1 Teil blue + 2 Teile grey
<b>89 grey</b>	1 P. black + 1 P. white
<b>90 black</b>	–



# Reflex dimension 3D – The supplement of 3D Master shades\*

Reflex dimension has been extended by the 26 shades of the 3D shades\*. These shades are used to easily reproduce 3D shades\* in case of repair. The corresponding ceramic masses have been developed for reproduction. With the help of these masses and partially also through 1:1 mixtures with the well-known \*Vita A-D – masses a basic layering of the 3D system is easily possible. With these materials in a 1:1 mixture with Reflex dimension materials A2, A3, A4 and B3, the shades in the chart below are easily achieved.

V-3D shade*	Opaque	Used dentines or dentine mixtures 1:1	Incisal
1M1	Opaque E	Dentine E1	Incisal 5
1M2	Opaque E	Dentine E2	Incisal 5
2L1,5	Opaque F	1 P. Dentine B3 : 1 P. Dentine E1	Incisal 5
2L2,5	Opaque F	1 P. Dentine A3 : 1 P. Dentine F5	Incisal 5
2M1	Opaque F	Dentine F3	Incisal 5
2M2	Opaque F	Dentine F4	Incisal 5
2M3	Opaque F	Dentine F5	Incisal 5
2R1,5	Opaque F	1 P. Dentine A3 : 1 P. Dentine F3	Incisal 5
2R2,5	Opaque F	1 P. Dentine A2 : 1 P. Dentine G4	Incisal 5
3L1,5	Opaque G	1 P. Dentine A4 : 1 P. Dentine F3	Incisal 5
3L2,5	Opaque G	1 P. Dentine A3 : 1 P. Dentine G5	Incisal 5
3M1	Opaque G	Dentine G3	Incisal 5
3M2	Opaque G	Dentine G4	Incisal 5
3M3	Opaque G	Dentine G5	Incisal 5
3R1,5	Opaque G	1 P. Dentine A4 : 1 P. Dentine G3	Incisal 5
3R2,5	Opaque G	1 P. Dentine G5 : 1 P. Dentine H6	Incisal 5
4L1,5	Opaque H	1 P. Dentine C3 : 1 P. Dentine G4	Incisal 6
4L2,5	Opaque H	1 P. Dentine H4 : 1 P. Dentine I3	Incisal 6
4M1	Opaque H	1 P. Dentine G3 : 1 P. Dentine I1	Incisal 6
4M2	Opaque H	Dentine H4	Incisal 6
4M3	Opaque H	1 Teil Dentine G5 : 1 Teil Dentine I3	Incisal 6
4R1,5	Opaque H	Dentine H6	Incisal 6
4R2,5	Opaque H	1 Teil Dentine G3 : 1 Teil Dentine I3	Incisal 6
5M1	Opaque I	Dentine I1	Incisal 6
5M2	Opaque I	1 P. Dentine I1 : 1 P. Dentine I3	Incisal 6
5M3	Opaque I	Dentine I3	Incisal 6

For any other information please see the instructions on standard or professional layering in these instructions for use.

\* VITA System 3D-Master is a registered trade mark of Vita Zahnfabrik H. Rauter GmbH & Co. KG, 79704 Bad Säckingen.



# Reflex dimension Bleach Module

More and more patients want perfect, bright and white teeth. This may be realised in natural teeth through bleaching or by means of integration of very bright restoration elements (e.g. veneers). When examining the brightening result of natural teeth it must be noted that the teeth do not only become whiter but the characteristic basic shade of the patient's teeth is maintained but is extremely brightened. This can be explained by the processing method for bleaching. The substance acts from the outside to the inside which first results in a brightened enamel layer while the dentine remains unaffected and maintains its original shade.

Consequently bleaching shades can be used to reproduce very bright and white teeth to nature-identical resemblance of either dentist-bleached teeth or naturally bright and white teeth. Since the bleaching results may strongly vary in the degree of brightening masses are available in various shades and intensities.

