9.2

DCCeram™

Manual

ceramay®
dentalceramics

About Ceramay DCceram 9.2

DCceram 9.2 is a feldspatic based low-temp-melting ceramic veneering material for the fabrication of crowns and bridges for zirconia frameworks.

The innovative new generation chemical composition of the component materials, the ceramic structure and the ceramic particle size ensure simple, uncomplicated and safe processing.

A comprehensive range of shades following the VITA® shade system with matching translucency, fluorescence and opalescence yields very high-quality natural results.

DCceram 9.2 and DCceram 9.2 veneering blanks are intended for dental use only.

The CTE (25-500°C) of DCceram 9.2 ceramic after two firing cycles is about 9,2 [*10-6K-1], the CTE of the pressing ingots is 9,7 [*10-6K-1].

The transformation temperature (Tg) of the layering ceramic is at 500°C, the transformation temperature of the ingots is at 570°C.

Important Note

DCceram 9.2 pressable ingots are compatible only with the low-temp melting DCceram 9.2 veneering powders. There is no compatibility to the Ceramay ceramics Authentic and Pulse Metal Ceramic Systems

Modeling and finishing the ZrO_2 framework must comply with the minimum thickness specified by the manufacturer. Frameworks that are too thin may develop cracks during pressing.

To avoid contaminating the restoration with grinding and polishing residue, thoroughly clean all ceramic surfaces after each grinding or polishing step.

Do not utilize pressing or layering materials as standalone, a statically supporting framework material.

ZrO_2 framework preparation

To achieve an optimum bond between the liner and the ZrO_2 framework, follow the instructions of the framework manufacturer.

Liner Instructions

Mix liner powder and Liquid 'L' to a creamy consistency.

Use a flat brush to apply the liner mix to the above prepared framework, you must ensure complete coverage of the framework.

Liner Firing

Once the liner has been applied pre-dry the crown or bridge on the firing table at a standby temperature of 450 °C. Fire under vacuum at a heating rate of 45°C per minute (vacuum to be activated at 450°C) to a final temperature of 970°C. Holding time without vacuum: 1-2 minutes, depending on the dimension of the ZrO_2 framework.

If the ZrO_2 framework surface is not covered evenly or completely with the fired liner, the firing step should be repeated.

Wax-up for DCceram 9.2 Pressable Ceramics

Wax up the restorations to the desired full anatomic and functional shape. Use only wax that burns out without residue or ash. Minimum thickness of 0.5mm is required!

Sprueing for DCceram 9.2 Pressable Ceramics

Attach a wax sprue 5mm in length (3 mm in diameter) directly to the wax up in the direction of the ceramic flow. Make sure that the edges of the connection areas of the wax sprue on the object and on the muffled base are well-rounded.

Weigh the wax objects and use the following wax weight of the ceramic conversion chart for ingot selection:

- Up to 0.6g wax weight: one 2g ingot
- Up to 1.4g wax weight: two 2g ingots

Investment technique

Invest the wax up as indicated in the manufacturer's instructions for the Speed Investment you are using for pressable ceramics.

Pressing instruction

VARIO PRESS® 300.e (Zubler) recommendation..

Pressing	Start temp. in °C	Heating rate in min	Final temp. in min	Holding time in °C/min	Pressing time in °C	Pressure in min	Vacuum level	Opening time in min
200g	700	60	885	20:00	8:00	low	710	0:00

Important .

No preheating of the ingots is necessary. Use disposable plungers!

Small bubbles in the pressed ceramic after divesting are an indication that the pressing temperature was too high. To eliminate this problem, reduce the pressing temperature by approximately 10 to 20°C.

Divesting

Always use glass beads at a pressure of 4 bar for gross divesting at start. Reduce the pressure to 2 bar as soon as the pressed ceramic objects become visible.

Before you build up the pressed ceramic structure with Ceramay DCceram 9.2 you must sandblast with 50 microns Al_2O_3 at a pressure of 40 psi..

Build-Up and Staining Technique DCceram 9.2

Dentin Firing

Mix ceramic powder (dentin and incisal) with build-up liquid to a creamy consistency. Apply small quantities of the mix in the cervical and interapproximale areas and condence by vibrating. Apply dentin and incisal material according to standard build-up techniques.

First Firing

Pre-dry the ceramic object in the open firing chamber for approximately 3 minutes. Allow the object to dry completely, before closing the furnace in 3 more minutes. Fire under vacuum at a heat rate of 25-45°C per minute to a final temperature of 780°C. Holding time: 1 minute, no vacuum. After the first dentin firing, finish the crown or bridge and clean well for next fire.

Second Firing

Then apply dentin and incisal for the second dentin firing according to standard build-up techniques. Proceed as during the first dentin firing, using a final temperature of 770°C.

Staining / Glazing

Carefully clean the crown or bridge after finishing previous stages. Mix conceptArt glaze paste in a perfect consistency and apply the mix in a thin layer. conceptArt stains can be applied and fired for characterization.

Staining:

Pre-dry the object on the open porcelain furnace firing table for approximately 3 minutes, then close the porcelain furnace in 3 minutes. Fire under vacuum at a heat rate of 25-45°C per minute to a final temperature of 740-800°C, holding time: 1 minute.

