Instructions for Use

The aesthetic finalisation of restorations made with StarCeram® Z blanks

Dear Customer,

By choosing StarCeram® complete products, you are opting for harmoniously coordinated quality products for the production of aesthetic ceramics.

The basis for the production of ceramics is precise work taking into account the respective instructions for use for zirconium oxide and lithium disilicate.

In this brochure you will find many practical tips on how to avoid errors in the processing of our products and hints on the possible causes of errors.

But if you still have problems processing our products, your specialist dealer will be happy to help you.

Information about StarCeram® dental products can be found on the Internet at www.kyocera-precision.com.

We would like to thank master dental technician Stefan Fleischmann, Germany for the photographs that he has made available to us.

Finishing of the surface, tailor-made for StarCeram® blanks

StarCeram® complete are specially developed 2D and 3D pastes for the aesthetic finalisation and characterisation of fully ceramic monolithic restorations made of lithium disilicate and StarCeram® zirconium oxide.

- Simple and fast handling thanks to ready-to-use mixed ceramic pastes.
- Specially assembled set for the easy finalisation of fully anatomical aesthetic restorations.
- Maximum aesthetics thanks to the colour-coordinated pastes with a 3D effect.
- Shape corrections and the application of contact points are possible with the 3D pastes.

Advantages of the StarCeram® complete pastes

- No processing limits.
- Morphology can be freely designed.
- Almost all shades can be achieved (VITAclassical®[1], 16 shades and many other individual colour nuances).
- All 2D and 3D pastes and liquids are compatible with each other.

StarCeram® complete products

The StarCeram® complete StarterBox comprises 15 individual masses as well as special liquids and accessories. The core products are the colour-coordinated 2D and 3D masses in paste form. They have been specifically developed for fully anatomical restorations and restorations with minimal cut-back.

They are compatible with StarCeram® zirconium oxide (e. g. Z-Al Med HD, Z-Nature Ultra, Z-Smile; as a mono-shade and multi-shade) or lithium disilicate. All components of the kit are also available separately.

StarCeram® complete StarterBox contains all of the items listed below

2D Pastes, 3g

Paste 2D Body A | Body paste for Vita classical® A colors

Paste 2D Body B | Body paste for Vita classical® B colors

Paste 2D Body C | Body paste for Vita classical® C colors

Paste 2D Body D | Body paste for Vita classical® D colors

Paste 2D white | Characterization white

Paste 2D grey | Characterization grey

Paste 2D blue | Characterization blue

Paste 2D Incisal I2 | Cutting effect for medium colors

Paste 2D Body orange | Body paste for yellowish (dark) displacement (Vita 3D-Master®*)

Paste Glaze, 3g

Zr Paste | Fluorescent glaze

3D Pastes, 3g

Paste 3D Dentin bleach | For bleach colors

Paste 3D Dentin medium | For medium colors

Paste 3D transpa | Increase of translucency

Paste 3D Incisal opal bright | very bright cutting edge (bleach)

Paste 3D I2 | medium cutting edge for medium colors

Liquids, 10ml

Diluting liquid | Adjusting the visocity of the pastes

Refreshing liquid | Adjusting the viscosity with preservation of the stability of the 3D pastes

Accessories

2D Brush

3D Brush

StarCeram® complete 2D pastes

- The small particle size in combination with the translucency of the masses enables the optimisation of the tooth shade, the brightness value and the depth effect of fully ceramic restorations.
- The translucency of the 2D pastes retains the light dynamics.
- The fluorescence of the pastes has been adapted to give a natural appearance to fully ceramic restorations.

2D Paste Body A-D

Finalising glaze pastes to adjust the shade of the desired VITA®[1] base colour A-D as required.
They can be used in combination with the 3D pastes without intermediate firing.




