

SHERAFRIXION

INSTRUCTIONS FOR USE

Phosphate bonded precision investment

1. Indication

For the production of casting muffles with an increased expansion. Especially for telescopic, cone, double and implant crowns and bridges made of non-precious metal alloys. The wax-up can be made from wax, autopolymerising or light-curing resin (e. g. SHERAPLAST) or milled from wax (CAM).

2. Contraindication

- Precious-metal works (recommendation SHERAFINA 2000)
- Press ceramic (recommendation SHERAUNDER PRESURE)

Even tiny residues on the work equipment – including cleaning agents – can have a negative effect on the casting result. Please use the respective spatula and mixing cup only for the processing of phosphate-bonded investment and keep the mixing cup always filled with water after use and cleaning.

3. Safety instructions

Attention: Investments contain quartz! Do not inhale dust. Risk of lung disease (silicosis or cancer). Wear a dust mask!
Please use a fine dust mask when weighing and mixing the powder and devesting the muffle.

4. General recommendations

4.1. Vacuum mixing device

This investment needs a very good vacuum to reach its full strength!

To check the vacuum of your mixing device:

Fill the cup half-full with cold water. Maximum vacuum (100%) without stirring, after 30 sec. at the latest you should see small bubbles in the beaker and on the mixer, which peel off over time and new ones arise/follow. If this is not the case, the filter may be clogged and the device/filter may need to be cleaned. The seal ring on the cup should also be checked.

On the following link you will find a SHERA TECH HACK regarding the vacuum <https://www.youtube.com/watch?v=6k8HI2sskAc>

Program a programme with the following parameters:
- mixing time 60 sec, - 100% vacuum, - 350 rev/min

4.2. SHERAMUFFELFORMER

We recommend the use of SHERAMUFFELFORMERS to ensure an open porosity of the investment. SHERAMUFFELFORMERS consist of a thermo-elastic and heat-insulating material. This supports the chemical reaction of the investment, as the "thermos flask effect" results in a better temperature progression with a uniform and undisturbed expansion.

4.3. SHERARELAXA

For surface relaxation of waxes and to improve the flow properties of investment, we recommend the surface tension release agent SHERARELAXA. If necessary, spray the wax-up very thinly with SHERARELAXA and fill up with investment directly without letting it dry.

4.4. Duplicating (one piece casting)

Make the silicone mould from a soft silicone. We recommend DUOSIL H (Shore hardness A 17). Please use a duplicator flask without stabilization frame for the duplication. To produce the investment model, place the silicone mould without the flask on the flask base and fill the investment in.

5. Mixing ratio powder : liquid

180 g powder: 40 ml liquid

We recommend the use of at least 180g to achieve consistent results. SHERALIQUID is an expansion liquid for all SHERA investments. The SHERALIQUID is mixed with distilled water according to the mixing ratios below.

Mixing tables for each product can be found on www.shera.de.

5.1. Mixing table for 180g / 3x muffle

	Non-precious metal alloy			Silver based or palladium based alloy		
	SHERALIQUID	85 %	34 ml	SHERALIQUID	75 %	30 ml
Telescopic and secondary constructions made of resin	dist. water	15 %	6 ml	dist. water	25 %	10 ml
Crown and bridges made of wax	SHERALIQUID	75 %	30 ml	SHERALIQUID	65 %	26 ml
	dist. water	25 %	10 ml	dist. water	35 %	14 ml
Crown and bridges milled in wax	SHERALIQUID	60 %	24 ml	SHERALIQUID	55 %	22 ml
	dist. water	40 %	16 ml	dist. water	35 %	18 ml

5.2. Mixing table for larger objects (in non-precious alloy)

- a) Telescopic bridges, secondary crowns made of resin (also for bridges elements made of wax)

Cylinder	Powder	Total liquid	thereof SHERALIQUID	thereof distilled water
Secondary parts	180g	40 ml	85%	34 ml
Complete cylinder muffle size 6x	360 g (2 X 180 g)	80 ml	70%	56 ml
Total cylinder muffle size 9x	540 g (3 X 180 g)	120 ml	67%	81 ml

- b) Milled wax bridges, also as secondary crowns
Muffle size 6x and 9x (please use casting ring liner)

