DENTSPLY

AUSTENAL®
Vitallium® 2000
Investment System

DIRECTIONS FOR USE

Introduction:

Vitallium® 2000 Investment System, with a 2000° F burnout temperature, is designed for Vitallium 2000 Alloys. The investment is a high-grade silica product formulated to provide consistent and uniform expansion for producing accurate fitting cast partial frameworks. Vitallium 2000 Investment System has a two-component liquid system utilizing a concentrated Liquid "B" to be added to the Liquid "A" for ease of mixing.

Storage Conditions

Vitallium 2000 Investment: Keep container closed when not in use. Store in a cool dry area.

Instructions for Mixing Investment Liquid

Prepare only the amount of liquid which can be used within three days. To make 4 liters of Vitallium® 2000 Investment Liquid, pour the complete contents of Vitallium® 2000 Liquid "B" (ReOrder# N022610) into the bottle of Vitallium® 2000 Liquid "A" Binder (ReOrder# N022605). These components have been packaged in quantities to achieve the proper ratio.

If less than 4 liters of liquid is desired, mix one part of Vitallium 2000 Liquid "B" with seven parts of Vitallium 2000 Liquid "A" in a separate plastic or glass container with a cap.

Vigorously mix Liquid "A" and Liquid "B" for at least ten minutes to assure proper mixing. (Loosen cap to release any pressure which may develop due to the slight increase in the temperature of the solution). The solution will appear clear (not cloudy) when properly mixed. A magnetic stir is recommended.

Seal the container and allow the mixed solution to age for 3 hours in a refrigerator at 40°F before use.

NOTE: Mixed liquid should be used within three days. Discard any liquid more than three days old, observing local codes.

Model Duplication

1. Duplicate the surveyed and relieved master model using Perflex® Duplicating Material (ReOrder# N021055). Follow the label instructions for proper melt-down, dispensing and chilling procedures.
2. For optimal surface smoothness on the refractory model, use All Purpose Protective Coat (ReOrder# N025925). Shake or mix well before using. Pour a quantity of Protective Coat into the cavity of the Perflex mold and rotate the mold to uniformly coat all surfaces. Invert the mold and shake or vibrate out any excess to prevent puddling. Allow Protective Coat to dry to an egg shell appearance (for 8-10 minutes) before pouring the refractory model. For additional information, consult the instruction pamphlet which accompanies the Protective Coat.
3. Vitallium 2000 Investment/Liquid ratio for refractory models–
   For one Refractory Model:
   300g of Vitallium 2000 Investment and 60cc prepared Vitallium 2000 Investment Liquid.

   Mix enough investment for no

more than four models at one time.

Using a clean bowl, thoroughly mix Vitallium 2000 Investment Powder and Vitallium 2000 Investment Liquid. Pour the mixture into the Perflex mold, being careful not to entrap air bubbles. Transfer case to a vibrating table to allow the mold to vibrate until the Vitallium 2000 Investment is set (approximately 15-20 minutes). Remove the case from the vibrating table and allow it to bench set for an additional 30 minutes.

4. Remove the refractory model gently from the Perflex mold and trim it on a model trimmer. After trimming, the base of the model should be at least a ½ inch thick and the perimeter of the model should be tapered toward the base and be free of any sharp corners.

5. Place the refractory model in a cold oven and heat it to 450˚F (232˚C) and soak for 45 minutes. Then, submerge the refractory model for 8-10 seconds in Refractory Model Dip (ReOrder# N010540) that has been heated to a temperature of 325˚F (163˚C). Remove the refractory model and place on a wire rack to allow the excess model dip to drain off. Allow the refractory model to cool to room temperature.

   NOTE: Refractory Model Dip should be melted under a fume hood.

Wax-Up and Spruing

1. Wax-up case on refractory model using Flexseal® Patterns.

2. Attach sprues using conventional wax-up techniques.

Investing

1. Wax the prepared refractory model to a base using Amber Wax (ReOrder# N015740).

2. Prepare case for investing by applying a coat of All Purpose Protective Coat according to directions.

3. Prepare an investing ring which will allow at least ½ inch clearance around and above the refractory model. (Preformed Foil Lined Investment Rings ReOrder# N123902 and N123903 are recommended to be used with Bottom N125104.) The ring should extend at least 1 ½ inches above the highest point of the model to allow for the proper tapping and setting of the investment.

   Do not use solid metal rings.

4. Vitallium 2000 Investment/Liquid ratio for backing up investment mixture:
   For one ring: 600g Vitallium 2000 Investment and 120cc prepared Vitallium 2000 Investment Liquid.

   Mix enough investment for no more than two rings.

   Mix investment and liquid thoroughly and pour the mixture, carefully filling the ring. Transfer the case to a vibrating table and allow the mold to vibrate until set (approximately 15-20 minutes). After the Vitallium 2000 Investment has set, remove it from the vibrating table and allow it to

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set an additional 30 minutes.

5. Grind down the excess Vitallium 2000 Investment from the top of the case (rings) using a model trimmer. Leave at least ½ inch of Vitallium 2000 Investment above the highest point of the refractory model, and allow it to set an additional one hour before burnout.

Burnout and Casting

1. Place the rings in a cool furnace and heat to 1200˚F (649˚C) and hold for 30 minutes.
2. Increase the furnace temperature to 2000˚F (1093˚C) and soak for one hour.
3. Remove rings from furnace and cast using V-2000 or V-2000 Plus alloy. Follow casting instructions provided for the alloy.
4. Allow cases to bench cool prior to divesting. DO NOT WATER QUENCH.

Physical Properties

Setting Time: . . . . . 30 minutes
Compressive Strength: . . . . . 2.3 MPa
Linear Thermal Expansion
at 2000˚F 1.50%

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 (I.A.R.C. 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 Heath Standards for crystalline silica. See Material Safety Data Sheet (MSDS) for detailed information.

NPCAHMIS CODE		NOTE
Health	0*	Prolonged unprotected overexposure may result in nonreversible silicosis. Sufficient evidence shows crystalline silica causes cancer in humans.
Flammability	0	Non-flammable
Reactivity	0	Non-reactive
Personal Protection	X	Use NIOSH/MSHA/ OSHA approved respirator.



See Material Safety Data Sheet (MSDS) for Detailed Information.
*Chronic health hazard.

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