2D Paste white, grey, blue, orange und Incisal I2

Finalising glaze pastes for individual colour characterisation.
They can be applied to the full or partial crown surface.
These 2D pastes can also be used to intensify the 3D pastes as required (please use the refreshing liquid if necessary). The 2D pastes white (brighten) and grey (tone down) can be used to individually control the brightness.
2D Paste I2 creates in-depth effect at incisal area; 2D pastes white, grey and orange can be used to characterize incisal area too.





StarCeram® complete 3D pastes

- The combination of slightly larger ceramic particles with a thixotropic paste enables shaping in the incisal or chewing area as well as the precise application of contact points.
- The firing stability of the 3D pastes ensures that the designed morphology is retained.
- The translucency and opalescence of ready-to-use 3D incisals create a deep effect with a vivid appearance.
- The fluorescence of the pastes has been adapted to the fluorescence of natural teeth.

Dentin pastes for optimisation/correction of the morphology in the dentine area

3D Paste Dentin bleach for light and bleach tooth shades

3D-Paste Dentin medium for medium tooth shades

Paste incisals for minimal layering with a 3D & in-depth effect and to create colored incisals with the 3D Pastes Dentin.

The 3D Paste I2 has a medium brightness value for the finalisation of medium tooth shades.

The 3D Paste Incisal opal bright has a high brightness value for the finalisation of light tooth shades giving natural opalescence.

The 3D Paste transpa can be used pure or mixed with the 3D Paste I2 and Incisal opal bright to increase the translucency.

Die StarCeram® complete liquids

Diluting & Refreshing Liquid

The diluting and refreshing liquid are compatible with all StarCeram® complete pastes, but behave differently in the way that they are processed.

Diluting Liquid

The viscosity of the paste (e. g. Zr Paste Glaze) can be reduced with the diluting liquid. It enables you to apply an even finer layer of the 2D pastes and Zr Paste Glaze with a glazing effect.
The diluting liquid is primarily used with the 2D pastes and for applying very thin layers of Zr Paste Glaze.

Please stir the pastes with a glass instrument before using the liquid.

Excessive dilution with the diluting liquid affects the final result. A homogeneously sealed surface is only possible in combination with an optimal consistency of the paste that has not been diluted too much.

Please mix the pastes only on the mixing plate and not in the container with the diluting liquid.

Refreshing Liquid

The refreshing liquid is primarily used for 3D pastes as it retains the mouldability of the pastes.
Use the refreshing liquid if the 3D paste is too dry.
The refreshing liquid adjusts the viscosity of the 3D pastes without changing their thixotropic behaviour.

Please seal the refreshing liquid bottle after use.

Avoid the pastes coming into contact with water.
Only use the liquids in the range.

StarCeram® complete Zr Paste Glaze

Ready-to-use, fluorescent glaze material. It offers reliable wetting of the material surface to enable targeted and controlled application. Only one glaze firing cycle is required (homogeneous gloss level after just one glaze firing cycle).

