

Rapid and conventional preheating techniques

Graphite-free investment compound, based on quartz and cristobalite, for use with precious and non-precious metal alloys

Indications

CM-20 can be used with **rapid** and **conventional preheating techniques**.

CM-20 is suitable for casting precious or non-precious metal ceramic or casting alloys.

Contraindication

CM-20 is not suited for the model casting technique.

Preparing the wax patterns

Once the sprues have been attached, apply wetting agent and allow it to evaporate or rinse off the residue with water (approx. 30 °C).

Preparing the casting cylinder

Select the correct size of casting cylinder and line it with asbestos-free, refractory liner (Cendres+Métaux-Expandex). Fix the liner in place with wax, place it in water (for approx. 5 minutes) and shake it out well.

Size 1 and 3 cylinders: 1 layer Expandex

Size 6 cylinder: 2 layers Expandex

Mixing ratio

Size 3 casting cylinder: 1 x 160g bag:

Mixing ratio – 40 ml liquid : 160g powder

Recommended mixing liquid concentrations (size 3 casting cylinder)

These figures are to be considered guidelines only. The outcome may vary slightly due to the batch/lot, type of alloy and type of restoration being cast.

Mixing

Mix the liquid as required, pour it into a clean, dry mixing vessel and add the powder. Mix thoroughly by hand for approximately 20 seconds until the mixture is homogeneous. Then mix it in vacuum for 60 seconds with an automatic mixer.

Please note:

Room and storage temperatures exceeding 22 °C curtail the working time!

Avoid creating dust. Do not inhale dust (wear a face mask).

Pouring time

Approximately 4 minutes (depending on the proportions, room temperature and type of mixing unit). The consistency of the investment compound is thin enough to invest the patterns easily on a vibrator.

Setting time

a) Rapid preheating: **up to 25–30 minutes**

b) Conventional preheating: **60 minutes**

a) Rapid preheating technique:

Type of alloy	Powder	Mixing liquid (expansion)	Distilled water	Total
Non-precious alloys	160g	40.0 ml	–	40 ml
Ceramic alloys	160g	29.5 ml	10.5 ml	40 ml
Casting alloys	160g	26.5 ml	13.5 ml	40 ml

b) Conventional preheating technique:

As with this technique full setting expansion is obtained, the amount of mixing liquid can be reduced by 5–10%. Examples:

Type of alloy	Powder	Mixing liquid (expansion)	Distilled water	Total
Non-precious alloys	160g	40 ml	–	40 ml
Ceramic alloys	160g	26.5–28.0 ml	13.5–12.0 ml	40 ml
Casting alloys	160g	23.5–25.0 ml	16.5–15.0 ml	40 ml

Please note: The higher the amount of concentrate in the liquid, the higher the expansion values.

Xn



harmful



Burnout/Preheating**a) Rapid preheating:**

Heat the furnace to **end temperature** and insert the casting cylinder while it is still warm.

End temperature: 700–900°C.

Please note: Place the opening of the casting cylinder downwards (enables the wax to run out) and ensure that it is heated properly throughout (do not place it on the heating elements or in cooler areas of the furnace). The furnace must be placed in an exhaust hood and its chamber ventilated properly.

Caution: If the preheating furnace is opened while the wax is burning out, the wax fumes may mix with the air and ignite. Hold for 30–50 minutes to heat the centre of the casting cylinder to the same temperature as the furnace.

Please note: Suitable for use with burnout plastics under certain conditions. Risks of cracking and rough surfaces.

b) Conventional preheating:

The maximum preheating temperature is 1050°C.

Allow the investment to set and place the casting cylinder in a cold furnace. Hold at 290°C and 580°C for 30–45 minutes depending on the size and number of cylinders. Heat rate: < 5°C per minute
→ Place the opening of the casting cylinder downwards (enables the wax/plastic to run out)!

Raise the furnace to the end temperature at a rate of < 5°C per minute

→ Place the opening of the casting cylinder upwards (for degassing)!

Hold for 30–50 minutes to heat the centre of the casting cylinder to the same temperature as the furnace.

Please note: If the pattern includes burnout plastics, reduce the heat rate and prolong the hold times. This prevents the investment compound from cracking and rules out rough surfaces.

Caution: If the preheating furnace is opened while the wax is burning out, the wax fumes may mix with the air and ignite.

Casting/Devesting

Cast the alloy as described in the manufacturer's instructions.

Once the mould has cooled to room temperature (ensures that the alloy attains its full mechanical properties), carefully remove the investment compound from the casting with plaster nippers. Then clean the casting by sandblasting it with aluminium oxide or glass beads. Precious alloys should be pickled to remove the oxide.

Please note: Do not inhale the dust (wear a face mask). Moisten the working surface to clean it.

Physical properties (pure mixing liquid)

Total linear expansion: approximately 2.9%

Important

These instructions supersede all previous editions.

Warning: CM-20 contains quartz and cristobalite.

R 48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

S 22-36 Do not breathe dust. Wear suitable protective clothing.

Storage: CM-20 cannot be stored for an unlimited period, please refer to the back of the bag. As investment compounds are sensitive products, they must be protected against air, moisture and warmth in their original packaging. The ideal storage temperature is 18°C.

The **special liquid** is sensitive to low temperatures such as when being transported during cold weather.

Traceability, lot numbers: When placing complaints, always quote the lot number (back of bag).

Allergies: Certain constituents of investment compounds may cause contact allergies on skin while using the investment. It is therefore advisable to wear gloves to protect the hands, and a face mask.

Never mix investment compounds with different lot numbers.

Liability

The information provided herein represents state-of-the-art technology and assumes that the product has been checked carefully. We guarantee impeccable quality but are not liable for results due to further processing which is not usually within our control.

The manufacturer assumes no responsibility whatsoever for damage due to non-adherence to these instructions, especially if the investment compound is used after the expiry date.

Product range

Carton, 50 x 160g bags

1 x 160g bag

1 x 1 litre CM-20 liquid

1 roll EXPANDEX

Order No.: 083 872

Order No.: 083 873

Order No.: 083 739

Order No.: 083 413