Glaze firing without glaze powder:

Perform the glaze firing without vacuum at 760°C, holding for 1 minute.

Glaze firing with glaze paste:

Perform the glaze firing without vacuum at 750-810°C, holding for 1 minute. Closing time is 6 minutes.

Notes

The firing temperatures listed below were used in a Zubler VARIO PRESS® 300.e and are intended for recommendation only. Other types of ceramic furnaces may require adjusted firing temperatures.

Check the firing table below for ceramic firing data. Check the combination table below for possible ceramic powder combinations.

Color Combination Chart

Liner	1	2	2	2	4	1	1	2	2	1	3	3	4	1	5	5
Dentin	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Chroma Dentin	A1	A2	A3	A3.5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Enamel	1	2	2	4	4	1	2	3	4	2	2	3	4	1	2	3
Interface**	1	2	3	3	4	1	2	3	3	1	4	5	5	1	5	5

VITA is a registered trademark of VITA Zahnfabrik, Bad Säckingen, Germany. A1-D4 are colors according to the VITA Shade System

** The combination of Interface pressable ceramics was determined with non-colored frameworks.
The neutral Liner N is used for ZrO2 frameworks that have already been colored. It is not suitable for processing DCceram 9.2 Interface pressable ceramics.

Firing Chart for lithium disilicate structures

	Start temp. in °C	Drying in min	Closing time in min	Heating rate in °C/min*	Final temp. in °C	Holding time in min	Vacuum	Cooling time °C/min**	Cooling time min
Wash	450	3:00	3:00	45	790	1:00	yes	45	6:00
Dentin 1	450	3:00	3:00	45	780	1:00	yes	45	6:00
Dentin 2	450	3:00	3:00	45	770	1:00	yes	45	6:00
Shade/Stain layering technique	450	3:00	3:00	45	740	1:00	yes	-	2:00
Shade/Stain staining technique	450	3:00	3:00	45	780	1:00	yes	45	4:00
Glaze layering technique	450	3:00	2:00	45	750	1:00	no	-	2:00
Glaze staining technique	450	3:00	3:00	45	790	1:00	no	45	4:00
Glaze	450	0:00	4:00	45	760	0:30-1:00	no	45	6:00

* depends on dimension of the ZrO_2 framework

** cooling rate in the Vario 200ZR

Firing Chart for zirconium oxide structures

	Start temp. in °C	Drying in min	Closing time in min	Heating rate in °C/min*	Final temp. in °C	Holding time in min	Vacuum	Cooling time °C/min**	Cooling time min
Liner	450	3:00	3:00	45	970	1:00	yes	45	6:00
Dentin 1	450	3:00	3:00	25-35	780	1:00	yes	35	6:00
Dentin 2	450	3:00	3:00	25-35	770	1:00	yes	35	6:00
Shade/Stain layering technique	450	3:00	3:00	25-35	740	1:00	yes	35	2:00
Shade/Stain staining technique	450	3:00	3:00	45	800	1:00	yes	45	4:00
Glaze layering technique	450	3:00	2:00	25-35	750	1:00	no	35	2:00
Glaze staining technique	450	3:00	3:00	45	800-810	1:00	no	45	4:00
Glaze	450	0:00	4:00	45	760	0:30-1:00	no	45	6:00

* depends on dimension of the ZrO_2 framework

** cooling rate in the Vario 200ZR

Warnings

Material-Related Warnings

Contraindication

The use of ceramic powders and materials from other ceramic systems in combination with Ceramay materials are contraindicated

Not suitable for bruxers.

Processing-Related Warnings

Intended for dental use only

To be applied by trained professional personnel only

When finishing ceramic restorations (grinding, polishing), dust and splinters may form. Protect your eyes and avoid inhaling dust particles. The use of suction equipment and the wearing of a facemask and goggles are recommended

Avoid contact of the material with skin, mucosa, and eyes

The different designs of ceramic firing ovens available on the market may result in different firing conditions. This must be taken into consideration during the firing process. The customer is responsible for making the relevant investigations. The firing temperatures listed are recommendations only

Do not return mixed powder, or indeed any powder that has been in contact with liquid or moisture, to the powder container.

Do not allow the powder to contact a wet brush or moist instruments inside the powder container. Contamination hazard

Be very careful to ensure that brushes and spatulas are impeccably clean. Any external contamination may adversely affect the firing result. Contamination hazard

Be careful around the high temperatures reached during firing and pressing.

Burn hazard! Use pliers and wear gloves

Never reuse pressing residue. Beware of the risks of discoloration, contamination, tension, and cracks.

Storage Recommendations

12–38 °C. Store in a dry place.

Disposal:

This dental ceramic material is non-toxic and requires no particular precautions during disposal.

Follow any local rules and regulations:

Note:

We shall not be responsible for any damage arising from incorrect processing or use. This material is intended for dental use only. The user agrees to test the product for its suitability for the intended purpose before using the product.

We shall not accept any liability for any situation arising from the fact that the product was used together with non-compatible or non-permissible materials by third-party manufacturers. Moreover, our liability for damages in the event that any of the information contained herein is incorrect, regardless of legal circumstances and to the extent permissible by law, shall be limited to the value of the material exclusive of VAT.

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