In this way the WIELAND veneering ceramics have been extended by the Bleach Module containing the bleach ceramic composites of the A-D Shade Guide. With this module it is possible to adapt to bleaching situations or provide complete restoration.

**The four new bleaching shades can be produced according to the following table:**

Shade	Opaquer	Dentine	Incisal paste
BL1	BL1	Dentine BL1	Opale Effect Snow
BL2	A1	Dentine BL2	Opale Effect Milky
BL3	B2	Dentine BL3	Opale Incisal 1
BL4	B2	Dentine BL4	Opale Incisal 1



# Description of the ceramic composites:

## Opaquer

Use the opaque according to the chart on page 33.

## Dentines

**Dentine BL1** has the brightest chroma and a tendency towards the white shade range. It is used for reproduction of the BL1 bleach shade (see table).

**Dentine BL2** has a slightly more intensive chroma in comparison with Bleach Dentine Light and is used for reproduction of the BL2 bleach shade (see table). It is rather attributed to the reddish-brownish range (A range).

**Dentine BL3:** Dentine BL3 is slightly less intensive than BL4.

**Dentine BL4:** Dentine BL4 is the most intensive shade of the four bleaching shades (see shade indicator of the Bleach Module).

## Incisal

The incisal comprises merely three composites.

### **Opale Effect Snow and Opale Effect Milky:**

The two Opale Effect incisals each have different degrees of transparency and opalescence. Milky is the more transparent mass with a more distinctive opale effect. These two opale effects are used as standards in accordance with the bleaching table.

### **Opale Incisal 1:**

The opale incisal 1 is used for bleaching shades BL3 and BL4 and as standard opale incisal for tooth shades A1, B1 and C1.

## Transparent porcelains

The system provides two composites in different transparency degrees.

Transpa Clear is highly transparent (glassy) and Transpa Neutral has a slightly lower degree of transparency. With the help of Transpa Neutral the shade intensity of the used ceramic composites can additionally be controlled. In this context it must be observed that transparency is increased the higher the transpa neutral proportion and simultaneously shade intensity (i.e. chroma) is decreased.

## Shoulder composites

In the system whitish shoulder composites - Shoulder 930 Bleach or Shoulder 960 Bleach - are available. If the natural shade of the shoulder differs distinctly, the compatible Reflex dimension shoulder composites can be used. Crystal Shoulder Correction is suitable for production and correction of ceramic shoulders after glazing firing. For any other information please see the chapters Standard or Professional layering in these instructions for use.

# Reflex dimension Shoulder Materials

## Firing temperature

- The 6 Reflex dimension Shoulder High (high fusing) materials are baked at a firing temperature of 930 °C with a holding time of 1 minute before the first dentine bake.
- The 6 Reflex dimension Shoulder High (high fusing) materials are baked at a firing temperature of 960 °C with a holding time of 1 minute before the first dentine bake.
- The 6 Reflex dimension Shoulder Correction materials are baked at a firing temperature of 720 °C with a holding time of 1 minute after the glaze bake.

Please note that SH 930 und SH 960 can not be mixed together.

## Applications

- The Shoulder Correction materials are not only suitable for the fabrication and correction of ceramic shoulders after the glaze bake. Because of their low firing temperature they can also be used for all other corrections such as making minor corrections to the shape or adding contact points. This means that Shoulder Correction can be used to make corrections even after soldering in a furnace.
- Shoulder 930 Flu / Shoulder 960 Flu and Shoulder Correction Flu can be used to conceal dark areas such as discoloured tooth enamel or discoloration at the edges of crowns, to improve brightness and enhance translucency.

## Shoulder High and Shoulder Correction – share these features

- Minimal shrinkage during firing
- High form stability even after repeated dentine and glaze bakes.
- Excellent marginal fit
- Perfect colour matching
- Simple control of translucency, fluorescence and light reflection

## Carving liquids

- Reflex dimension shoulder liquid SH special must only be used with Shoulder High material.
- This carving liquid plasticizes the shoulder porcelain and ensures the greatest stability and reliability. This makes it very easy to lift the porcelain shoulder from the model.
- Use Reflex dimension Shoulder Correction Liquid with Shoulder Correction porcelain!
- SH special shoulder liquid must not be used with Shoulder Correction porcelain, as there is no guarantee that firing will remove the liquid reliably and without trace.