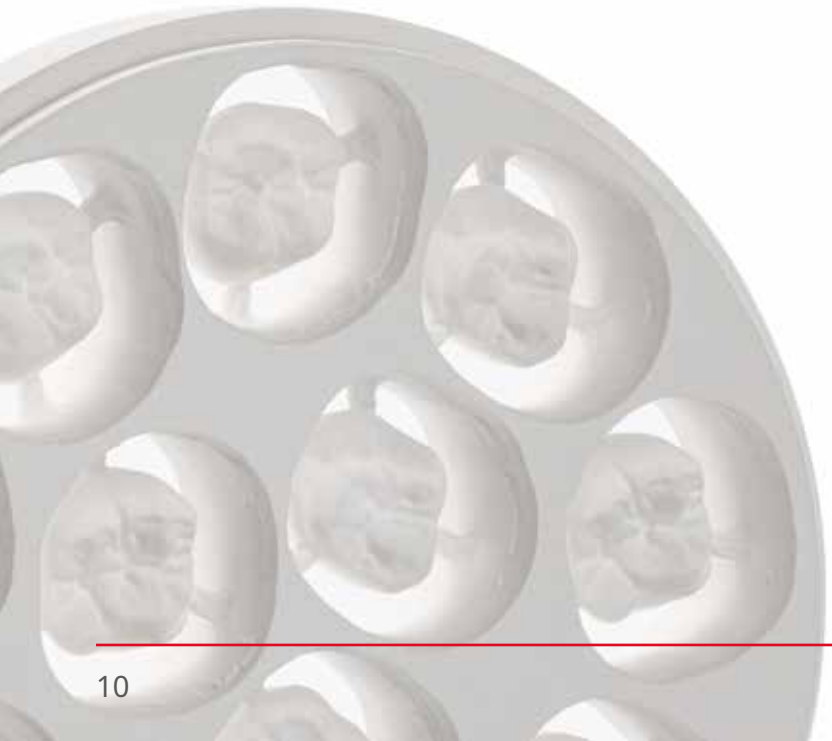
Framework preparation

Zirconium oxide

Prepare the zirconium oxide framework according to the instructions for Z-Al Med HD, Z-Nature Ultra or Z-Smile. Do not start applying the StarCeram® complete pastes until the surface is grease-free and has been steam cleaned.

Lithium disilicate

Blast the lithium disilicate framework with Al_2O_3 abrasive (50 µm) with a pressure of 1 – 2 bar. Then carefully steam clean the framework. The framework in then ready for the application of the StarCeram® complete pastes.



Please observe the instructions for StarCeram® blanks when preparing the framework (see the instructions for use for the respective blanks).

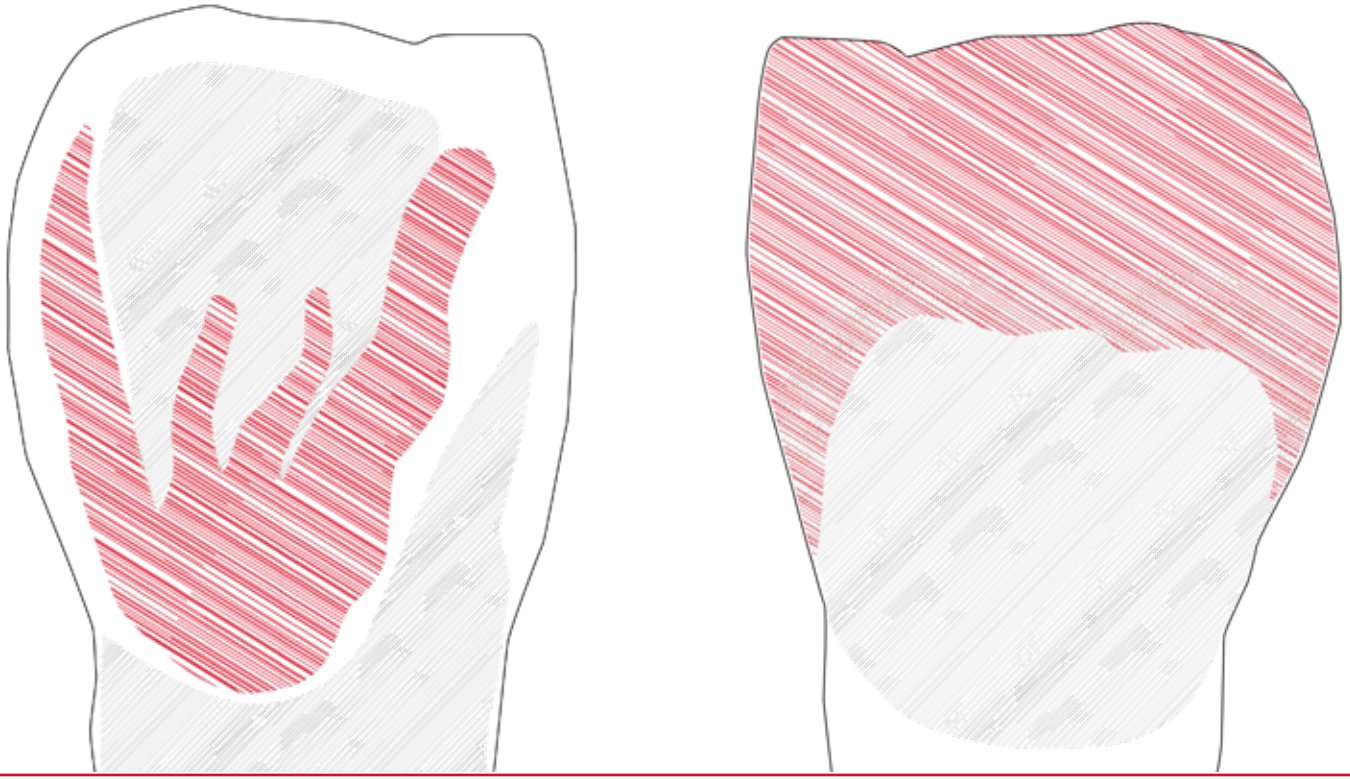
The framework surfaces must be clean and dry prior to the finalisation stage.

