

Dreibettmasse®

one4three investment



The Dreibettmasse® the one4three investment of Klasse 4, was developed to facilitate close-fitting, smooth-surfaced castings. The expansion factor is readily controlled, making the compound suitable for FE alloy inlays as well as for secondary parts made of NFE alloy. Since the relevant specifications for injection-moulded ceramics were taken into account right from the start, three fields of application can be covered with a single compound at a very high quality level, simplifying both working procedures and storage in your laboratory.

Storage:

The temperature of the Dreibettmasse® powder and liquid influences both processing time and setting expansion. That is why uniform storage temperature is a precondition for reproducible fittings. The process control table on the back of this sheet is based on a storage temperature of 21°C. The Dreibettmasse® liquid is frost-sensitive and must no longer be used if a solid layer has crystallized out, which is observed when the bottle is upended.

Muffle systems

The Dreibettmasse® is suitable for embedding in metal muffle rings or for muffle-free systems. In muffle-free systems using crepe strips, the seam must be waxed on the inside to avoid sharp edges. 2 fleece inserts are required beginning with muffle size 6.

Mixing:

Use a separate mixing beaker for phosphate-bound investment! To maintain a constant mixing ratio, first rinse out the mixing beaker with water, then dry it off. Measure out and add the Dreibettmasse® liquid (see back from concentrate recommendations), strew in the Dreibettmasse® mix with spatula for 30 s. Then stir for 90 s under vacuum and allow to stand under vacuum for a further 30 s.

Important: The Dreibettmasse® contains quartz and cristobalite. Avoid inhalation of the dust from it!

Embedding

The muffle is first filled, avoiding vibrations, up to the bottom of the wax object. Then place on agitator set low and fill to upper edge. Attention: As the expansion starts about 5 min after embedding do not cure in pressurized container after this period of time. Trim the upper muffle surface before positioning it for better degasification.

Rapid casting:

The muffle size 3 or 6 is placed in the preheated oven 20 minutes after the powder and liquid are mixed. The muffle size 1 is recommended to be placed in the oven after 22 minutes. Use the oven temperature recommended by the alloy manufacturer. A size 3 muffle is poured out, or pressed, after 45 min. Size 6 muffles require 15 min. additional preheating. The preheating time is increased by 15 min. for every additional muffle in the oven (e.g. 2 size 3 muffles, preheat for 55 min.).

Programmed heatup:

After setting and cooling, place the muffles in the cold oven and heat up at a rate of approx. 5°C/min. Maintain temperature at 300 °C and at 600 °C for each 30 min. Maintain a size 3 muffle at the end temperature for about 30 min. and a size 6 muffle for about 45 min, and cast.

Model cast

For model casting, we recommend a mixing concentration ratio of 90% liquid : 10% distilled water for the model and 70 % liquid : 30 % distilled water for the overlayer. For brace models, we recommend air extraction canals at the braces. Curing should not be done in the pressurized container and the heatup should follow the specifications for programmed heatup.

Expansion control:

The expansion of the Dreibettmasse® is controlled by way of the concentration of the Dreibettmasse® liquid during mixing. Maximum expansion, and therefore castings of maximum size in all dimensions, are obtained with a 100% liquid mixture. The following table contains data from numerous pressing and casting tests and is rechecked for each new batch. Optimized reproducibility is obtained by keeping to the parameters listed below. In spite of these precautions, different methods and equipment may make individual adaptations necessary. For example, fitting of a secondary part made of modelling plastic is influenced very strongly by the processing of the plastic. The individual adaptation is realized by means of minor changes in the liquid concentration. A crown that is too tight is made larger in all dimensions by raising the concentration, so that it will fit more readily over the stump. If an inlay does not fit into a cavity, it may be that it has been cast too large and must be embedded with a lower expansion level. Important: Use only distilled water to dilute the Dreibettmasse® liquid.

Recommended concentrations for rapid casting:

1. For casting (160 g Dreibettmasse® : 38 ml liquid for size 3 muffle)

Objects → Aloy ↓	Inlay 3 facets, made of wax	Crowns + bridges made of wax	Secondary parts Pattern resin with wax mantling	Conical crown 6° Pattern Resin with wax mantling
High gold content >70% Au	19 ml liquid 19 ml aqua dest.	17 ml liquid 21 ml aqua dest.	26 ml liquid 12 ml aqua dest.	8 ml liquid 30 ml aqua dest.
Reduced gold content <55% Au casting alloy for special ceramics	19 ml liquid 19 ml aqua dest.	19 ml liquid 19 ml aqua dest.	27 ml liquid 11 ml aqua dest.	7 ml liquid 31 ml aqua dest.
High gold content casting alloy	20 ml liquid 18 ml aqua dest.	21 ml liquid 17 ml aqua dest.	30 ml liquid 8 ml aqua dest.	10 ml liquid 28 ml aqua dest.
Palladium-based alloy	20 ml liquid 18 ml aqua dest.	21 ml liquid 17 ml aqua dest.	32 ml liquid 6 ml aqua dest.	12 ml liquid 26 ml aqua dest.
NFE alloy	33 ml liquid 5 ml aqua dest.	30 ml liquid 8 ml aqua dest.	33 ml liquid 5 ml aqua dest.	13 ml liquid 25 ml aqua dest.

2. For pressing

	200 g Dreibettmasse®: 50 ml liquid		160 g Dreibettmasse®: 40 ml liquid	
Inlay 3 facets	20 ml liquid	30 ml aqua dest.	16 ml liquid	24 ml aqua dest.
Inlay 1 facet	16 ml liquid	34 ml aqua dest.	13 ml liquid	27 ml aqua dest.
crown	36 ml liquid	14 ml aqua dest.	29 ml liquid	11 ml aqua dest.

For programmed heatup, the liquid concentration should be reduced by 10 % and the amount of distilled water should be increased accordingly.

The following parameters are used for test castings and pressings:

- Processing temperature 21°C
- Mix manually for 30 s
- 90 s under vacuum at 450 rpm
- Maintain under vacuum for another 30 s
- Rapid casting technique