Pressure investment

We recommend pressure-free investment. With inlays and onlays a slight improvement in fit can be obtained with pressure investment of 0.5 to 1 bar. With increasingly higher pressures the surface of the casting can deteriorate.

Do not use pressure investment in telescopic work with modelling resin ü tighter casting.

Maintain the pressure as far as possible throughout the curing time, but for at least 30 minutes. Removal too soon from the pressure pot can lead to muffle cracks, casting defects on the objects and chips or inclusions in the investment.

Preheating

Let the muffle harden according to the curing time. Start cutting with the muffle top dry.

Always place the muffle with the casting funnel facing downward on the ribbed base plate of the furnace. (Base plates in all sizes can be obtained from us.)

Preheat the muffle to the final temperature in one step and not too slowly. Do not interrupt the preheating process. **Separate wax expulsion is not necessary**, even if the muffle dries out over the weekend. **Never add additional moisture to the investment muffles** (watering, damp cloth in bag etc.) ü Change in expansion and muffle cracks! Enclose any moisture present and coat open sides of the muffle with wax. *Normally not necessary!* Caution when preheating in bags or cling film ü Incineration residues. Wax burn-out with steam dewaxer is possible, but let the muffle cure for at least 1 hour beforehand.

Preheat muffles with Visioform light-curing modelling resin to 850 °C. Maintain the temperature for 30 min. and let the furnace fall to casting temperature. The veneer surface should also be coated to the edge with an extremely thin layer of wax.

Preheat casting muffle according to working instructions.

Alloys and casting elements

You will obtain good to very good inlay and onlay fit with classical high-quality yellow gold alloys (Aurofluid 2+3, Pontor MPF+2, Degulor M), with reduced alloy and palladium basic alloy. You will obtain unsatisfactory or even very poor inlay fit with many high-quality burn-on and some bio-alloys, (regardless of the investment material).

Important for casting metal parts: StarVest investment materials contain no chlorides.

We recommend the following accessory materials:

Insulating agents: Lubritex from Whip-Mix, Die Lube from Ney, Yeti Lube Superfine;

Surfactants: Smoothex from Whip-Mix, Debubblizer from Kerr.

Waxes: SU aesthetic wax-O beige (organic), brown (organic) for edge sealing;
SU aesthetic wax-A beige (inorganic), SU inlay wax grey, SU Transpa wax;
Yeti THOWAX, grey, beige, Yeti IQ; Renfert Pico modelling wax beige, green;
Do not use inorganic, opaque wax with modelling resin and vacuum-forming foils. Poor casting surfaces (particularly with Bredent Gecko and Renfert Picopaque). Exception: SU-A wax

Modelling resin: GC Pattern Resin, Bredent Pi-Ku-Plast, Espe Visioform (light-curing)

Vacuum-forming foil: Adapta; Erkodent foil opaque;
do not use Erkodent clear transparent film. poor casting surfaces

weber dental
D- 70597 Stuttgart Sigmaringer Str. 258 Telefon (0711) 726723-0
Telefax (0711) 726723-90 www.weber-dental.de eMail info@weber-dental.de

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StarVest® processing

V 1.0

Instructions for consistently precise casting with all StarVest investment materials in the crown + bridge technique

Thank you for your interest in our products. We endeavour to earn your confidence through uniform top quality. All StarVest investment materials are manufactured with the greatest possible care by us in Stuttgart.

You will find a summary of the different characteristics and areas of use in our catalogue. Expansion control and special processing recommendations are contained in the appropriate working instructions for the various products.

General basic rules

- ☞ A constant working temperature of powder and liquids ensures consistent results. Ideal: temperature-controlled cupboard with powder, concentrate and water at 18°C.
  Otherwise store concentrate and water in the refrigerator at 5-10°C.
- ☞ The duration of mixing in relation to the processing temperature is crucial for the quality of the surface of the casting. The speed of the mixer is also crucial, high speed (over 400 rpm) for the best casting surfaces, slow speed (250 rpm or less) = poorer casting surfaces.
- ☞ The powder must be weighed out exactly to the gramme with a precise electronic scale. If necessary check the scale with the mixing beaker and calibration weight.
- ☞ Measure the mixing liquid (concentrate and distilled water) exactly in the supplied measuring cylinder and let it flow fully into the mixing beaker.
- ☞ An old, very scratched mixing beaker, possibly containing dried out investment residues, can withdraw up to approx. 2 ml of liquid from the investment. Rinse out the dried out beaker with water and rub it dry with a towel.
- ☞ Use demineralised water (battery water). Distilled water is also possible but not essential. **Caution with self-filtered water!** Depending on the system, the minerals have been removed but other residues are present in the water, which affect expansion.Never use the condensate from a tumble dryer! Detergent residues!

Modelling

Dip your dies in wax. You will obtain the best fit with pure wax crowns and inlays. In the case of vacuum forming foils without spacer foil, use approx. 2 ml more concentrate.

