

CREATION WILLI GELLER INTERNATIONAL - SIMPLY BRILLIANT

WILLI GELLER  
*Creation*

INSTRUCTIONS FOR USE  
**CREATION PRESS-CERAMICS**

CP



Bertrand Thiévent

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## INTRODUCTION

Layering or staining technique: Creation CP is a versatile pressable ceramic for fabricating inlays, onlays, veneers and single crowns. Thanks to the perfectly matched coefficients of thermal expansion of the individual materials, the pellets can be used with the low-fusing Creation LF system but also with the proven, high-fusing feldspar metal-ceramic Creation CC.

## INTRODUCTION

### STAINING TECHNIQUE

Inlays, onlays, veneers and single crowns can be fabricated by this technique efficiently yet to a high standard. The work is waxed-up in its final anatomical form, then pressed with the appropriate transparent blank.

Once the pressed parts have been finished, they are individualised using Creation CC.LF. Make Up Instant stains.

### LAYERING TECHNIQUE

This technique can even be used for aesthetically demanding reconstructions. Full anatomically waxed-up parts are pressed, then reduced incisally; or the caps are already reduced before being waxed-up, then pressed in the appropriate dentine shade. The frameworks are veneered with Creation CC or Creation LF.

Perfect individual characterisation can be achieved with the Creation CC.LF. Make Up Instant stains. The shades can be mixed with ceramic powder, over-layered but also applied to the surface.

# TOOTH PREPARATION



## INLAYS

A box preparation with rounded corners and edges and without a featheredge is recommended. The inner walls should not be parallel but opened approx.  $15^\circ$  towards the occlusal surface. A minimum depth of 2 mm is ideal for the occlusal preparation. Contact with antagonists at the transition to the inlay should be avoided.

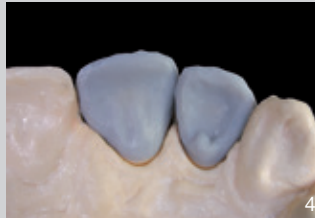
## CROWNS

Preparation of a pronounced chamfer or shoulder without sharp edges or margins is recommended. A reduction of 2 mm should be made at the incisal edge, 1 – 1,5 mm labially/buccally. At least 1 mm space must be created palatally by regrinding.

## LAMINATE VENEERS

A chamfer preparation is recommended. The labial reduction should be at least 0,5 mm at the gingival chamfer. A maximum of 1 mm may be ground back at the incisal edge.

## WAXING-UP



First coat the dies with spacer lacquer up to a maximum of 1 mm before the preparation border. During the subsequent waxing-up it is important only to use materials that are approved for pressable ceramics.

### STAINING TECHNIQUE

A full anatomical wax-up is fabricated for the staining technique. Once pressing is completed, no dimensional changes can be seen.

### LAYERING TECHNIQUE

There are two possible wax-up variants for the layering technique:

1. Fabricate a full anatomical wax-up of the restoration, then reduce it with suitable finishing abrasives after pressing (a silicone index of the wax-up can be used to check the reduction).
2. The cap is already reduced before waxing-up, then it is pressed.

A minimum framework thickness of 0,8 mm must be observed for both variants or two-thirds of the anatomical form must consist of pressable ceramic! Additionally the pressed objects can be fixed with the Liquid Firing Pad of Creation.

## SPRUEING



The starting point for introduction of the pressable material is at the incisal cutting edge in the case of the anterior teeth; for the posterior teeth, it is at the thickest point, usually the palatal or lingual cusps. The wax wire with a diameter of 3 – 3,5mm should be 5 – 6mm long and should not taper down to the object. The sprue is waxed-on at an angle of 35 ° – 45 ° at the edge of the muffle former. The sprue attachment points are adequately blurred. The distance between the individual objects in the mould should be at least 3mm.

In case of using the 100g mould, the object should ideally be waxed-on to the crucible former vertically and centrally. One pellet is enough for a maximum of 0,6g, two pellets for a maximum of 1,4g weight of wax.

## INVESTING



First push the silicone ring of the Creation CP mould set onto the crucible former. Then fill up to about 5 mm below the edge of the silicone ring with the rapidly heatable, phosphate-bound special investment material for pressable ceramic Creation CP-Vest, specially developed for Creation CP. Then set up the mould base former in the silicone ring by gently twisting; this should push the investment material up slightly through the central opening in the mould base former.



## INVESTING



After the setting time for the investment material (follow manufacturer's instructions), pull the mould baseformer and mould former apart again by carefully twisting, then level the mould base with a plaster knife. The mould base must be absolutely flat so that the mould stands vertically during pressing and is stable in the pressing furnace. If not, the pressing process will result in tilted edges, mould and pressing furnace may be badly damaged. Preheat according to the manufacturer's instructions for investment materials.

