unive CAST

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GENERAL AND SAFETY INSTRUCTIONS!

- There is a danger of flame occurence during rapid heating, theferore keep the furnace door closed for at least 15 minutes after the insertion of the cylinder. During this period, do not insert any other cylinders into the furnace.
- Pay attention to the date of application of the powder and liquid. Do not use after their expiration dates.
- Polisol universal expansion liquid is suitable for rapid or slow heating.
- The investment material contains silica powder. Inhalation of this powder can be hamrful and can cause irreversible damage to the the lungs (silicosis, lung cancer).
- Store the powder and liquid at a normal room temperature (23°C). If the liquid is exposed to temperatures at or below 5°C, the liquid will freeze and cannot be used thereafter.
- The investment material should not come into contact with plasters or plaster investment materials.
- The instructions are valid for temperatures of the mass and the room between 23°C

MODEL CASTING TECHNIQUE

Mixing ratio: 100 g of powder / 22 ml of liquid
Time of mixing in the vacuum mixer: **60 seconds**
Working time: **4 - 5 minutes**

DUPLICATION AND INSERTION

	POWDER	LIQUID	CONCENTRATION OF EXPANSION LIQUID	
			%	Expansion liquid/distilled water
MODEL	300 g (2 x 150 g)	66 ml	50%	33 ml / 33 ml
CILINDER	300 g (2 x 150 g)	66 ml	30%	20 ml / 46 ml
	450 g (3 x 150 g)	99 ml	30 %	30 ml / 69 ml

RECOMMENDATION: when duplicating the model using duplicating gel with 150 g of powder (1 model) and 33 ml of liquid (16.5 ml of expansion liquid and 16.5 ml of distilled water), we recommend that you:

- accurately measure the prescribed quantity of expansion liquid and water
- mix the investment material in the vacuum mixer for 100 seconds
- the temperature of the powder and liquid should not be lower than 23°C

HEATING

MODEL	DUPLICATING GEL	SILICONE
Model setting time	60 minutes	20 minutes
Hardening the model	Cold or warm hardening as required.	Not necessary!

WARNING:
Special caution should be taken when removing the duplicated model from the silicone. Use compressed air to help you.

After the beginning of mixing, the cylinder is placed in the furnace for a period of	RAPID	SLOW
	15 - 20 minutes	15 - 20 minutes
The temperature of the preheated furnace	900°C	#
Heating	900 1000°C	250°C 900 – 1000°C
The period of maintaining the final temperature	45 – 60 minutes (depending on cylinder size)	

WARNING: The temperature of the preheated furnace should not exceed 900°C when the cylinder is inserted.
After being inserted into the furnace, the cylinder can be heated up to 1050°C.

CROWN AND BRIDGEWORK TECHNIQUE

MIXING THE POWDER AND LIQUID

Mixing ratio: 100 g of powder / 22 ml of liquid
Time for mixing in the vacuum mixer: **60 seconds**
Working time: **5 minutes**

Cylinder size	POWDER	LIQUID
x 1	1 x 75g	17 ml
x 3	1 x 150g	33 ml
x 6	2 x 150g	66 ml
x 9	3 x 150g	99 ml

The higher the concentration of expansion liquid, the higher the expansion of the mass. Avoid increasing the density of the consistency, as this will substantially reduce the working time and increase the expansion of the mass!

	Precious and semi-precious alloys with a melting point below 1150°C		Precious and semi-precious alloys FOR CERAMICS		Non-precious alloys Ni-Cr We recommend POLIALLOY NP NI-CR		Non-precious alloys Co-Cr We recommend POLIALLOY NP CO-CR	
Cylinder size	Exp. liquid **25%**	Distilled water **75%**	Exp. liquid **50%**	Distilled water **50%**	Ex. liquid **65%**	Distilled water **35%**	Exp. liquid **70%**	Distilled water **30%**
x 1	4 ml	13 ml	9 ml	8 ml	11 ml	6 ml	12 ml	5 ml
x 3	8 ml	25 ml	17 ml	16 ml	22 ml	11 ml	23 ml	10 ml
x 6	17 ml	49 ml	33 ml	33 ml	43 ml	23 ml	46 ml	20 ml
x 9	25 ml	74 ml	50 ml	49 ml	64 ml	35 ml	69 ml	30 ml

HEATING

After the beginning of mixing, the cylinder is placed in the furnace after a period of	RAPID	SLOW
	15 - 20 minutes	15 - 20 minutes
The temperature of the preheated furnace	750 – 900°C	250°C
Heating	900 1000°C	250°C 900-1000°C (9°C/min)
The period of maintaining the final temperature	30 – 60 minutes (depending on cylinder size)	

WARNING: The temperature of the preheated furnace should not exceed 900°C when the cylinder is inserted.
After being inserted into the furnace, the cylinder can be heated up to 1000°C.

