

Premium Investment

NOVEMBER 2007

Weigh the investment powder and measure the mix water at a ratio of 38-40 parts water per 100 parts powder by weight (38-40 ml water per 100 g of investment). Deionized water is recommended.

Colder mix water temperature will increase working time, while warmer temperatures will shorten working time. For best results adjust water temperature to 75-85°F (24-29°C).

Dipping the wax trees into a suitable debubbler pattern wash solution, or using a spray-on type debubbler will greatly reduce air bubbles on castings and promote better adhesion of the investment to the wax pattern surface. This procedure should be done approximately 30 minutes prior to investing.

For best results, steps 1-7 below should occur within a time frame of no less than 7.5 minutes and no more than 9 minutes.

1. Using deionized water, add the investment powder to the water.
2. Using a spatula, mix by hand until the powder is thoroughly wetted (about 30 seconds).
3. Using a mechanical mixer, mix on low speed for one minute, then on medium for an additional two minutes.
4. Place investment mixing bowl under a bell jar with a vacuum table pump down capacity of 29 inches of mercury.
5. Vacuum the investment slurry in mixing bowl until it rises, the bubbles break and it begins to boil vigorously. Continue to vacuum for one minute.
6. Pour the investment down along the inside of the flask allowing it to flow up, around and over the patterns leaving a minimum of 3/8 inch space at the sides and 1/2 inch at the top and bottom.
7. Place flask under the bell jar and vacuum for 1½ to 2 minutes.

As with all gypsum bonded investment, keep all mixing equipment clean when processing.

NOTE: Small amounts of set investment from previous mixes may accelerate the set time of the mix, thus shortening the available working time.

8. Top off the flask with investment if needed and allow to sit undisturbed for a minimum of 1½ to 2 hours.
9. Remove sprue base.
10. Load into burnout oven sprue end down.
11. Follow general burnout cycle.

BURNOUT PROCEDURE

Follow the burnout cycle best suited for the size flask indicated on the burnout cycle chart.

For best results do not overload oven.

BURNOUT CYCLES

6 HR. Cycle 2 1/2" x 2 1/2" Flasks

2 HR. @ 300°F
2 HR. @ 149°C

1 HR. @ 700°F
1 HR. @ 371°C

2 HR. @ 1350°F
2 HR. @ 732°C

1 Hr. Heat Soak
At Mold Casting
Temperature

8 HR. Cycle 3 1/2" x 4" Flasks

2 HR. @ 300°F
2 HR. @ 149°C

2 HR. @ 700°F
2 HR. @ 371°C

3 HR. @ 1350°F
3 HR. @ 732°C

1 Hr. Heat Soak
At Mold Casting
Temperature

12 HR. Cycle 4" x 8" Flasks

2 HR. @ 300°F
2 HR. @ 149°C

2 HR. @ 600°F
2 HR. @ 315°C

2 HR. @ 900°F
2 HR. @ 482°C

4 HR. @ 1350°F
4 HR. @ 732°F

2 Hr. Heat Soak At
Mold Casting

Temperature

After the metal is cast and solidified, the investment may be removed by plunging the hot flask into room temperature water or with a de-flasking machine using a hydraulic cylinder to push out the investment core.

WARNING!

Contains respirable crystalline silica (RCS). Do not breathe dust. May cause delayed lung injury (silicosis, pneumoconiosis). The I.A.R.C. (International Agency for Research on Cancer) reports (IARC Monograph 68) there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the forms of quartz or cristobalite from occupational sources. The NTP (National Toxicology Program) reports (Ninth Annual Report on Carcinogens) that RCS is known to be a carcinogen based on sufficient evidence from studies in humans indicating a causal relationship between exposure to RCS and increased lung cancer rates in workers exposed to crystalline silica dust. Follow OSHA Safety and Health Standards for crystalline silica. See Material Safety Data Sheet (MSDS) for detailed information.