Basic diagram for the application of 2D and 3D pastes

Example based on an anterior crown

The 2D and 3D pastes are used in the dentine and incisal area as required.
You will find sample applications on the following pages. All 2D and 3D pastes can be used individually.

2D paste (grey graphics) 3D paste (red graphics)



Steps to complete the work

1

Basic

Framework preparation

- Zirconium oxide

Prepare according to the StarCeram® Z instructions.

- Lithium disilicate

Blast with Al_2O_3 abrasive (50µm) / 1–2 bar, steam clean.

2

Basic

Apply the Zr Paste Glaze

The crown must be completely coated with a consistently thin layer of ZR Paste Glaze.

3

Individual

Apply the 2D and 3D paste

You can use the brush supplied (3D Brush) for the application of the 3D paste.

Basic

First firing

Fire the finished restoration at 730°C. Please refer to the firing chart (see p.21).

4

5

Finished

6

Individual

Corrections (optional)

- 2D pastes
- 3D pastes
- Zr Paste Glaze

7

Individual

Second firing

Fire the finished restoration at 720 °C.

Application of Zr Paste Glaze

2

Basic

Zr Paste Glaze
(Diluting Liquid)

Place some paste on a mixing plate and, if necessary, mix it with the diluting liquid until you achieve a homogeneous consistency that is not too thick.

Apply the paste in a thin layer to the entire framework.

Individualisation with 2D Body pastes

3

Individual

Paste 2D
Body A, B, C, D

The 2D Body Pastes are mixed with the diluting liquid until the desired consistency is achieved. They are applied across the body area to obtain the desired base colour (A – D).

- One bake technique: Body shade and incisal can be achieved within one bake.
- Two bakes technique: 2D Pastes can be fixed in one bake, the crown can be improved with 3D Paste Incisal and Dentin.

