

CREATION WILLI GELLER INTERNATIONAL - SIMPLY BRILLIANT

WILLI GELLER  
*Creation*

INSTRUCTIONS FOR USE  
CREATION PRESS-CERAMICS ZIRCONIUM OXIDE

CP ZI



Hubert Schenk

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## INTRODUCTION



It is possible with Creation CP ZI to overpress zirconium oxide frameworks with a special pressable ceramic. Both the build-up and staining technique can be used to do this. This technique makes efficient yet extremely aesthetic fabrication of zirconium-supported restorations possible. Thus CAD/CAM technology is combined with the advantages of pressable ceramic in a unique way.

## FRAME



Well equipped for the future: Creation CP ZI is a pressable for overpress all kinds of zirconium oxide frameworks – whether sintered or HIP-ed.

### PREPARATION OF FRAMEWORK

Firstly work the milled or sintered zirconium oxide framework with suitable instruments. The minimum thickness for frameworks and the thickness of connectors stipulated by the manufacturer should strictly observed.

## FRAME SHADE



It's recommended to use the Creation ZI Frame Shades for white frames. The mixing of the Frame Shades is recommended with modelling liquid.

The four Frame Shades FS-1 to FS-4 were developed to reduce the high brightness of the framework zirconium oxide. They are perfectly matched to the different colour groups from the Vita® Classic shade selection system and reinforce the natural, fluorescent effect of the eventual restoration.

Apply the frame shade thinly and evenly to the zirconium oxide framework, then fire under vacuum at 900 °C.

## CUT BACK TECHNIQUE – WAXING-UP



### MODELLATION

The model is isolated and then the framework is put on the model without pressure. According to the technique used you can either wax up completely or reduce.

**Important: Check internally for wax, keeping wax free!**

### SPRUEING

The object is sprued directly. The wax wire should be 3 mm in diameter, 5 – 7 mm long and should not taper towards the pattern. The pattern is waxed onto the crucible former in a central position.

### PELLET

Use a dentine pellet (e.g.: D-A2).

**Note: Maximum of 0,6 g wax weight for 1 pellet 2 g  
Maximum of 1,4 g wax weight for 2 pellets 2 g  
Maximum of 2,8 g wax weight with 2 pellets 5 g**

## INVESTING



Push the silicon ring on the crucible former. Fill to just below the edge of the silicon ring with special investment for injection-moulded ceramics. Put on the mould base former turning gently (investment should exude easily through the opening). After the investment has set, turn the mould base former and mould former carefully to remove them. Smooth the underside with a plaster knife. Follow the directions for preheating in the instructions for use for the investment.

**Important:** Do not preheat the pellets!  
Preheat the alumina plunger!  
Do not preheat the one-way plunger!

## INJECTING



KLEMA Press	100g Mould	200g Mould	300g Mould
Stand-by Temperature	800 °C	800 °C	800 °C
Sealing Time	00:00 min.	00:00 min.	00:00 min.
Heat Rate	60 °C/min.	60 °C/min.	60 °C/min.
Vacuum Start	800 °C	800 °C	800 °C
Vacuum Hold	30:00 min.	32:00 min.	37:00 min.
Vacuum Limit	730 mm	730 mm	730 mm
Firing Temperature	950 °C	980 °C	1.010 °C
Holding Time	20:00 min.	20:00 min.	20:00 min.
Injection Temperature	950 °C	980 °C	1.010 °C
Injection Time	10:00 min.	12:00 min.	17:00 min.

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

## DEVESTING



Mark the length of the plunger on the mould and separate along the length of the mark. Then carefully break apart the sections of the mould. The pressings should be roughly blasted with glass beads (50  $\mu\text{m}$ ) at 4 bars with a pen blaster, then carefully with glass beads (50  $\mu\text{m}$ ) at 2 bars.

Do not use aluminium oxide for blasting!

## CUT BACK TECHNIQUE – FINISHING

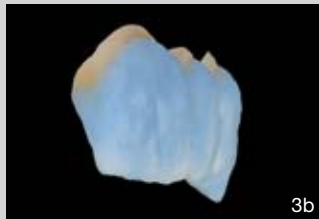


Cut off the sprues carefully using a suitable cut-off-disc. Work with low pressure and low r.p.m. (revolutions per minute). After separating, the work is carefully fitted onto the die.

**Caution in the area zirconium oxide/press ceramic: Intense heat can cause breaks!**

The fully anatomically modelled restoration should be reduced or prepare the already reduced restoration for veneering.

## CUT BACK TECHNIQUE – BUILD-UP



Use Creation ZI or ZI-F for the build-up. Additional staining with Creation AV.ZI.TI. Make Up Instant can be carried out and fired before building-up. Build up the incisal sections and fire according to the firing chart. Dentine porcelain can be used to build up sections with insufficient dentine. A further add-on firing is carried out if required. Small accentuating highlights can still be added using stains. Firing is carried out on pins, but be careful that the shoulder doesn't touch the firing pin. Restoration can be glazed or polished.

## CUT BACK EASY TECHNIQUE



### 1. FRAME SHADE

### 2. MODELLATION

Full contour wax-up

### 3. SPRUEING – INVESTING – PRESSING

Follow the instructions for cut back technique!

Select a transparent dentine pellet (e.g.: TD-A1).

### 4. CUT BACK

Reduce the dentine only in the upper third to provide space for the corresponding enamel (e.g.: E-58 for A2).