The pellets and the Creation CP one-way press plungers must not be preheated, whereas the aluminium plunger must be preheated.

# INJECTING

## KLEMA PRESS (KLEMA)

Temperature Stand-by	800 °C
Sealing Time	00:00 min.
Heat Rate	60 °C/min.
Vacuum Start	800 °C
Vacuum Hold	30:00 min.
Vacuum Limit	730 mm
Firing Temperature	1.050 °C
Holding Time	20:00 min.
Injection Temperature	1.050 °C
Injection Time	10:00 min.

## EP 500 (IVOCLAR)

Closing Temperature	B 700 °C
Heat Rate	T 60 °C/min.
Vacuum Start	T 1.050 °C
Holding Time	20:00 min.
Injection Time	2 min.
Vacuum On	V1 500 °C
Vacuum Off	V2 1.050 °C
Injection Pressure	4,5 – 5 bar

## PRO PRESS (WHIPMIX)

Start Temperature	700 °C
Heat Rate	60 °C/min.
Final Temperature	1.050 °C
Holding Time	20 min.
Injection Time	10 min.
Vacuum	100 %

These firing parameters represent standard values and have to be adjusted to respective situation.

## DEVESTING



Mark out the length of the press plunger on the outside of the mould wall, then separate along the marking using a suitable cutting wheel. Carefully remove the separated parts of the mould. The pressings should be roughly blasted with glass beads (50  $\mu\text{m}$ ) at 4 bar of pressure with a pen blaster, then carefully with glass beads (50  $\mu\text{m}$ ) at 2 bar of pressure.

Do not use aluminium oxide for blasting!

## FINISHING



Carefully remove the sprue pins with a suitable cutting wheel. Now fit the pressed parts onto the die and then – depending on the technique used – carry out the finishing.

### STAINING TECHNIQUE

The objects are ready-finished (contact points, surface texture etc.). When using silicone rubber polishers, blasting with aluminium oxide ( $50\ \mu\text{m}$ ) and slight pressure (2 bar, approx. 10 cm distance from the object) are required.

### LAYERING TECHNIQUE

The fully anatomically modelled restoration should be reduced with finishing abrasives that are suitable for working porcelain or, if the restoration was reduced before wax-up, prepare it for veneering. Before layering, the surface should be blasted with aluminium oxide ( $50\ \mu\text{m}$ ) and slight pressure (2 bar, approx. 10 cm distance from the object). Layering can be started after thorough cleaning (steam blaster and ultrasonic cleaning).

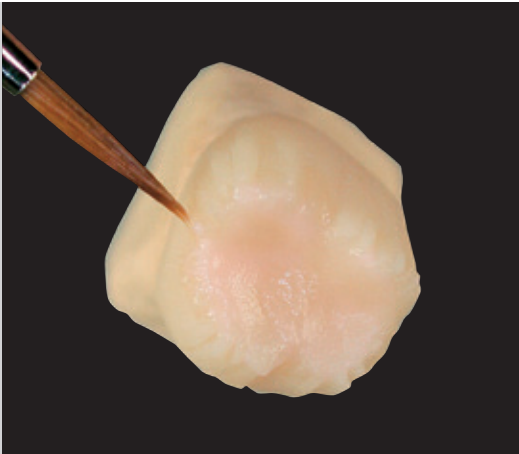
When finishing, a minimum framework thickness of 0,8 mm must be observed or two-thirds of the anatomical form must consist of pressable ceramic!

## STAINING TECHNIQUE



Any corrections can still be made with layering porcelain, before staining. Individual characterisation is then done with the Creation CC.LF. Make Up Instant stains. One or more stain firings may be carried out, depending on the situation. Then glaze the ready-stained restoration once or twice.

## LAYERING TECHNIQUE – WASH FIRING



For premolars and molars, a wash firing is fixed onto the occlusal surface with the appropriate dentine shade. Firing is carried out on a firing pad, proceed as for the first dentine firing (holding time: 1:30 min. at 900 °C).

Follow firing instructions!

## LAYERING TECHNIQUE – GLAZE FIRING



Before layering, a characterisation firing with Creation CC.LF. Make Up Instant stains can be fixed onto the wash firing, for example. Missing areas of dentine can be added using dentine porcelain. The incisal parts are added to the anatomical form, then fired as specified in the firing chart. Firing is performed on firing pad. A correction firing can be carried out, if necessary.