Cylinder	Powder	Total liquid	thereof SHERALIQUID	thereof distilled water
muffle size 6x	360 g (2 X 180 g)	80 ml	65 %	52 ml
muffle size 9x	540 g (3 X 180 g)	120 ml	60 %	72 ml

5.3. Model production one piece casting

- a) Dies / Primary crowns

For pouring out duplicated dies / primary crowns we recommend the following mixing ratio:

Powder	Total liquid	thereof SHERALIQUID	thereof distilled water
180 g	40 ml	85 %	34 ml

- b) Model

For pouring the rest of the model we recommend the following mixing ratio:

Powder	Total liquid	thereof SHERALIQUID	thereof distilled water
180 g	40 ml	65 %	26 ml

- c) Filling up the muffle with investment

When filling up the muffle with the investment the SHERAMUFFELFORMER MG should be used.

Powder SHERAFRIXION	Total liquid	thereof SHERALIQUID	thereof distilled water
540 g	120 ml	25 %	30 ml

SHERACAST as speed casting alternative.

Powder SHERACAST	Total liquid	thereof SHERALIQUID	thereof distilled water
400 g	84 ml	50 %	42 ml



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5.4. Recommendations and tips regarding expansion

By adjusting the ratio / proportion of liquids, the expansion can be changed:

more SHERALIQUID = higher expansion

less expansion liquid = lower expansion.

Our recommendations are based on test results from our laboratory and are guideline values. Different factors on site, such as room temperature, humidity or the settings of the mixer, can influence the results.

6. Processing

- Processing time: 5 – 6 minutes
- Fill in the powder in the mixing cup and weigh it
- Add the mixed liquid. (Start timekeeping! After 20 minutes the muffle can be put in the furnace. In **speed casting only 3 muffles!**)
- Mix the powder and liquid homogeneously by hand
- Mix for 60 seconds under vacuum (100%); stirring speed approx. 350 rpm
- Fill in the investment only at the lowest vibration level.
- Do not vibrate the muffle after filling

7. Heating / Preheating

7.1. General information

- Break the edges of the muffle with a clean knife before putting it on, make sure that nothing falls into the cone. Muffles should not be trimmed (plaster residues / water absorption of the muffle).
- Place the muffle in the furnace with the cone sideward on a perforated or serrated ceramic base plate.

7.2. Speed casting for 3x muffles!

20 minutes, calculated from the start of the mixing process, place the muffles in a furnace with a maximum heat of 850°C.

7.3. Conventional heating

- After 20 minutes from the start of the mixing process, place the muffles in a furnace with a maximum heat of 360°C and continue to heat to the final temperature without holding steps.
- Heating-up rate: up to 20°C/min.

8. Casting

- If several muffles are preheated in the furnace, the holding time per muffle shall be extended by 10 minutes.
- Hold the end temperature for at least 60 minutes.
- Our recommendation is an end temperature of the muffle of 850°C.
- Melt the alloy according to manufacturer's instructions.

9. Cooling

Cool down the muffle until room temperature is reached. Do not cool in cold water.

10. Devesting

Remove the investment as usual. Remove dust and do not hit the object and casting cone. During subsequent sandblasting the inner surfaces of the crowns work carefully. When sandblasting too much inside, it may lead to a negative effect on the fitting.

11. Storage

Store the powder and liquid dry, the processing temperature is between 20 – 23°C (ideally 21°C in the temperature cabinet).

SHERALIQUID is sensitive to cold. When stored or transported below +5°C, the liquid is damaged and should not be used anymore. Shipment of the liquid is therefore often not possible during the winter months. Please prepare a winter supply in good time.

Keep the investment and its working equipment separate from the plaster processing equipment, as these have a negative impact on each other.

12. Information / Feedback:

Further information, mixing tables and safety data sheets are available at www.shera.de.

If you have any questions, please contact our service team. Phone number: +49 (0) 5443 9933 0.

In case of product feedback, please always state the batch name.

13. Guarantee

SHERA Werkstoff-Technologie GmbH & Co. KG is certified according to DIN EN ISO 13485 and guarantees for the products, due to a thorough quality control system, a flawless quality of its products. Our instructions for use are based on the results of our test laboratory. The technical data given can only be guaranteed if the processing is carried out as mentioned. The user is self-responsible for processing of the products. We are not liable for faulty results as SHREA has no influence on the processing. Nevertheless, possibly arising claims for damages relate to the value of the products only.

