

# Safety instructions and general instructions for BEGO investment materials

BEGO is an official co-partner of the German Olympic teams for **Salt Lake City in 2002** and **Athens in 2004**



## Safety instructions

- Investment materials contain quartz. **Do not inhale dust!** Risk of damage to lungs (silicosis, lung cancer).  
Recommendation: Use gas mask type FFP 2 – EN 149:2001. Cut open bag with scissors and avoid generation of dust when filling into mixing bowl. Rinse out empty bag with water before crumpling up. Remove dust at workplace only when **moist**. To avoid dust during deflasking, place the mould in water after it has completely cooled down after casting until it is thoroughly moistened. Use suction extraction system with fine dust filter when blasting.
- Remove dried-up mixing liquid only when **moist** (fine dust). Seal bottle securely after use.
- Suction-extract escaping furnace gases during preheating and discharge outdoors!
- Only with shock heat investment materials: **Risk of injury during shock heating!** Place all moulds in the furnace within 10 seconds – then keep the furnace door closed for 15 minutes!

## General instructions

- The ideal processing temperature for BEGO investment materials is **20 °C**. To keep it constant at a higher ambient temperature, use a temperature control cabinet if necessary. At a high ambient temperature also place the mixing bowl and mixing bowl in the temperature control cabinet.
- Observe shelf life dates of investment material and mixing liquid! Do not use without checking after the specified date. Do not bring phosphate-bonded investment material into contact with plaster or investment material containing plaster.
- Do not use crystallized mixing liquid any longer. The higher the concentration of mixing liquid, the greater the expansion. **A practical tip: Keep spare bottles!** Fill BegoSol® bottle up to desired % mark with BegoSol® and top up to 100 % with distilled water. Label this spare bottle with % data. Advantage: The mixing liquid is available with the desired concentration and can be measured in one operation.
- Data on the concentration of the mixing liquid are based on our own experience and tests and are regarded as reference values. Work results may be influenced by such parameters as temperature, mixing intensity, investment system, etc.

Application-related recommendations made by us, whether given verbally, in writing or by way of practical instructions, are based on our own experience and tests and may therefore be regarded only as general guidelines.

Our products are subject to continuous development. We therefore reserve the right to change the design and composition of our products.

# Consignes de sécurité et observations pour les matériaux de revêtement BEGO

BEGO est l'un des partenaires officiels de l'équipe d'Allemagne pour les prochains jeux Olympiques de **Salt Lake City 2002** et d'**Athènes 2004**



## Consignes de sécurité

- Les matériaux de revêtement contiennent du quartz. **Ne pas inhaler la poussière!** Danger pour les poumons (silicose, cancer des poumons).  
Conseils: porter un masque de protection de type FFP 2 – EN 149:2001. Ouvrir les sachets avec une paire de ciseaux et éviter toute formation de poussière lors du remplissage des bols de mélange. Rincer les sachets vides sous l'eau avant de les froisser.
  - Ne retirer la poussière sur le poste de travail qu'après l'avoir **mouillée**.
  - Afin d'éviter la poussière lors du démoulage, immerger dans l'eau les cylindres entièrement refroidis après la coulée jusqu'à ce qu'ils soient humidifiés.
  - Sabler sous aspiration et avec un filtre contre les poussières fines.
- Ne retirer le liquide de mélange sec sur le poste de travail qu'après l'avoir **mouillé** (poussière fine). Bien refermer les flacons après usage.
- Lors du préchauffage, aspirer les gaz dégagés par le four et les évacuer à l'air libre!
- Uniquement pour les matériaux de revêtement Shock heat: **risque d'accident lors de l'enfournement rapide!** Enfournement tous les cylindres dans les 10 secondes – maintenir la porte du four fermée pendant 15 minutes!

