

**Bellavest® SH** Shock-heat, graphite-free, phosphate-bound precision casting investment material, recommended for all ceramic/crown & bridge alloys and pressable ceramics.

## Working instructions

### Safety instructions

#### 1. Do not breathe in investment material dust!

This dust contains quartz. Long-term effects include the risk of silicosis.

- Cut open portioned bags with scissors and avoid generation of dust when weighing and filling the material into the mixing bowl. Wash out empty bags with water before crumpling them up.
- Always remove dust at place of work with a **moist** cloth.
- To avoid dust when deflasking, place the completely cooled-off mould in water briefly before deinvesting.
- When blasting, use extraction system with fine dust filter.

2. The mixing liquid BegoSol® HE contains small amounts of formaldehyde. Fine dust is created during drying.

- Seal bottle securely after use.
- Always use a **moist** cloth to remove dried BegoSol® HE.

3. Ammonia escapes during preheating. Vent furnace gases outdoors!

### Important instructions:

- Observe shelf life date on both powder and liquid!
- Do not place Bellavest® SH in contact with gypsum-bound investment materials.
- Mix Bellavest® SH under vacuum.

### Every dental technician knows it:

The storage and processing temperatures for investment material and mixing liquid play a significant role for setting expansion and thus for the fitting accuracy and surface finish of the casting.

The ideal processing temperature for BEGO investment material is **20°C or 70°F**. To keep it consistent while the ambient temperature fluctuates, use a temperature controlled cabinet if necessary. At high ambient temperatures also place the mixing bowl and BegoSol® HE in a temperature controlled cabinet.

## 1. Preparation for investment

1.1 Plastic copings (e.g. Pattern Resin or Palavit G) must be thinly coated with wax.

1.2 Wax the copings with the sprues to the BEGO base mould former. Coat wax-up thinly with Aurofilm wetting agent and blow-dry.

1.3 Investing with metal casting rings:

- Use **one** layer of ring liner for 1¼", 1½", and 2" metal rings and **two** for 2½" metal rings and for all non-precious-metal alloys. Seal ring liner with Vaseline®.

1.4 Bellavest® SH can be used with the ringless system. A coating of Vaseline® should be applied to the walls and base to aid in removal of investment and allow for maximum expansion.

## 2. Processing

2.1 Only use BegoSol® HE and distilled water for the mixing liquid. See Table 1 for the concentration of the mixing liquid.

- BegoSol® HE is not freeze stable!
- Wash the mixing bowl and wipe out surplus water prior to mixing. Dirty or dry mixing bowls draw moisture out of the investment material!

**Table 1: BegoSol® HE concentration (Recommended)**

	BegoSol HE	Distilled Water
<b>High Noble</b>	50%	50%
<b>Semi-Precious</b> <small>(e.g. C&amp;B ceramic 52% Au/Pd)</small>	70%	30%
<b>Non-Precious</b>	90%	10%
<b>Pressable Ceramics</b>		
<b>Full Crowns</b>	100%	0%
<b>Inlays, Onlays and Veneers</b>	90%	10%

**Table of quantities for 100 gram bags**

	50%	60%	70%	80%	90%	100%
1 bag (100g:26ml)	13 + 13	16 + 10	18 + 8	21 + 5	23 + 3	26
2 bags (200g:52ml)	26 + 26	32 + 20	36 + 16	42 + 10	46 + 6	52
3 bags (300g:78ml)	39 + 39	48 + 30	54 + 24	63 + 15	69 + 9	78

**Table of quantities for 160 gram bags**

	50%	60%	70%	80%	90%	100%
1 bag (160g:40ml)	20 + 20	24 + 16	28 + 12	32 + 8	36 + 4	40
2 bags (320g:80ml)	40 + 40	48 + 32	56 + 24	64 + 16	72 + 8	80
3 bags (480g:120ml)	60 + 60	72 + 48	84 + 36	96 + 24	108 + 12	120

## 2.2 Mixing ratio

Bellavest® SH	Mixing liquid
100 g	26 ml
160 g	40 ml

Ring Size	Number of bags/Total liquid	
	100g bags	160g bags
1¼", 1½"	1 / 26 ml	-
2"	2 / 52 ml	1 / 40 ml
2½"	4 / 104 ml	2 / 80 ml