Individualisation with 2D pastes

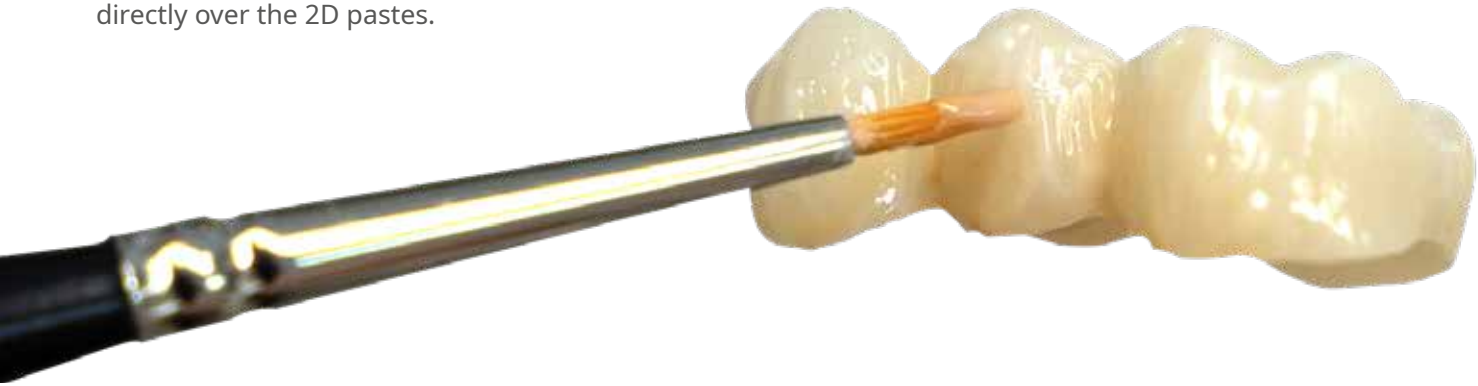
3

Individual

Paste 2D
Body orange, I2

- 2D Incisal paste (I2) produces a natural incisal effect.
- Apply finalising pastes in a thin layer to achieve this effect.
- The translucency of the 2D pastes provides natural light dynamics.
- The fluorescence of the pastes has been adapted accordingly to also give a natural appearance to fully ceramic restorations.
- Body orange can be used pure or mixed with body A-D to shift the shade toward orange and can be used to characterize incisal area.

The images show you sample applications. You can apply the 2D pastes individually. You have the option to fire them (see firing chart p.21) or apply the 3D pastes directly over the 2D pastes.

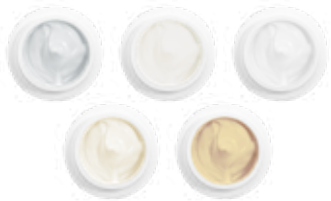


Individualisation with 3D pastes

Advantages:

- Creation of a morphology and precise contact points similar to natural teeth.
- Choice of 3D dentine pastes corresponding to the desired tooth shade.
- Individual colour nuances can be created by mixing 2D and 3D pastes.
- 3D pastes are available for the dentine and incisal area.
- The translucency and opalescence of the 3D pastes provides a natural depth effect.
- The fluorescence of the pastes give the restoration a natural appearance.
- Corrections to the restoration can be made by applying 3D paste in one step.

3



Individual

Paste 3D
Dentin bleach, Dentin medium

- Dentine in paste form for small stratification and with translucency for a natural depth effect after one firing cycle.

3D transpa

- Can be mixed with all 2D and 3D pastes to increase the translucency or create individual colored 3D pastes.

3D Incisal opal bright, 3D I2

- Natural depth effect with incisal pastes for cut-back or small stratification.

StarCeram® complete 3D pastes are applied with the 3D brush and moulded accordingly.

Use of StarCeram® complete 3D pastes – examples

- Before applying the 3D Pastes on the framework, wet the restoration with a thin layer (we recommend Paste Glaze or another 2D glaze).
- Choose the dentine shade corresponding to the desired tooth shade or mix the 3D dentine pastes to create them individually.
- Choose the corresponding 3D Paste Incisal, I2, or Incisal opal bright.
- Use a mixture of 3D dentine pastes and Paste 3D transpa to create individual 3D incisal pastes if necessary.
- 2D pastes can be used to characterise the body or incisal area.
- After firing, mechanical processing can be used to finish off the restoration.
- You can choose between mechanical polishing or use the quick glaze program.
- One or multiple firings are possible for optimum esthetic results.

Processing tips

- The surface structure can be achieved by modeling the paste.
- The 3D pastes are used for shape corrections and cut-back techniques.
- The firing temperature can be lowered to 715°C to reduce the gloss level.
- The firing temperature can be raised to a maximum of 750 °C to increase the gloss level.
- You can achieve an individual gloss level with mechanical polishing.
- If necessary, Zr Paste Glaze can be replaced by any 2D paste.
- Use StarCeram® complete Diluting Liquid or Refreshing Liquid to dilute the 2D and 3D pastes and to adjust the viscosity.
- Full or partial build-up of the restoration can be achieved depending on the framework design.
- You can mechanically process the surface after the firing cycle and also fire it several times if necessary. Adjust the firing parameters of your furnace accordingly.