## Observations

- La température idéale de mise en oeuvre pour les matériaux de revêtement BEGO est de **20 °C**. Pour en conserver la stabilité en cas de température ambiante plus élevée, se servir éventuellement d'une armoire de réfrigération. Dans ce cas, en faire autant pour les bols et le liquide de mélange.
- Respecter les dates de péremption du matériau et du liquide! Après expiration des dates, ne pas utiliser sans contrôle préalable. Les matériaux de revêtement à base de phosphate ne doivent pas être mis au contact du plâtre ou de matériaux de revêtement à base de plâtre.
- Ne plus utiliser le liquide de mélange s'il est cristallisé. Plus le liquide de mélange est concentré, plus l'expansion est élevée! **Conseil pratique: préparer des flacons à l'avance!** Remplir le flacon de BegoSol® (1000 ml) de liquide jusqu'au repère de concentration désiré et finir le remplissage avec de l'eau distillée. Marquer le taux de concentration sur le flacon de réserve. Avantage: vous disposez d'un litre de liquide à la bonne concentration.
- Les indications données pour la concentration du liquide reposent sur nos propres expériences et essais et n'ont qu'une valeur indicative. Les résultats peuvent être influencés par des paramètres tels que la température, un mélange plus ou moins soigné, le système de mise en revêtement et autres.

Nos conseils techniques, qu'ils soient donnés verbalement, par écrit ou au cours de démonstrations pratiques, reposent sur l'état actuel de nos propres connaissances et essais cliniques. Ils n'ont donc qu'une valeur indicative. Nous faisons constamment évoluer nos produits, en fonction des dernières connaissances scientifiques. Nous nous réservons donc le droit d'en modifier la conception, le design, l'aspect et la composition.

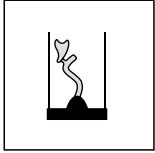
Shock-heat or conventionally heatable, phosphate-bound precision casting investment material, applicable for all crown and bridge alloys and for pressed ceramics

**Safety instructions**

Please read and follow the instructions in the insert "Safety instructions and general instructions for BEGO investment materials"!

BEGO is an official co-partner of the German Olympic teams for **Turin 2006** and **Peking 2008**

**Preparation**



**Pressed ceramics**

- Fix and set up sprue system for the wax-up according to the processing instructions of the ceramics manufacturer.

**Crown and bridge alloys**

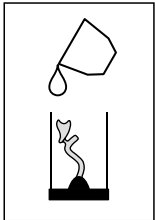
- Wax the spruded copings on the BEGO *base socket mould former* so that the distance to the mould edge and top surface is at least 5 mm (1/4"). Apply a thin coat of *Aurofilm* wetting agent and blow completely dry.

- Plastic copings (e.g. Pattern Resin or Palavit G) must be thinly coated with wax.
- Use BEGO *fleecy inlay strips*:  
**1 strip** for metal mould rings in sizes 1 + 3,  
**2 strips** on top of each other for sizes 6 + 9 as well as for all non-precious alloys.

Handling:

The strips must be approx. 1/2 cm longer than the circumference of the mould ring. Moisten strips slightly. Press strips in mould ring such that they overlap and are flush with the **top** edge of the mould ring. Slip over the wax-up and press the **lower** edge of the mould ring into the base socket mould former.

**Investment**



- Liquid: BegoSol® HE (**Frost-sensitive!** Storage and transport temperature: +5 °C to +35 °C/10 °F to 95 °F)
- Before mixing, rinse out the clean mixing bowl with water and wipe off. Mixing bowls that are not clean or are dry withdraw moisture from the investment material!
- First put in liquid and add powder. Mix thoroughly with a spatula for **30 seconds**. After that mix for **60 seconds** in a mixing unit, such as *EasyMix*, under a vacuum at 350 rpm. Keep under vacuum for additional **30 seconds** without stirring. (Mixing without mixing unit: 2 minutes on the vibrator.)
- Time available for processing: approx. 5 minutes (20 °C/70 °F, 50 % liquid). At higher room temperatures the working time will be reduced!
- Fill crowns carefully with a fine instrument. Fill the mould ring on the vibrator at the lowest vibration level. **Do not vibrate any more after filling!**
- If heating is to be carried out without a ring, remove the ring used for investment as soon as possible after **complete** setting of the investment material (at 20 °C/70 °F after approx. 15 minutes); metal mould rings cannot be removed.
- For shock heating comply with setting time (20–30 minutes) and insertion temperature (900 °C/1,650 °F)!