## IsoPen

The WIELAND IsoPen is applied to the prepared plaster die.

## Properties SH 960

The shoulder 960 special shoulder material has been specially developed and optimised for use in combination with high temperature stable alloys (solidus temperature > 1060 °C).

This gives the material properties which make it particularly user-friendly, and include the following benefits:

- Extremely low shrinkage during firing
- High form stability, even after several dentine and glazing bakes
- Excellent marginal fit
- Perfect colour harmony
- Easy to master transparency, fluorescence and light reflection

### Note!

We recommend the use of Shoulder High 930 for all alloys with a solidus temperature below 1060 °C and for AGC® electroforming gold.

## Preparation

To obtain metal-free crown edges the die must be prepared with a step or pronounced chamfer.

## Designing the substructure

In preparation for the attachment of the ceramic shoulder, (labial or circular), the outer edges of the substructure are reduced to the inner rim of the previously prepared step or chamfer. The metal edge resulting from this reduction must then be smoothed out into a thin layer. Finally condition the substructure in the usual way and apply the opaque.

### important!

Do not use diamond burs. Diamond particles can become deposited in the alloy and cause bubbles when the ceramic is fired.

## Preparing the die

Before creating the ceramic shoulder the die must be thoroughly insulated using the "WIELAND IsoPen".

## First Shoulder High layer

Depending on the tooth colour to be obtained make up Shoulder High porcelain with SH Special Liquid and apply in the cervical region. After modelling and smoothing the ceramic shoulder, dry the shoulder margin carefully with a hand-held dryer until a uniform white colour is obtained. The coping can then be removed and fired. Using a drier and SH Special Shoulder Liquid ensures greater strength and more reliable handling.

## Second Shoulder High layer

After firing, check the marginal fit. Correct any changes caused by sintering. Insulate the die once more. Prepare and make up the Shoulder High powder as for the first layer. Next smooth out any unevenness filling the Shoulder powder into the gap created during the first firing, ensuring that the ceramic shoulder is a good fit. Finish off the shoulder and dry. Carefully remove the substructure with the newly applied Shoulder Powder from the die and position it on the firing tray. To avoid "baking on" care must be taken to ensure that the ceramic shoulder does not come into contact with the tray. If necessary, the shoulder must be fitted onto the model again after the correction firing. The final stage is to completely veneer the shoulder with Reflex dimension.

## Colour Table

Shades:	Shoulder Mixture
A1	SM 1 + SM Flu / 1:1
A2	SM 1
A3	SM 1
A3,5	SM 2 + SM 3 / 1:1
A4	SM 3 + SM 4 / 1:1
B1	SM 1 + SM Flu / 1:1
B2	SM 2 + SM Flu / 1:1
B3	SM 2
B4	SM 2 + SM 4 / 1:1
C1	SM 4 + SM Flu / 1:1
C2	SM 4 + SM Flu / 1:1
C3	SM 4
C4	SM 4
D2	SM 1 + SM 4 / 1:1
D3	SM 1 + SM 4 / 1:1
D4	SM 2 + SM 4 / 1:1

