

Instructions for use

VarseoWax CAD/Cast

Resin for the 3D printing of burnout objects.

1. Intended use / Indication

VarseoWax CAD/Cast is a light-curing resin for the 3D printing of burnout frames such as partial dentures, crowns and bridges, inlays, onlays, and veneers. It is restricted to use in dental applications and may only be used by dental staff. 3D-printed objects made of VarseoWax CAD/Cast are manufactured using digital (CAD/CAM) processes. These objects are more stable than objects made of wax. They are burnable without leaving residue, and are very well suited for the casting process for dental restorations.

2. Contraindications

VarseoWax CAD/Cast is exclusively intended for the manufacture of burnout objects. Any deviation from the instructions for use can have a negative effect on the chemical and physical qualities of VarseoWax CAD/Cast. VarseoWax CAD/Cast may not make direct contact with the patient (e.g. fitting in the patient's mouth)! In case of allergic reaction or intolerance occurs, please contact a practitioner / doctor.

3. Safety instructions

VarseoWax CAD/Cast is produced and tested according to the most stringent quality standards. In order to ensure optimum further processing, please read the information contained in the instructions for use carefully. Improper use and failure to observe the information can have a detrimental effect on the quality. Nitrile gloves, goggles and a coat must be worn as a means of protection.

Instructions on how to handle plastic parts made of VarseoWax CAD/Cast

The safety instructions and precautions set down in the VarseoWax CAD/Cast instructions for use and safety data sheet shall apply to the handling of liquid resin and objects that have not been post-cured (objects in the "green condition"). A dust mask must be worn too due to potential dust formation while the printed objects are being processed.

Depending on the furnace temperature, combustion gases that are harmful to health may form while the invested objects are being pre-heated and burnt out. A sufficiently high temperature in the preheating furnace helps the cured plastic to combust completely to carbon dioxide, water and nitrogen oxides.

4. Side effects and precautions

Precautions / Protection

It is essential that protective clothing be worn when handling VarseoWax CAD/Cast. Safety goggles and nitrile gloves must be used. Further information on handling the product can be found in the safety data sheet and also downloaded from the BEGO Download Centre at www.bego.com. However, we cannot completely rule out the possibility of personal reactions to individual components in isolated cases. In such cases, the user should discontinue use of VarseoWax CAD/Cast.



WARNING



WARNING

Contains:
7,9(or 7,9,9)-trime-
thyl-4,13-dioxo-3,14-di-
oxa-5,12-diazahexadecane
1,16-diyl bismethacrylate
(octahydro-4,7-meth-
ano-1H-indenediyl)
bis(methylene) diacrylate;
phenyl bis(2,4,6-trimethyl-
enzyloxy)-phosphine oxide

Information on hazards as per MSDS

- May cause an allergic skin reaction
- Toxic to aquatic life with long lasting effects
- Contains Poly[oxy(methyl-1,2-ethanediy)], .alpha.,.alpha.,.alpha."-1,2,3 propanetriyltris[.omega.-(1-oxo-2-propenyl)oxy]-, Phenol, 4,4'-(1-methylethylidene) bis-, polymer with (chloromethyl)oxirane, 2-propenoate
- May produce an allergic reaction

Safety instructions as per MSDS

- Avoid release to the environment
- Wear protective gloves / protective clothing / eye protection
- IF ON SKIN: Wash with plenty of water
- If skin irritation or rash occurs: Get medical advice / attention
- Collect spillage

5. General information on handling

Delivery

VarseoWax CAD/Cast is supplied in light-tight, sealed bottles.

Filling quantity:

- REF 41136 = 1 kg
- REF 41137 = 250 g

Storage

VarseoWax CAD/Cast must be stored in the original sealed bottle at room temperature (approx. 22 °C) in a dark, dry place. It must be ensured that the temperature does not drop below +5 °C and does not exceed +35 °C! The minimum shelf life date printed on the product must be observed. Perfect processing cannot be guaranteed if materials which have exceeded their minimum shelf life date are used.

6. Other information

In addition, VarseoWax CAD/Cast is especially well-suited for further applications involving burn-out casting material (e.g. jewellery). When used in this manner, the material may only be used by specialist personnel.

7. Processing

The best fit results are obtained by aligning the objects horizontally atop the build platform. The printing settings can be found in the instructions for use for the respective equipment.

Please wear protective gloves (nitrile gloves), protective clothing, goggles and / or face protection during processing!

The ideal working temperature range for VarseoWax CAD/Cast is between 20 and 30 °C. **Before decanting in the clean resin container (cartridge / resin tub), the material must be vigorously shaken for approx. 2 minutes.** When decanting, make sure that the printing resin is exposed to light for as short a period of time as possible.

For further processing – selecting the resin, setting up the print job – as part of the printing process, the instructions for use of the respective 3D printer must be adhered to. Before the start of each printing process, VarseoWax CAD/Cast must be inspected. If a transparent layer is visible on the surface, it must be mixed until homogeneous. Insufficient mixing can lead to deviations in the colour of the printing resin.

