Vest-All ™ Plus

A new generation of universal investment

Technique Instructions for Alloys

Powder to Liquid Ratio

	100 gm	60 gm
	Liquid + Water (ml)	Liquid + Water (ml)
Pressable ceramic crown/veneer	19 + 6	
Pressable ceramic inlay	12 + 13	
Semi-precious/Precious alloy	19 + 6	11.5 + 3.5
Non-precious alloy	21 + 4	12.5 + 2.5

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 72 – 75°F (22 - 24°C).** Incorporate the powder into the liquid and hand spatulate for 10 seconds. **Mix under vacuum for 90 seconds (120 seconds for amounts larger than 100 gm).** Hold in a vacuum for 10 seconds. Pour slowly into the mold until Vest-All Plus covers the wax pattern. Continue to fill the mold with vibration until full.

Burnout

A. Rapid Burnout

The suggested bench set time at 72°F (22°C) is 20 minutes. Scrape the top of the mold, then you can choose one of the following techniques for burnout based on your preference:

a. Place the mold into the furnace at 1600°F (871°C) for 45-60 minutes for alloys or 1565°F (852°C) for pressable ceramic, burnout for 45 – 60 minutes, depending on the number of molds. After the burnout period, cast your alloy at the temperature according to your alloy manufacturer's recommendation or begin the pressing cycle.

b. Place the mold into the furnace at 1000°F (538°C) for 10 minutes then transfer the mold to another furnace at 1600°F (871°C) for alloys or 1565°F (852°C) for pressable ceramic, burnout for 45 minutes, then cast or begin the pressing cycle.

Bench set time of the mold is not critical, but you have to put it into the preheated furnace when the mold is still warm. For an invested mold that has bench set over a 24-hour period, soak in water for 3-5 minutes and then follow the rapid burnout procedure.

B. Normal Burnout

Bench set for **20 minutes**. Place the mold in a cold furnace and raise temperature slowly to desired burnout temperatures:

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

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

MATECH INVESTMENTS
TROUBLE SHOOTING HINTS

PROBLEM	SOLUTION
1) Roughness, Bee Bees on the surface of the castings. (Occurs most often in rapid firing)	1) If the ambient temperature is below 70°F (21°C), warm the special liquid, water, bowl, and powder. 2) Increase the burnout time or temperature. 3) Do not overheat the alloy. 4) Increase the vacuum time before and after mix. 5) Plastic wax is difficult to burnout. Use all wax sprues if possible.
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 mold. Bench set for an additional 3 to 5 minutes. 2) Temperature rise for burnout is too severe. Use two stage burnout or reduce the rate of climb. 3) Do not allow the ring to dry out if placing into the hot furnace. 4) Avoid placing too many copings in a single plane. 5) Space copings 4 to 5 mm from mold wall and end.
4) Short Margins and Incomplete Castings	1) Increase Burnout temperature or time. 2) Make sure the metal was properly melted. 3) Increase casting pressure – increase number of turns.
5) Inconsistent fits	1) Check liquid ratios and mixing time. 2) Check the spruing for proper metal cooling. 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. 2) Check spruing system. 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. 2) Rinse mixing bowl with warm water.