# Reflex dimension Gum dentines

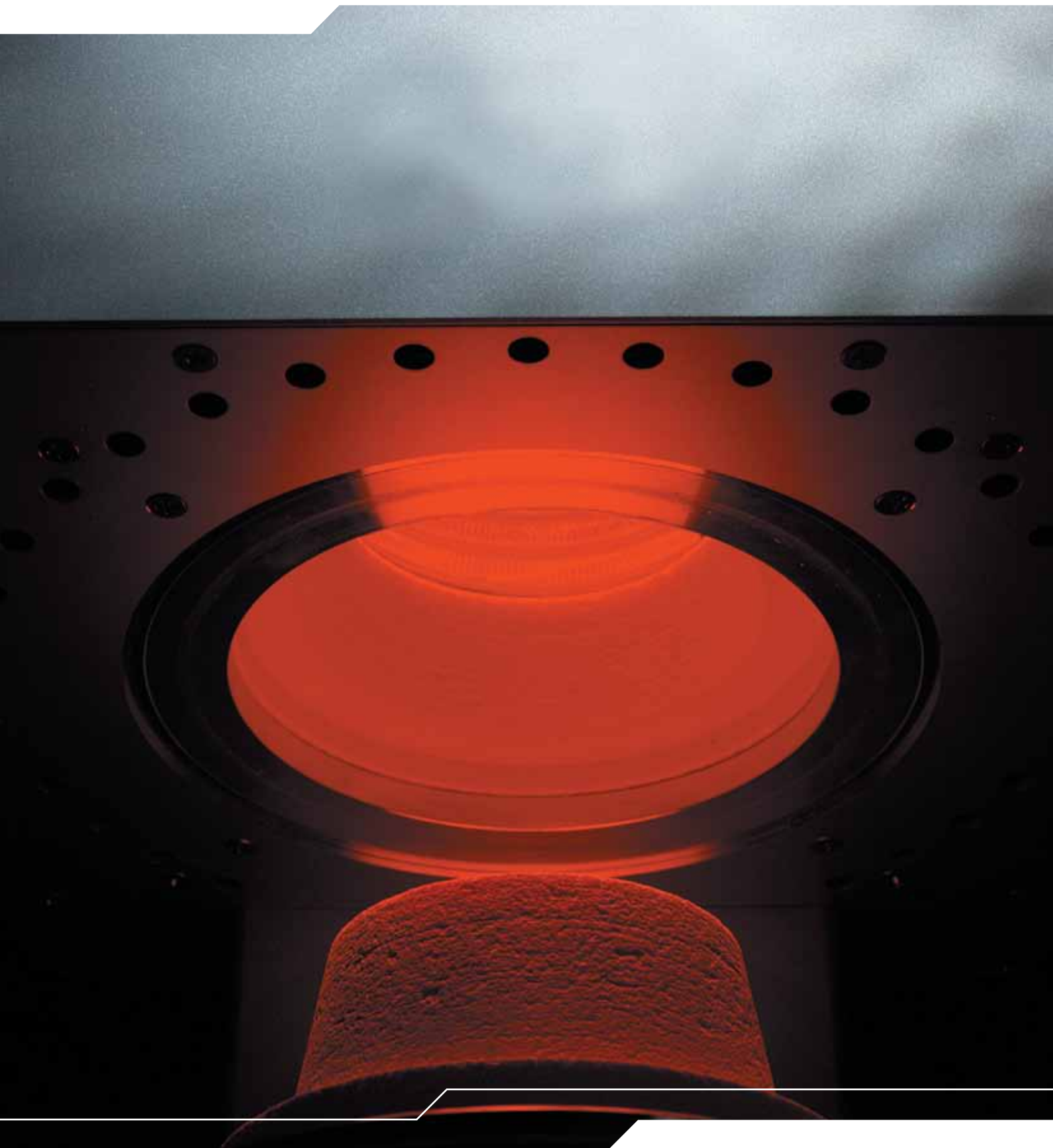


## Applications

- With their variety of colours (6 differently shaded powders), the Gum Dentines may be used to accurately reproduce the exact colour of the gingiva.
- Particularly in the case of ceramic veneers over an implant suprastructure, it is essential to ensure anatomically correct results when reproducing lost soft tissue. Extractions or periodontal procedures can also lead to soft tissue defects after the healing process is complete.
- In the interests of both aesthetics and periodontal hygiene, these defects must always be repaired by the dental technician using suitable ceramic materials.
- With their wide range of colours and excellent handling properties, the Gum Dentines facilitate an anatomically exact and colour-matched reconstruction of the gingiva to meet the demands of both patient and dental practitioner.