**Mixing ratio**

100 g Bellavest® SH : 25 ml liquid

| Mould size | Number of bags / liquid |           |            |
|------------|-------------------------|-----------|------------|
|            | 60 g bags               | 90 g bags | 160 g bags |
| 1          | 1/15 ml                 | 1/22,5 ml | –          |
| 3          | 3/45 ml                 | 2/45 ml   | 1/40 ml    |
| 6          | 6/90 ml                 | 4/90 ml   | 2/80 ml    |
| 9          | 9/135 ml                | 6/135 ml  | 3/120 ml   |

**Liquid concentration**

- for pressed ceramics (lay and paint-on technique)

|                                  |         |
|----------------------------------|---------|
| <b>Inlay MO and OD</b>           | 60–70 % |
| <b>Inlay MOD</b>                 | 70–80 % |
| <b>Crowns, trays and bridges</b> | 75–85 % |

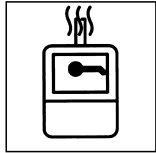
The concentrations are standard values and can be adapted according to the processing conditions and object size. Never dilute to less than 20 %!

- for crown and bridge alloys

| Modelling:  | made of wax without pressure | made of wax with pressure (4 bar) | made of plastic without pressure (e.g. Pattern Resin) | made of plastic with pressure (4 bar) |
|---|------------------------------|-----------------------------------|---|---------------------------------------|
| <b>Inlays and partial crowns</b>  | 35 %                         | 40 %                              | –   | –                                     |
| <b>Crowns, bridges and primary parts in precious metal</b>  | 45 %                         | 50 %                              | –   | –                                     |
| in precious metal-to-ceramic alloys   | 50 %                         | 60 %                              | –   | –                                     |
| <b>Secondary parts in precious metal</b><br>cone, ring telescope, full telescope, individual attachment | –                            | –                                 | 45–75 %   | 50–80 %                               |
| <b>Crowns and bridges in non-precious metal-to-ceramic alloys</b><br>(Co-Cr)<br>(Ni-Cr)                 | 75–85 %<br>70–75 %           | 80–90 %<br>75–80 %                | –<br>–  | –<br>–                                |
| <b>Non-precious double crowns (external parts)</b>  | –                            | –                                 | 90–100 %  | –                                     |

Shock-heat or conventionally heatable, phosphate-bound precision casting investment material, applicable for all crown and bridge alloys and for pressed ceramics

**Preheating**




|   | Shock heating            | Conventional heating   |
|---|--------------------------|--|
| Setting time after investment                         | <b>20 – 30 minutes</b>   | at least 30 minutes  |
| Insertion temperature                                 | <b>900 °C / 1,650 °F</b> | Room temperature (or 250 °C / 500 °F) *                                |
| Holding level   | –                        | 250 °C / 500 °F (with 5 °C/min / 9 °F) **                              |
| Final temperature                                     |                          | (with 7 °C/min / 12 °F) **   |
| Precious metal  | 700 °C / 1,290 °F        | 700 °C / 1,290 °F  |
| Precious metal-to-ceramic alloys                      | 850 °C / 1,560 °F        | 850 °C / 1,560 °F  |
| Non-precious metal                                    | 900 °C / 1,650 °F        | 900 °C / 1,650 °F  |
| Pressed ceramics                                      |                          | maximally 900 °C / 1,650 °F<br>(Follow the manufacturer instructions!) |
| Holding times for holding level and final temperature |                          | 30 – 60 minutes<br>(depending on size and number of moulds)            |

\*/\*\* Only for furnaces with conventional control / with computer control.

**Shock heating**

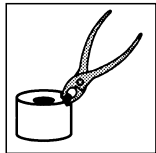
**Only for mould sizes 1 to 6** • Roughen mould bottom slightly after setting • Place moulds upright in the furnace (funnel former facing down) and without direct contact to the heating source (use spacer or ceramic plate) • **Always comply with setting time and insertion temperature!**



**Risk of injury in connection with shock heating!** Place all moulds in the furnace within 10 seconds and then keep the furnace door closed for 15 minutes!