Wax models can be sprayed with surfactants (e.g. Smoothex, Wip Mix or Kerr Debubblizer) and completely blowdried with Dipol or Waxit.

Modelling resins

The copings slide more or less easily depending on how the modelling resin is applied and the speed or pressure with which they were ground. Considerable differences can arise in the mixing ratio from one technician to another.Carry out a test casting beforehand, particularly with telescopic and tapered work.

You will achieve the best casting surfaces with GC Pattern Resin and similar modelling resins if you note the following points:

♦ Do not invest your abutments for at least 3 hours after applying the GC Pattern Resin, otherwise the resin will not retain its shape after removal until the investmen!

♦ Do not use any inorganic waxes in the liquid state with the exception of SU-A wax (very poor casting surfaces with Gecko wax from Bredent and Picopaque from Renfert, slight losses with Yeti Thowax!)

♦ Do not use any surfactants. ♦ Apply powder with only a little monomer liquid.

♦ For perfectionists: processing temperature of 16 °C for the investment material (bring powder, liquids and mixing beaker to 16 °C or obtain a temperature of approx. 16 °C measured after mixing by hand with a spatula in the beaker and mixing in a vacuum lasting at least 4 minutes.

Muffle systems in general and with silicone rings

For exactly reproducible results, always use the same muffle system from one manufacturer. Different expansion can occur if you change, even to systems of a similar type.

Use only muffle systems that allow curing expansion of the investment material.

Do not use size 1 muffles (lower curing heat tighter crown fit)

Caution when spraying the base mould and rings with mould release agents incompatibility.

Muffle system with metal ring

NIn our experience, you will get the best and most constant fit with this.

Use a 1 mm thick mineral fleece (e.g. our muffle ring liner order no: 20200). Do not use paper fleece (burns during preheating producing soot ü soot particles possible in the cast).

Use two fleece liners with muffle sizes 6+9.

Grease the inside of the muffle ring lightly with vaseline or moisten with water, insert the mineral fleece overlapping it so that it ends at the upper edge of the muffle.

Leave the inside of the fleece dry (next to the investment). Do not moisten and do not smear with vaseline.

Pinning and placing objects

The distance between the model and the edge of muffle towards the fleece should be at least 3-4 mm in the case of metal rings and 5-8mm in the case of silicone rings. Place the objects at least 8 mm below the upper edge of the muffle. Allow for starting the cut on the muffle top.

When directly pinning single crowns and inlays during centrifugal casting, use sprues of at least 3 mm (at least 3.5 mm with solid crowns).

Mixing the investment

Rinse out the mixing beaker for phosphate investment material with water, rub or blow dry. Do not use a vulcanite mixing beaker. Reaction with the investment material ü casting beads.

Measure the concentrate and demineralised water individually or ideally together in the measuring cylinder exactly, let it flow completely into the mixing beaker and mix by swivelling the beaker around. Rinse out the measuring cylinder with water after use and allow to drain.

Place the beaker on an electronic scale, press tare, add the powder with the measuring scoop weighed exactly to the gramme, **mix well with a spatula and mix immediately in a vacuum**, then invest. Select the mixing time according to the investment material and depending on the **storage and processing temperature**.

Tips on processing temperature

The processing temperature is the temperature that is measured immediately after mixing by hand with a spatula in the mixing beaker.

The best and most consistent results are obtained with a steady processing temperature, usually 18-20°C. Store powder, liquids and mixing beaker at this temperature (see investment material instructions).

If a temperature-controlled cupboard is not available, put the concentrate and the water (and the mixing beaker also in the summer) in your refrigerator at 5 10 °C. Keep the powder at room temperature.

Excessively cold processing below 16°C can be responsible for problems. These include: reduced muffle stability ü muffle cracks, defects, especially with pressed ceramic muffles and with speed preheating (cast + press), but superficial discoloration of the pressed ceramic, poor cast surfaces and tighter casts can also result.

Processing temperature over 24 °C: expansion on curing increases greatly much bigger casts. Deterioration of the cast surface, particularly with modelling resin.

Mixing time and cast surface

The mixing duration relative to the processing temperature is crucial for the casting surface, as is the speed. Shorter mixing times lead to poorer casting surfaces and fit and more microbeads and whitish discoloration of the surface in the case of pressed ceramic.

Longer mixing times (approx. 30-60 sec) can lead to even better results.

Recommended settings for programmable mixers

	Function	Speed	Time	Comment
1.	After reaching 80% of the vacuum (approx. 800 mtar) start the mixing process. Do not pre-evacuate!			
2.	Mixing function	100 rpm.	10 sec.	In addition with prior manual spatula mixing
3.	Increase vacuum to full capacity			If not automatic
4.	Speed to	450 rpm or higher	180 sec.	Mixing time of the investment material or corresponding number of program steps with 30 sec. right and 30 sec. left alternately
5.	Change of direction	unchanged	every 30 sec.	e.g. at Start-Mix and Twister pro
6.	End	Stop	0	no after-evacuation