## Procedure and firing temperature

- Gum materials can be used on their own or mixed with one another. This gives rise to a virtually unlimited range of possible gingival colours.
- For information on preparation and firing please refer to the recommendations for dentines in the instructions.



# Firing Programmes for Reflex dimension

General Firing Programme	Preheating Temp. [°C]	Drying Time [min:sec]	Heating Rate [°C/min]	Firing Temperature [°C]	Holding Time [min:sec]	Vacuum [hPa]	Extended Cooling [min]
NP safe	575	6:00	75	975	1:00	50	–
Paste Opaque 1	575	6:00	75	930	3:00	50	–
Paste Opaque 2	575	6:00	75	920	2:00	50	–
Powder Opaque 1	575	6:00	75	930	3:00	50	–
Powder Opaque 2	575	6:00	75	920	2:00	50	–
Shoulder Powder SH	575	3:0-4:0	75	930	1:00	50	–
Dentine Firing 1	575	6:0-7:0	75	900	2:00	50	–
Dentine Firing 2	575	4:0-5:0	75	890	1:00	50	–
Glaze Firing	575	3:0	75	880	1:0-2:0	–	–
Shoulder Powder SC	450	3:0-4:0	75	720	1:00	50	–
Correction Powder	575	3:0-4:0	75	700	1:00	50	–

Austromat M	START [°C]	Drying Time [min:sec]	↑	→	Vac. Level	↗ [°C/min]	END [°C]	→ [min:sec]	1 ↘	2 ↘
NP safe	575	2	2	2	9	75	975	1:00	0	0
Paste Opaque 1	575	3	2	1	9	75	930	3:00	0	0
Paste Opaque 2	575	3	2	1	9	75	920	2:00	0	0
Powder Opaque 1	575	3	2	1	9	75	930	3:00	0	0
Powder Opaque 2	575	3	2	1	9	75	920	2:00	0	0
Shoulder Powder SH	575	1	2	1	9	75	930	1:00	0	0
Dentine Firing 1	575	2	3	2	9	75	900	2:00	0	0
Dentine Firing 2	575	2	2	1	9	75	890	1:00	0	0
Glaze Firing	575	0	2	1	0	75	880	1:00	0	0
Shoulder Powder SC	450	1	2	1	9	75	720	1:00	0	0
Correction Powder	575	1	2	1	9	75	700	1:00	0	0

Austromat 3001	
NP safe	C575 T120 T120 • L9 T120 V9 T075 • C975 V0 T60 C0 L0 T2 C575
Paste Opaque 1	C575 T180 T120 • L9 T60 V9 T075 • C930 V0 T180 C0 L0 T2 C575
Paste Opaque 2	C575 T180 T120 • L9 T60 V9 T075 • C920 V0 T120 C0 L0 T2 C575
Powder Opaque 1	C575 T180 T120 • L9 T60 V9 T075 • C930 V0 T180 C0 L0 T2 C575
Powder Opaque 2	C575 T180 T120 • L9 T60 V9 T075 • C920 V0 T120 C0 L0 T2 C575
Shoulder Powder SH	C575 T60 T120 • L9 T60 V9 T075 • C930 V0 T60 C0 L0 T2 C575
Dentine Firing 1	C575 T120 T180 • L9 T120 V9 T075 • C900 V0 T120 C0 L0 T2 C575
Dentine Firing 2	C575 T120 T120 • L9 T60 V9 T075 • C890 V0 T60 C0 L0 T2 C575
Glaze Firing	C575 T120 • L9 T60 T075 • C880 T60 C0 L0 T2 C575
Shoulder Powder SC	C450 T60 T120 • L9 T60 V9 T075 • C720 V0 T60 C0 L0 T2 C575
Correction Powder	C575 T60 T120 • L9 T60 V9 T075 • C700 V0 T60 C0 L0 T2 C575