Inserting further moulds leads to temperature decrease and thus to extreme extension of the preheating process.

**After casting**



After casting/pressing allow the moulds to cool down until warm to the touch, **do not quench in water!** Investment materials contains quartz. Do not inhale dust! Danger of lung harms (silicosis, lung cancer). To avoid dust during deflasking, place the moulds in water after they have cooled down completely after casting until they are thoroughly moistened.

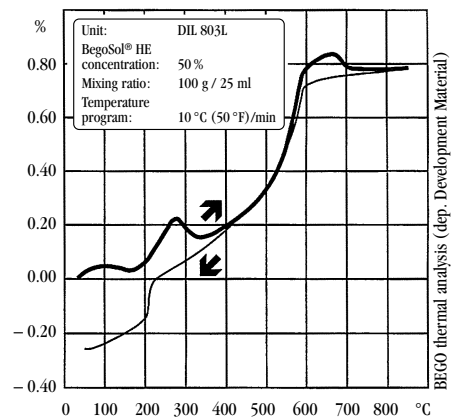
**Data**



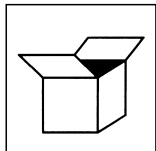
|  | BegoSol® HE      |                 |
|--|------------------|-----------------|
|  | 50 %             | 80 %            |
| Time available for processing at 20 °C / 70 °F                           | approx. 5 min    | approx. 4.5 min |
| Total expansion  | 1.7 %            | 2.2 %           |
| Minimum shelf life   | 2 years          |                 |
| <b>Characteristic material values in accordance with DIN EN ISO 9694</b> |                  |                 |
| Beginning of setting (Vicat time)  | approx. 10.5 min | approx. 10 min  |
| Compressive strength (after 2 hours)                                     | 4.2 MPa          | 5.1 MPa         |
| Linear thermal expansion   | 0.8 %            | 0.9 %           |

This product was made according to the specifications of DIN EN ISO 9694 and meets its requirements in all respects.

**Thermal expansion curve Bellavest® SH**



**Availability and recommendations**



|                           | Carton                     |                               | Carton                       |                                     |       |
|---------------------------|----------------------------|-------------------------------|------------------------------|-------------------------------------|-------|
| <b>Bellavest® SH</b>      | 60 g bags                  | 4.5 kg (75 bags) – 54248      | 12.0 kg (200 bags) – 54249   |                                     |       |
|                           | 90 g bags                  |                               | 12.96 kg (144 bags) – 54257  |                                     |       |
|                           | 160 g bags                 | 4.8 kg (30 bags) – 54247      | 12.8 kg ( 80 bags) – 54252   |                                     |       |
| <b>BegoSol® HE</b>        | 1000 ml (1 bottle) – 51095 |                               | 5000 ml (1 canister) – 51096 |                                     |       |
| <i>EasyMix</i> (230 V)    | 26090                      | <i>BEGO metal mould rings</i> |                              | <i>BEGO fleecy inlay strip</i>      |       |
| <i>Aurofilm</i> (100 ml)  | 52019                      | Size 1 (4 pieces)             | 52419                        | 40 mm (3 x 30 m)                    | 52409 |
| <i>BEGO funnel former</i> |                            | Size 3 (4 pieces)             | 52422                        | 45 mm (3 x 30 m)                    | 52408 |
| Size 3 (4 pieces)         | 52627                      | Size 6 (4 pieces)             | 52423                        | <i>BEGO-Press investment system</i> |       |
| Size 6 (4 pieces)         | 52628                      | Size 9 (4 pieces)             | 52424                        | 100 g                               | 52668 |
| Size 9 (4 pieces)         | 52629                      |                               |                              | 200 g                               | 52669 |

Whether given verbally, in writing or by practical instructions, 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.

For particularly good results we recommend an alloy from the following groups, depending on the indication

**Bio PontoStar®**



since 1890

**Wirobond®**

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