# SuperVest RF

**Fine Grain, Carbon Free, Phosphate Bonded Investment**

## Technique Instructions

### Powder to Liquid Ratio

SuperVest RF is suitable for both ring and ringless casting systems. This investment is specifically designed for all types of metal alloys and therefore dilution is required. Depending on the alloy you use, you should dilute the special liquid by following the recommended ratio.

Non-Precious Alloys
60 gm Powder----------13.0 cc of special liquid + 3.0 cc of water
90 gm Powder----------17.0 cc of special liquid + 6.0 cc of water
100 gm Powder----------18.0 cc of special liquid + 7.0 cc of water

Semi-Precious and precious alloys
60 gm Powder----------11.0 cc of special liquid + 5.0 cc of water
90 gram Powder----------15.0 cc of special liquid + 8.0 cc of water
100 gm Powder----------16.0 cc of special liquid + 9.0 cc of water

**To increase expansion, use more special liquid and less water. To get less expansion, use less special liquid and more water. Keep the total volume of the solution constant.**

### Mixing and Investing

For best results, liquid and powder should be between 70-78°F. Incorporate the powder into the liquid and hand spatulate for 10 seconds. **Mix under vacuum for 90 second (120 second for amounts larger than 100gm).** Hold in a vacuum for 10 seconds. Pour slowly into the ring until the investment covers the wax pattern. Continue to fill the ring without vibration until full.

### Burnout

A. Rapid Burnout
Allow the ring to bench set for **20 – 25** minutes depending on the size of the ring. After the bench set time, **place the ring in the burnout furnace at 1650°F (900°C) for 40–60 minutes** depending on the number of rings.

**After the burn out period, when you cast**, follow the temperatures as follows:
Non-Precious Alloy should remain constant at **1650°F (900°C)**
Semi-Precious Alloy burnout temperature should be lowered to **1550°F (843°C)**
Precious Alloy burnout temperature should be lowered to **1500°F (816°C)**

B. Normal Burnout

Bench set for **40 – 60 minutes** for normal burnout. Place the ring in a cold furnace and raise temperature slowly to desired burnout temperature.

| | |
|---|---|
| Non-Precious Alloy | 871 - 900°C (1600 - 1650°F) |
| Semi-Precious Alloy and Precious Alloys | 816 - 843°C (1500 - 1550°F) |

Hold this temperature for at least **one hour** before casting

**Physical Properties**

Working Time.....7 – 9 minutes
Setting Expansion.....1.0%
Thermal Expansion.....1.3%

SuperVest RF contains free silica. Avoid breathing dust.

# MATECH INVESTMENTS
# TROUBLE SHOOTING HINTS

| PROBLEM | SOLUTION |
|---|---|
| 1) Roughness, Bee Bees on the surface of the castings. (Occurs most often in rapid firing) | 1) Increase the burnout time or temperature.<br>2) Do not overheat the alloy.<br>3) Increase the vacuum time before and after mix.<br>4) Plastic wax is difficult to burnout. Use all wax sprues if possible.<br>5) The investment should be mixed for 120 seconds to ensure a smooth thorough mix of particles. The ring must bench set for 25 minutes. |
| 2) Over extension and warping of bridges | 1) Mix the investment for 120 seconds. Invest the individual copings with the desired ratio for coping fits using a vibrator. Then add 2cc of water for each 100gr. of investment to the mix and hand mix. Finally pour the mix around the pattern for casting. This changes the expansion for the bridge and not the copings. |
| 3) Cracking and Fins | 1) Check bench set time and handling of the ring.<br>2) Do not allow the ring to dry out if placing into a hot oven.<br>3) Temperature rise for burnout is too severe, reduce rate of climb.<br>4) Avoid placing too many copings in a single plane.<br>5) Space copings 4 to 5 mm from mold wall and end. |
| 4) Short Margins and Incomplete Castings | 1) Increase Burnout temperature or time.<br>2) Make sure the metal was properly melted.<br>3) Increase casting pressure – increase number of turns. |
| 5) Inconsistent fits | 1) Check liquid ratios and mixing time.<br>2) Check the spruing for proper metal cooling.<br>3) Check length of time and proper heat in burnout |
| 6) Porosity | 1) Proper melting of the alloy – no overheating and/or adjust proper gas mixture.<br>2) Check spruing system.<br>3) Increase burnout temperature or time. |
| 7) Not enough working time (summer time) | 1) Chill the special liquid in the refrigerator. |
| 8) Setting time is too long (winter time) | 1) Immerse the bottle of special liquid in warm water.<br>2) Rinse mixing bowl with warm water. |