<b>Austromat D4</b>	Drying Time [min:sec]	Closing [min:sec]	Preheating Temp. [°C]	[min:sec]	Firing Temp. [°C]	Heating Rate [min:sec]	Holding Time [min:sec]	Vac. (idle/ level/hold) [°C]	[%]
NP safe	3:00	2:00	575	1:00	975	75	1:00	975	100
Paste Opaque 1	3:00	2:00	575	1:00	930	75	3:00	930	100
Paste Opaque 2	3:00	2:00	575	1:00	920	75	2:00	920	100
Powder Opaque 1	3:00	2:00	575	1:00	930	75	3:00	930	100
Powder Opaque 2	3:00	2:00	575	1:00	920	75	2:00	920	100
Shoulder Powder SH	1:00	2:00	575	1:00	930	75	1:00	930	100
Dentine Firing 1	2:00	3:00	575	2:00	900	75	2:00	900	100
Dentine Firing 2	2:00	2:00	575	1:00	890	75	1:00	890	100
Glaze Firing	0:00	2:00	575	1:00	880	75	1:00	–	–
Shoulder Powder SC	1:00	2:00	450	1:00	720	75	1:00	720	100
Correction Powder	1:00	2:00	575	1:00	700	75	1:00	700	100

<b>Programat P90 / P95</b>	Stand-by Temp. [°C]	Heating Rate [°C/min]	Firing Temp. [°C]	Closing [min:sec]	Holding Time [min:sec]	Vacuum ON [°C]	Vacuum OFF [°C]
NP safe	500	75	975	6:00	1:00	600	974
Paste Opaque 1	500	75	930	6:00	3:00	600	929
Paste Opaque 2	500	75	920	6:00	2:00	600	919
Powder Opaque 1	500	75	930	6:00	3:00	600	929
Powder Opaque 2	500	75	920	6:00	2:00	600	919
Shoulder Powder SH	500	75	930	4:00	1:00	600	929
Dentine Firing 1	500	75	900	6:00-7:00	2:00	600	899
Dentine Firing 2	500	75	890	5:00-6:00	1:00	600	889
Glaze Firing	500	75	880	3:00-4:00	1:00-2:00	kein Vakuum	kein Vakuum
Shoulder Powder SC	300	75	720	4:00	1:00	450	719
Correction Powder	500	75	700	4:00	1:00	550	699

<b>Cergo Press / Kompakt</b>	Pre-drying [°C]	[min:sec]	Closing [min:sec]	Preheating [°C]	[min:sec]	Heating Rate [min:sec]	Vacuum	Vakuum ON [°C]	Vacuum OFF [°C]	Final Temp. [°C]	Holding V [min:sec]	Holding [min:sec]	Tempern [min:sec]	Tempern [°C]	Cooling [min:sec]
NP safe	135	3:00	2:00	575	1:00	75	On	575	975	975	0:00	1:00	–	–	0:00
Paste Opaque 1	135	3:00	2:00	575	1:00	75	On	575	930	930	0:00	3:00	–	–	0:00
Paste Opaque 2	135	3:00	2:00	575	1:00	75	On	575	920	920	0:00	2:00	–	–	0:00
Powder Opaque 1	135	3:00	2:00	575	1:00	75	On	575	930	930	0:00	3:00	–	–	0:00
Powder Opaque 2	135	3:00	2:00	575	1:00	75	On	575	920	920	0:00	2:00	–	–	0:00
Shoulder Powder SH	135	2:00	2:00	575	1:00	75	On	575	930	930	0:00	1:00	–	–	0:00
Dentine Firing 1	135	2:00	3:00	575	2:00	75	On	575	900	900	0:00	2:00	–	–	0:00
Dentine Firing 2	135	2:00	2:00	575	2:00	75	On	575	890	890	0:00	1:00	–	–	0:00
Glaze Firing	135	2:00	2:00	575	1:00	75	Off	–	–	880	0:00	1:00	–	–	0:00
Shoulder Powder SC	135	2:00	2:00	450	1:00	75	On	450	720	720	0:00	1:00	–	–	0:00
Correction Powder	135	2:00	2:00	575	1:00	75	On	575	700	700	0:00	1:00	–	–	0:00