Courses

We place great value on hands-on courses, during which participants have the opportunity to apply what they have just learned.
Aesthetics play an important part in ceramics. Ask your specialist dealer about the current range of courses.

[1] VITA® and VITA classical® are a registered trademarks of H. Rauter GmbH, Bad Säckingen

Firing chart

The specified firing temperatures are guide values. Deviations are possible for different furnace and the values listed below may need to be altered accordingly.
We recommend that you run a trial firing cycle to determine the firing temperature for your furnace. This is the only way to find the right firing technique.

General firing chart

	Start temp. (°C)	Drying time (min)	Heat rate* (°C / min)	Vacuum start (°C)	Vacuum end (°C)	Firing temp. (°C)	Hold time** (min)
First firing cycle 2D and 3D Paste Zr Paste Glaze	**450**	**8**	**55**	**450**	**730**	**730**	**1** **(without vacuum)**
Second firing cycle Correction 2D and 3D Paste Zr Paste Glaze	**450**	**8**	**55**	**450**	**720**	**720**	**1** **(without vacuum)**
Quick glaze firing****	**450**	**2**	**99**	**450**	**710 *****	**710 *****	**0,5** **(without vacuum)**

* Reducing the heat rate improves the firing quality in the case of large restorations.
** Extend the hold time in the case of large restorations to compensate for the poor thermal conductivity of ZrO_2.
*** Adjust the temperature.
**** Without the use of pastes. Final glaze after mechanical processing.

Please observe our instructions for creating the framework (blanks) and for firing ceramic in the case of large-span bridges. It is recommended to adjust the heating and cooling rate depending on the type of material and the size of the framework.

Technical data

Classification: 0483

StarCeram® complete pastes are Type I class 1 dental ceramics (according to DIN EN ISO 6872) for the finalisation of frameworks made of StarCeram® Z-Al Med HD, Z-Nature Ultra, Z-Smile and lithium disilicate.

Indications

Staining technique, cut-back technique, characterisation and glazing of ceramic materials:

- Zirconium oxide (fully anatomical, partial and full build-up with StarCeram® blanks)
- Lithium disilicate (fully anatomical, partial and full build-up)

Contraindications

- StarCeram® complete is contraindicated for all applications that are not listed under “Indications”.
- StarCeram® complete should not be used if there is a known intolerance to any of the ingredients.

Physical data

Properties	Test standard	Measurement	Values
Thermal expansion coefficient	ISO 6872	WAK (25 °C - T_g) [10^{-6} K^{-1}]	2D pastes = 8.6 3D pastes = 9.1 paste glaze = 8.9
Flexural strength (3-point bending)	ISO 6872	> 50 MPa	> 115 MPa
Chemical solubility	ISO 6872	< 100 µg / cm^2	≈ 30 µg / cm^2
Transformation temperature (T_g)	ISO 6872	-	≈ 480 °C – 490 °C

Meaning of the listed symbols

	Strictly observe the processing instructions
LOT	Batch number
	Use by (date: year – month)
CE 0483	CE
RxOnly	Exclusively for sale to and use by specialist personnel
	Manufacturer: Dentaurum, Turnstr. 31, 75228 Ispringen, Germany

Warnings

Only for dental use by qualified personnel. The user must ensure that the intended use corresponds to the manufacturer's instructions.

Measures for the protection of equipment and products

Furnaces should be maintained, cleaned, and calibrated regularly. Wear protective goggles and respiratory protection when grinding objects and for blasting work and use an extraction unit. There is a risk of burns when firing in the furnace. Therefore, wear gloves and use tongs.

General information

To protect products from contamination, choose a suitable work area and use clean instruments and tools. When processing the medical products, the relevant products must be stored between 10°C and 35°C. These non-toxic products can be disposed of without any problems if the statutory provisions are observed.

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