### 5. ENAMEL BUILD-UP

Build up the incisal area with a small amount of the corresponding enamel. You can make a correction if necessary.

### 6. FINISHING

Grind the crowns and finish them using glaze powder.

## STAINING POSTERIOR



Select a transparent dentine pellet (e.g.: TD-A1).  
Finish with Creation AV.ZI.TI.  
Make Up Instant stains.  
Firing: See firing chart  
staining technique!

## FIRING INSTRUCTIONS

### STAINING TECHNIQUE

	Start Temp.	Drying Time	Raise of Temp.	V	1st Firing	2nd Firing	Holding Time
Stains	450 °C	4 min.	45 °C/min.	-	810 °C	810 °C	1 min.
Glaze	450 °C	4 min.	45 °C/min.	-	800 °C	800 °C	1 min.

### BUILD-UP TECHNIQUE

	Start Temp.	Drying Time	Raise of Temp.	V	Final Temp.	Holding Time
Frame Shade	450 °C	2 min.	55 °C/min.	+	900 °C	1 min.
1st Dentine Firing	450 °C	6 min.	45 °C/min.	+	810 °C	1 min.
2nd Dentine Firing	450 °C	6 min.	45 °C/min.	+	800 °C	1 min.
Glanzbrand/Glaze Firing	480 °C	2 min.	45 °C/min.	-	820 °C	-
Glaze Firing with Glaze Powder	480 °C	2 min.	45 °C/min.	-	790 °C	1 min.

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

## COLOUR CHART

### DENTINE PELLETS 2g

Vita® Shade		A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Dentine	9	A1	A2	A3	-	-	B1	B2	B3	-	C1	C2	-	-	D2	-	-
Transparent Dentine	9	TA1	TA2	TA3	-	-	TB1	TB2	TB3	-	TC1	TC2	-	-	TD2	-	-
Bleach Dentine	3	BD-A					BD-B					BD-B0					
Transparent Bleach Dentine	3	TBD-A					TBD-B					TBD-B0					

### DENTINE PELLETS 5g

Vita® Shade		A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Dentine	9	A1	A2	A3	-	-	B1	B2	B3	-	C1	C2	-	-	D2	-	-
Transparent Dentine	9	TA1	TA2	TA3	-	-	TB1	TB2	TB3	-	TC1	TC2	-	-	TD2	-	-
Bleach Dentine	3	BD-A					BD-B					BD-B0					
Transparent Bleach Dentine	3	TBD-A					TBD-B					TBD-B0					

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## CUT BACK – COMBINATION CHART

### VITA® SHADE

Shade	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Frame Shade	FS-1	FS-1	FS-2	FS-2	FS-4	FS-1	FS-1	FS-2	FS-4	FS-1	FS-3	FS-3	FS-4	FS-3	FS-3	FS-3
Pellet	A1	A2	A3	A3	A3	B1	B2	B3	B3	C1	C2	C2	C2	D2	D2	D2
Enamel	E58	E58	E59	E59	E60	E57	E59	E59	E59	E60	E59	E59	E60	E60	E59	E59
Stains	-	-	-	A	A	-	-	-	B	-	-	C	C	-	D	D

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### BLEACH

Shade	A	B	B0
Frame Shade	-	-	-
Pellet	BD-A	BD-B	BD-B0
Enamel	S-AB	S-AB	S-AB
Stains	-	-	-

## CUT BACK EASY – COMBINATION CHART

### VITA® SHADE

Shade	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Frame Shade	FS-1	FS-1	FS-2	FS-2	FS-4	FS-1	FS-1	FS-2	FS-4	FS-1	FS-3	FS-3	FS-4	FS-3	FS-3	FS-3
Pellet	TA1	TA2	TA3	TA3	TA3	TAB1	TB2	TB3	TB3	TC1	TC2	TC2	TC2	TD2	TD2	TD2
Enamel	E58	E58	E59	E59	E60	E57	E59	E59	E59	E60	E59	E59	E60	E60	E59	E59
Stains	-	-	-	A	A	-	-	-	B	-	-	C	C	-	D	D

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### BLEACH

Shade	A	B	B0
Frame Shade	-	-	-
Pellet	TBD-A	TBD-B	TBD-B0
Enamel	S-AB	S-AB	S-AB
Stains	-	-	-

## STAINING POSTERIOR – COMBINATION CHART

### VITA® SHADE

Shade	A1	A2	A3	A3,5	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4
Frame Shade	FS-1	FS-1	FS-2	FS-2	FS-4	FS-1	FS-1	FS-2	FS-4	FS-1	FS-3	FS-3	FS-4	FS-3	FS-3	FS-3
Pellet	TA1	TA1	TA1	TA2	TA3	TB1	TB1	TB2	TB2	TC1	TC1	TC1	TC2	TD2	TD2	TD2
Stains	A	A	A	A	A	B	B	B	B	B	B	C	C	D	D	D

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### BLEACH

Shade	A					B					B0				
Frame Shade	-					-					-				
Pellet	TBD-A					TBD-B					TBD-B0				
Stains	-					-					-				

## PHYSICAL PROPERTIES

Properties	Measure	Value
Coefficient Thermal Expansion (25 ° – 500 °C)	$10^{-6} \times K^{-1}$	pressed $9,8 \pm 0,3$
Glass Transition Temperature	°C	$590 \pm 10$
Solubility	$\mu g/cm^2$	15
Flexural Strength	MPa (Nmm <sup>2</sup> )	> 90

All tested materials conform to EN ISO 9693:2000.

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



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