Multimat MC II Multimat C Mach 2	Preheating Temp. [°C]	Drying Time [min:sec]	Preheating Time [min:sec]	Vacuum Time [min:sec]	Firing Time [min:sec]	Firing Temp. [°C]	Heating Rate [min:sec]	Vacuum [hPa]
NP safe	575	5:00	1:00	1:00	2:00	975	75	50
Paste Opaque 1	575	5:00	1:00	1:00	4:00	930	75	50
Paste Opaque 2	575	5:00	1:00	1:00	3:00	920	75	50
Powder Opaque 1	575	4:00	1:00	1:00	4:00	930	75	50
Powder Opaque 2	575	4:00	1:00	1:00	3:00	920	75	50
Shoulder Powder SH	575	2:00	1:00	1:00	2:00	930	75	50
Dentine Firing 1	575	4:00	2:00	1:00	3:00	900	75	50
Dentine Firing 2	575	3:00	2:00	1:00	2:00	890	75	50
Glaze Firing	575	2:00	1:00	0:00	1:0-2:0	880	75	–
Shoulder Powder SC	450	2:00	1:00	1:00	2:00	720	75	50
Correction Powder	575	2:00	1:00	1:00	2:00	700	75	50

Multimat Touch & Press	Preheating Temp. [°C]	Drying Time [min:sec]	Preheating Time [min:sec]	Vacuum [hPa]	Heating Rate [min:sec]	Firing Temp. [°C]	Vacuum Time [min:sec]	Firing Time [min:sec]
NP safe	575	5:00	1:00	50	75	975	1:00	2:00
Paste Opaque 1	575	5:00	1:00	50	75	930	1:00	4:00
Paste Opaque 2	575	5:00	1:00	50	75	920	1:00	3:00
Powder Opaque 1	575	4:00	1:00	50	75	930	1:00	4:00
Powder Opaque 2	575	4:00	1:00	50	75	920	1:00	3:00
Shoulder Powder SH	575	2:00	1:00	50	75	930	1:00	2:00
Dentine Firing 1	575	4:00	2:00	50	75	900	1:00	3:00
Dentine Firing 2	575	4:00	1:00	50	75	890	1:00	2:00
Glaze Firing	575	2:00	1:00	–	75	880	–	1:0-2:0
Shoulder Powder SC	450	2:00	1:00	50	75	720	1:00	2:00
Correction Powder	575	2:00	1:00	50	75	700	1:00	2:00

Vacumat 200/250/300	Stand-by Temp. [°C]	Final Temp. [min:sec]	Predrying Time [min:sec]	Heat-up Time [min:sec]	Holding Time [min:sec]	Vacuum Time [min:sec]
NP safe	450	975	6:00	6:00	1:00	6:00
Paste Opaque 1	450	930	6:00	6:00	3:00	6:00
Paste Opaque 2	450	920	6:00	6:00	2:00	6:00
Powder Opaque 1	575	930	5:00	6:00	3:00	6:00
Powder Opaque 2	575	920	5:00	6:00	2:00	6:00
Shoulder Powder SH	575	930	4:00	6:00	1:00	6:00
Dentine Firing 1	575	900	7:00	6:00	2:00	6:00
Dentine Firing 2	575	890	5:00	6:00	1:00	6:00
Glaze Firing	575	880	4:00	3:00	1:00	0:00
Shoulder Powder SC	450	720	4:00	6:00	1:00	6:00
Correction Powder	575	700	4:00	3:00	1:00	3:00

## Warning!

Firing temperatures are given for guidance only. Variations may occur depending on the furnace used and the temperatures may need to be adjusted accordingly. For larger cases the drying and final cooling times should be extended as necessary. In the case of large-span bridgework relief cooling (opening the furnace door slowly) may be necessary to avoid thermal tension. With large-span bridge frame works the geometry (e.g. with solid pontics) may necessitate increasing the end temperatures of the first and second dentine bake by approx. 10 °C.