2.3 Working time: approx. 5 minutes at 20°C or 70°F. At higher room temperatures the working time will be reduced.

2.4 Mix Bellavest® SH and the mixing liquid

- With a spatula for 15 seconds until the investment is uniformly moist and has no lumps.
- Then mix in the Motova vacuum mixing unit for 60 seconds under vacuum

2.5 Fill casting ring on the vibrator with mixed Bellavest® SH at the lowest vibration level. **Do not vibrate any more after filling!**

## 2.6 Bench Setting Times

Rapid firing:

with metal casting ring **15-20 minutes**  
with ringless less than 2" **30 minutes**  
2" or larger **35 minutes**

**(Remove plastic ring after 15 minutes and set aside for remaining time)**

Conventional firing: 60 minutes

### 3. Rapid firing

All ringless and metal casting rings with sizes 1¼" to 2 ½" of Bellavest® SH can be heated up rapidly.

3.1 Place the casting ring with the funnel former facing down and without direct contact to the bottom or the walls in the furnace (*use distance holder or ceramic plate*).

3.2 Comply with bench setting time. Place the rings in a preheated furnace which has been set at 900°C or 1650°F.

3.3 Final temperatures: see Section 5. **Holding time** after final temperature is reached:

Mould size 1¼", 1½": 30 min.  
2" or larger: 45 min.

*Add 10 minutes of hold time for each additional ring*

### 4. Conventional burnout

After a setting time of 60 minutes all casting ring sizes must be preheated as follows:

#### Furnaces with conventional furnace control:

Place casting rings in cold furnace or in one that is preheated to 250°C or 500°F. Maintain at 250°C or 500°F for 30-60 minutes. Then heat up to final temperature and maintain at this temperature for 30-60 minutes (*add 10 additional minutes for each additional ring*).

#### Furnaces with computer control:

Place casting rings in cold furnace. Heat up to 250°C or 500°F at a rate of 5°C or 9°F/min. and maintain for 30-60 minutes. Then heat up to final temperature at a rate of 7°C or 12°F/min. and maintain at this temperature for 30-60 minutes (*add 10 additional minutes for each additional ring*).

### 5. Final temperatures

Rapid heating: After the casting ring has been inserted at a temperature of 900°C or 1650°F, the furnace should be adjusted to the final temperature.

Precious metal 700-750°C  
1295-1385°F

Precious metal-to-ceramic alloys  
800-850°C  
1475-1565°F

Non-precious metal alloys 900°C  
1650°F

### Pressable Ceramics

Follow pellet manufacturers recommendations

### 6. Cooling after casting

After casting, allow rings to cool down on metal grid until warm to the touch, but **do not place in water!**

### 7. Blasting the investment material

7.1 Dry blasting units use:

Precious metal alloys:

Korox® aluminum oxide 110µm.

Non-precious metal alloys:

Korox® aluminum oxide 250µm.

### Bellavest® SH data

	50% BegoSol® HE	80% BegoSol® HE
Working time at 20°C or 70°F	approx. 5 min.	approx. 4.5 min.
Total expansion in the mould ring	1.7%	2.2%
Shelf Life	2 years	

### Characteristic material values in accordance with DIN 13919, Part 2:

	50% BegoSol® HE	80% BegoSol® HE
Setting time	9 min.	8 min.
Compressive strength (2 hrs) N/mm <sup>2</sup>	4.2 N/mm <sup>2</sup>	5.1
Linear setting Expansion (measured in extensometer)	1.2%	2.5%
Linear thermal Expansion	0.8%	0.9%

### Availability

1 carton:

80 x 160g bags w/ 2 liters

BegoSol HE liquid Order # 54252

80 x 160g bags powder only Order # 54253

100 x 100g bags w/ 2 liters

BegoSol® HE liquid Order # 54804

100 x 100g bags powder only Order # 54807

BegoSol® HE mixing liquid:

1 liter

Order # 51095

5 liter

Order # 51096

**CE seal of approval.** In accordance with EC Directive 93/42 EEC for medical products, we have classified this product as an accessory for medical products in Class I. Through the CE seal of approval we confirm that the requirements of the EC Directive have been met.

#### Warranty

Whether given verbally, in writing or by practical instruction, our recommendations for use are based upon our own experience and trials and can only be considered as standard values.

Our products are subject to a constant further development. Therefore, alterations in construction and composition are reserved.

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