In principle, VarseoWax CAD/Cast should be processed on 3D printing systems that use a wavelength of between 385 and 405 nm.

The verified, compatible 3D printing system components (3D printers, cleaning devices and post-curing devices) can be found on our website <https://www.bego.com/3d-printing/compatibility-overview/>

Note: All processing methods listed in the instructions for use serve as examples.

Subsequent processing

Upon completion of printing, the print objects are released from the build platform using the spatula. The print object should be cleaned in two steps with ethanol (96%) using an ultrasonic bath.

Note: Never fill ethanol directly into the ultrasonic bath; place it in the recommended container (REF 19621) in the ultrasonic bath filled with water. Use an explosion-proof ultrasonic bath.

1. Clean the print object for 3 min in a reusable ethanol solution (96%) in an **unheated** ultrasonic bath.
2. Next, fully clean the objects for 2 minutes in an ultrasonic bath, using a fresh ethanol solution (96%).
3. Remove the print object from the ethanol bath and dry with compressed air, using suction if possible.
4. Inspect the objects for resin residue (shiny areas) and remove these by spraying with ethanol (96%).

Tip: Resin residues can also be removed using a brush soaked in ethanol (96%).

The entire cleaning process should not take longer than 5 minutes as this could otherwise have a detrimental effect on the objects.

Finishing

Remove support structure using either a cutting wheel or side cutters. It must be ensured that the printed object is not deformed!

The completely cleaned print objects must be post-cured to attain the required material properties. The final properties of the print object depend on the post-curing process. The final material properties are achieved using light polymerisation units with the following performance data: two xenon stroboscopic lamps, flash frequency 10 Hz, light spectrum 360–700 nm (e.g., BEGO Otoflash) or one xenon stroboscopic lamp, flash frequency 20 Hz, light spectrum 390–540 nm (e.g., HiLite Power, Heraeus Kulzer).

A sample list of compatible light-curing equipment:

Light-curing equipment	BEGO Otoflash	HiLite Power	Note
Flash	2 x 500	–	First post-curing on the model, second post-curing with the fit surface toward the light source.
Time (seconds)	–	2 x 90	

Alternatively, the necessary strength can also be achieved with a unit with the following performance data: four 18 W/71 lamps (Dulux L Blue); and four 18 W/78 lamps (Dulux blue UV-A). The determined time is based on the UVA lamp performance.

Intensity / post-curing conversion table

	Time [min]	Wavelength [nm]	UV-A output [W]	Intensity [W x sec = J]
VarseoWax CAD/Cast	10	315–400	72	43,2 kJ

Conversion for equipment with different UV-A lamp outputs

VarseoWax CAD/Cast	20	315–400	36	
VarseoWax CAD/Cast	30	315–400	24	
VarseoWax CAD/Cast	40	315–400	18	

Note: The times given only apply to regularly maintained equipment that guarantees a corresponding light intensity.

8. Storage and transportation of printed objects

Post-curing is strongly recommended in the case of extended storage and transportation times! The fully cured print objects can be ideally stored at room temperature away from light, and transported in a suitable lightproof transport box!

9. Cleaning and preparing the cast object

Grinding dust can easily be completely removed from fully cured VarseoWax CAD/Cast objects before they are invested for casting purposes by holding them under running water and blowing them off again.

Please prepare the created cast object for casting as per the dental casting technology specifications. Within the context of further processing, please follow the instructions for use and the safety instructions for the investment material used*, as well as the setting recommendations for the mixer, furnace and casting unit used.

10. Disposal

The cured, separated material (base plate, support structure) can no longer be used. Cured material can be disposed of as domestic waste. Unused resin or ethanol used for cleaning with resin residues must be disposed of via the local waste disposal authority or a hazardous waste collection point stating the safety data sheet.

11. Material properties and scope of delivery

Material parameters

Colour	yellow	Flexural strength	≥ 50 MPa
Viscosity	700–1,500 mPa*s	Flexural modulus	≥ 1,500 MPa
Density at 22 °C	1.10 g/cm ³		

Delivery form

	Contents	Presentation	Qty	REF
VarseoWax CAD/Cast	1 kg	bottle	1	41136
VarseoWax CAD/Cast	250 g	bottle	1	41137

12. Label symbols

	Manufacturer		Consult instructions for use
	Date of manufacture		Use-by date
	Batch code		Caution
	Catalogue number		Temperature limit
	Keep away from sunlight		For professional use only

* Partial denture: Investing with VarseoVest P^{plus}. Crown & Bridges: investing with VarseoVest C&B.

VarseoVest P^{plus} and VarseoVest C&B are the phosphate-bonded shock-resistant investment materials that has been specially developed and coordinated to casting 3D-printed objects.



BEGO Bremer Goldschlägerei Wilh. Herbst GmbH & Co. KG
Wilhelm-Herbst-Str. 1 · 28359 Bremen, Germany
Tel. +49 421 20 28-0 · Fax +49 421 20 28-100
E-Mail: info@bego.com · www.bego.com