# Troubleshooting

Fault	Cause	Remedy
<ul style="list-style-type: none"> <li>■ The colour is too light and /or the ceramic is opaque and porous.</li> </ul>	<ul style="list-style-type: none"> <li>■ The preheating temperature is too high.</li> <li>■ The firing temperature is too low.</li> <li>■ The vacuum pump starts too late.</li> <li>■ The vacuum level reached is too low.</li> </ul>	<ul style="list-style-type: none"> <li>■ Reduce the preheating temperature.</li> <li>■ Increase the firing temperature.</li> <li>■ Reduce preheating temperature and/or vacuum start temperature.</li> <li>■ Check that the vacuum pump and furnace seals are intact.</li> </ul>
<ul style="list-style-type: none"> <li>■ The ceramic surface is not smooth or is too rough.</li> <li>■ The ceramic surface is not shiny enough.</li> <li>■ The edges and contours become rounded.</li> </ul>	<ul style="list-style-type: none"> <li>■ The end temperature is too low and/or the holding time is too short.</li> <li>■ The end temperature is too low and/or the holding time is too short.</li> <li>■ The end temperature is too high.</li> </ul>	<ul style="list-style-type: none"> <li>■ Increase the end temperature and/or the holding time.</li> <li>■ Increase the end temperature and/or holding time.</li> <li>■ Reduce the end temperature.</li> </ul>
<ul style="list-style-type: none"> <li>■ Flaking/cracking</li> </ul>	<ul style="list-style-type: none"> <li>■ Sharp angles and edges in the substructure.</li> <li>■ Incorrect substructure design.</li> <li>■ Veneering ceramic underfired.</li> </ul>	<ul style="list-style-type: none"> <li>■ Avoid sharp angles and edges in the substructure.</li> <li>■ Check the design of the substructure.</li> <li>■ Increase the end temperature.</li> </ul>
<ul style="list-style-type: none"> <li>■ Compression cracking: horizontal cracks in the incisal area or on pontics.</li> </ul>	<ul style="list-style-type: none"> <li>■ CTE of the alloy is too high.</li> </ul>	<ul style="list-style-type: none"> <li>■ Veneer only alloys with a CTE in the range <math>13.8 - 15.1 \times 10^{-6} \text{K}^{-1}</math> (25 – 500 °C).</li> </ul>
<ul style="list-style-type: none"> <li>■ Tension cracking: fine, non-directional cracks over the whole surface of the veneer.</li> </ul>	<ul style="list-style-type: none"> <li>■ CTE of the alloy is too low.</li> </ul>	<ul style="list-style-type: none"> <li>■ Veneer only alloys with a CTE in the range <math>13.8 - 15.1 \times 10^{-6} \text{K}^{-1}</math> (25 – 500 °C). Be sure to fire without a cooling phase.</li> </ul>

## Important!

Inhaling ceramic dust can be harmful to the lungs. Ceramic powders must therefore be stored in tightly sealed containers and used in accordance with the instructions provided. When grinding the fired ceramic to its final shape, always wear a mask with a P1 filter or use an approved, fully operational work bench extraction unit.



# WIELAND

## EXPECT THE DIFFERENCE! BY WIELAND.

As a major supplier of dental system solutions, WIELAND embodies both tradition and progress in matters of dental products and technology. Since our company was founded in 1871, we have stayed true to our corporate philosophy of combining tradition, innovation and quality with the best in customer care. Today, our core competencies and key strengths lie in the forward-looking integration of technologies and materials for dental prosthetics. This ensures that patients can trust in the quality of their dentures, and our partners in dental practices and laboratories can continue with confidence on the path to digitalisation and greater competitiveness.

WIELAND offers a wide range of products and services from CAD/CAM technologies and dental alloys to veneering ceramics and electroforming. Thanks to our worldwide presence and international network, WIELAND is never far away, and your contact person can always be located via the Internet.

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