PRESSABLE CERAMIC TECHNIQUE

STORAGE AND WORKING TEMPERATURE

Powder and Liquid should be stored at room temperature (23 Ň1)°C before using.

Storage and working temperature of investment powder and liquid are an important factor in determining the setting time and expansion, and hence the fit and the surface roughness of the pressed ceramic objects.

Working temperature: Use at **23±1°C** room temperature. Higher working temperatures reduce working time, lower temperatures prolong working time.

PREPARATIONS BEFORE INVESTING

Unive Cast investment material is a very fluid investment, which can be used without any wetting agents. If a wetting agent is used, be sure to totally dry the surface prior to investing.

Use adequate silicone ring systems for the ceramic press technique in size 100g and 200g.

Powder/liquid ratio: Investment material powder is mixed with Polisol special liquid which is diluted with distilled water.

Exact powder/liquid measurement is necessary to obtain stable results.

Ring size	Powder	Liquid
Small	100 g	22 ml
Large	200 g	44 ml

Expansion: The expansion of the investment can be controlled by the quantity of the distilled water mixed with the special liquid. Higher is the concentration of the special liquid, higher is the total expansion of the investment. Use only distilled water to dilute.

The concentration can be freely adapted based on the working experience of the technician.

Polisol liquid dilution chart:

Technique	Conc. (%) Polisol Liquid	100 g ring Liquid : distilled H2O	200 g ring Liquid : distilled H2O
Inlays	40%	9 ml : 13 ml	18 ml : 26 ml
Partial crowns, veneers, single crowns	45%	10 ml : 12 ml	20 ml : 24 ml
3-unit bridges	40%	9 ml : 13 ml	18 ml : 26 ml
Press on metal and ZrO2 frameworks	50 %	11 ml : 11 ml	22 ml : 22 ml

Note, influences such as an increased room temperature, increased material temperature, model type (wax, plastic, wax/plastic combination) etc. may affect the processing properties or final result.

MIXING

Pre-mix powder and liquid thoroughly by hand with a spatula. Be sure all powder is wetted out by the liquid to give a uniform mixture.

Mix for 60 seconds under vacuum (400 rpm).

Always use clean mixing bowl and check vacuum level. Insufficient vacuum leads to differences in fit and air-bubbles of the pressed objects.

Working time: At least **4 minutes** pouring time including the mixing time at room temperature (23°C).

Working time/pouring time depends on the temperature of powder & liquid and on room temperature. Higher temperatures shorten the working time.

INVESTING

Invest under gentle vibration (low frequency).

Unive Cast investment material is very fluid, so strong vibration is not necessary and not advisable. From the moment the ring is totally filled, stop vibration immediately and do not touch the investment until set.

Setting time: Leave to set for 20 minutes from start of mixing.

Best results are obtained by putting immediately into a preheated furnace after 20 min.

Scrape the top surface of the investment ring with a sharp knife/sandpaper.

HEATING UP PROCEDURE

	Quick heating	Conventional step heating
Insertion temperature	850°C	250°C
Holding time at 250°C		60 mins
250°C › 570°C, heating rate		9°C / min
Holding time at 570°C		30 mins
570°C › end temperature, heating rate		9°C / min
End temperature	850 - 900°C	850 - 900°C
Holding time at end temperature (depending on size of cylinder)	45 – 60 mins	45 – 60 mins

Preheating temperature: Always place the set investment ring in the burnout furnace at 850°C.

When the mould is placed into the furnace, preheated furnace temperature should not be higher than 850°C. Then heat up to higher temperature (900°C) if required.

Due to aggressive burning out, do not open the furnace during the first 15 minutes.

When several investment rings are put into the furnace at the same time, prolong the heating period of each step with 10 minutes.

Holding time, after the preheating temperature of 850°C:

- **100 g ring – min. 45 minutes**
- **200 g ring – min. 60 minutes**

PRESSING THE CERAMIC AND PRESS PLUNGERS

Follow carefully the instructions for use of the pressable ceramic.

Press sequence should start as soon as possible after removing the investment ring from the furnace.

Standard Alox plungers and one-way investment plungers can be used.

COOLING

Follow carefully the instructions for use of pressable ceramic.

PoliDent

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