With the layering technique, a minimum framework thickness of 0,8mm must be observed or two-thirds of the anatomical form must consist of pressable ceramic!

Small individual nuances can now be added with Creation CC.LF. Make Up Instant stains. Finally, carry out glazing or mechanical polishing.

## CEMENTING ALL-CERAMIC PRESSED CROWNS



The restoration fabricated from Creation CP has to be adhesively cemented!

Pre-treatment of the restoration before bonding (please follow the manufacturer's instructions):

- Carefully sandblast the inside of the crowns with  $\text{Al}_2\text{O}_3$  (50  $\mu\text{m}$ ) and 1 bar of pressure.
- Sandblasted surface.
- Etch the roughened surface with maximum 10 % hydrofluoric acid for two minutes, according to the manufacturer's instructions.
- Thoroughly remove the acid residues under running water. Then clean with ultrasound or steam blaster. In the dry state, a milky white surface (fluorosilicate crystals) is visible.
- Acidify the fluorosilicate crystals with phosphoric acid (39 %) for one minute. Then thoroughly clean under running water.
- The microretentive surface is ready for adhesive bonding.



## FIRING INSTRUCTIONS

### STAINING TECHNIQUE (CREATION CC.LF. MAKE UP INSTANT)

	Preheating Temp.	Drying Time	Raise of Temp.	V	1 <sup>st</sup> Firing	2 <sup>nd</sup> Firing	Holding Time
Stains	450 °C	4 min.	45 °C/min.	-	850 °C	850 °C	1 min.
Glaze	450 °C	4 min.	45 °C/min.	-	850 °C	840 °C	1 min.

### BUILD-UP TECHNIQUE (CREATION CC)

	Preheating Temp.	Drying Time	Raise of Temp.	V	Final Temp.	Holding Time
1 <sup>st</sup> Dentine Firing	580 °C	6 min.	55 °C/min.	+	900 °C	1:30 min.
2 <sup>nd</sup> Dentine Firing	580 °C	4 min.	55 °C/min.	+	895 °C	1:30 min.
Glaze Fring	600 °C	2 min.	55 °C/min.	-	900 °C	1:30 min.
Glaze Firing with LF Glaze Powder	450 °C	4 min.	45 °C/min.	-	850 °C	1 min.

### BUILD-UP TECHNIQUE (CREATION LF)

	Preheating Temp.	Drying Time	Raise of Temp.	V	Final Temp.	Holding Time
1 <sup>st</sup> Dentine Firing	450 °C	6 min.	45 °C/min.	+	770 °C	1 min.
2 <sup>nd</sup> Dentine Firing	450 °C	6 min.	45 °C/min.	+	760 °C	1 min.
Glaze Firing	480 °C	2 min.	45 °C/min.	-	770 °C	-
Glaze Firing with Glaze Powder	450 °C	4 min.	45 °C/min.	-	750 °C	1 min.

These firing parameters represent standard values and have to be adjusted to respective situation. Decisive is the firing result.

## COLOUR CHART

Vita® Shade		A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4	Opacity
Dentine	16	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4	circa 75 %
Bleach Dentine	3	BL-1					BL-2					BL+					circa 70 %	
Dentine Opaque	3	DO-1 ivory					DO-2 flamingo					DO-3 orange					circa 85 %	
Enamel	4	E57				E58				E59				E60				circa 50 %
Enamel +	4	E57+				E58+				E59+				E60+				circa 55 %
Transpa	2	NT neutral																circa 35 %
										NT clear								circa 25 %
Enamel	5	SI-01 light yellow			SI-02 medium yellow			SI-03 heavy yellow			SI-04 light orange			SI-06 heavy orange			circa 50 %	
Enamel Intensive +	5	SI-01+			SI-02+			SI-03+			SI-04+			SI-06+			circa 55 %	
Bleach Enamel	2	PS-0																circa 60 %
										TI-2								circa 55 %

Vita® is a registered trademark of VITA Zahnfabrik H. Rauter GmbH & Co. KG, Bad Säckingen, Germany.

### OPACITY

The measure results are depending on a testing tab thickness of 1 mm and a measure range from 400 to 700 nm. They are an average used as a guideline for the system.

## PHYSICAL PROPERTIES

Properties	Measure	Value	Norm
Coefficient Thermal Expansion (25 ° – 500 °C)	$10^{-6} \times K^{-1}$	13,5 ± 0,3	
Glass Transition Temperature	°C	635 ± 10	
Solubility	$\mu g/cm^2$	20	max. 100
Flexural Strength	MPa (Nmm <sup>2</sup> )	110	min. 100

The technical and physical values quoted relate to samples produced in-house and to our own measuring instruments.



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