PREVESTDenPro®
THE FUTURE OF DENTISTRY

Prevest C&B CERAMIC

3D Printing Resin for Fabrication of
Crown & Bridge

LCD & DLP

PREVEST //3D

Caution: US federal law restricts this product for sale by or on order of a dentist or physician.

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Device Description

Prevest C&B, Ceramic Resin is a light-curing material with ceramic fillers used for the 3D printing/ fabrication of Ceramic Crown & Bridge dental prosthesis, for use in DLP/LCD 3D printers. It is reactive to wavelength of light between 385nm and 405nm. It is stored in 250, 500 and 1000ml HDPE bottles and is available in several Shades: A1 /A2 /A3 /A3.5/B1 /B2 /B3 /C2 /D3 / Bleach /Extra Bleach based on the shade guide.

Material Composition

Prevest C&B Ceramic, Resin is comprised of:

Methacrylates
Photo initiator
Ceramic Fillers
Pigment

Intended Purpose / Intended Use :

Prevest C&B, Ceramic resin is intended for the correction or reconstruction of functionally compromised natural dentition by fabricating customized 3D printed dental prosthesis.

Indications for Use :

It is used for the fabrication of 3D printed crowns & bridges, inlays, onlays and veneers.

Contraindications:

Acrylic Allergies: Patients who have a known allergy to methacrylates should not be prescribed products containing this compound. Acrylic is a common component in dental resins.

Exposure to this material can trigger allergic reactions in sensitive individuals. These reactions can range from mild (such as skin irritation or rash) to severe (such as anaphylaxis).

PPE Recommendations

Recommended personal protective equipment includes:
Gloves
Eye protection
Lab coat
Closed-toe shoes

Tooth Preparation Recommendations
For optimal results, the following preparations are recommended:
Chamfer margins
Shoulder margins

Design Recommendations for Dental Restorations GeneralThickness Guidelines:
Posterior Occlusal and Axial Walls: A minimum thickness of 1.5mm is recommended for all crowns, bridges, onlays and inlays.
Anterior Crowns and Bridges: A minimum buccal wall thickness of 1mm is advised, with the following exceptions:
Veneers: The buccal wall should have a minimum thickness of 0.5mm, and the incisal area should be at least 1mm thick.
Clinical Contraindications for Prevest C&B, Ceramic resin:
Cantilever or Maryland bridges are not suitable.
Bridges including rests or Precision attachments should be avoided.

Patients diagnosed with bruxism are not recommended candidates for these restorations.
The design of the restoration should be performed using recommended software like Chairside CAD (FDA product code : NOF, System, Optical Impression, Computer Assisted Design And Manufacturing (Cad/Cam) Of Dental Restorations, GUDID 04260521363015) a software device intended to support the design of dental restorations such as inlays, onlays, crowns, copings, veneers, bridges, pontics, provisionals, and bite splints via a 3D CAD tool.

Validated 3D Printer Settings
Please click on link below for validated 3d Printers and setting

https://Prevest3d.com/Prevest-ceramic-printer-specs/

Nesting Tips
Orientation: When 3D printing dental restorations such as crowns and bridges, it is recommended to position them with the occlusal side (the surface of the teeth used for chewing) facing the build plate. This orientation is suggested for achieving the best accuracy, especially for supporting the occlusal and incisal (biting edge) surfaces. 0 0 Inclination is recommended for best results. It is better to place the printed parts in the centre of build plate.
However, there is statistically significant difference in accuracy based on placement region when the validated printers are used.
Support Placement: Supports are necessary structures in many 3D printing applications to stabilize the print. However, for dental restorations, it is advised to avoid placing supports in the intaglio (the inner surface of the restoration that fits over the tooth) or on the margins (edges) of the restorations. Placing supports in these areas can affect the fit and integrity of the final product.
Support Height: A minimum support height of 2mm is recommended. This height is likely chosen to provide enough stability to the structure during printing while still allowing for relatively easy removal after the print is completed. A height less than 2mm might not provide sufficient support, leading to breakage or deformation when removing the restoration from the build platform.
Following these nesting tips can help ensure that dental restorations are printed with optimal accuracy and structural integrity, minimizing the risk of breakage during the post-processing steps.
Note: Please refer to OEM labelling for use of adequate nesting/slicing platform.

Mixing Recommendations
Importance of Mixing: Since 3D printing resins contain chemicals of varying densities, thorough mixing is crucial. This ensures a homogeneous mixture, which is essential for consistent printing quality.

Mixing Resin in the Vat: For resin that's already in the printer's vat:
• Use a silicon blade to gently mix the resin, particularly aiming to re-suspend any settled ceramic particles at the bottom of the tank.
• If a previous print has failed, strain the resin using a 50-micron mesh strainer to remove any debris. Metal strainers should be avoided as they can cause oxidation and alter the resin's color.

PREPARING RESIN FROM THE BOTTLE
• Before using resin from a new bottle or one that has been sitting for a while, stir the bottom of the bottle thoroughly with a plastic spatula for several minutes.
• Alternatively, place the bottle on an automated roller for 30 minutes to ensure even mixing.
• If the resin has been stored for more than a month, roll the bottle for 1 hour. This helps reintegrate any ceramic fillers back into suspension, ensuring consistency in the printed object.
Caution with Aluminum Build Plates: Some 3D printers have aluminum build plates that can oxidize when in contact with uncured resin. This oxidation can change the color of the resin if it's reintroduced back into the vat or original bottle. Hence, it's important to be cautious when dealing with such build plates to avoid color alterations in the printed restorations.
By following these mixing recommendations, users can maintain the integrity of the resin, leading to higher quality and more reliable dental restorations.

Post-Processing Instructions
Maximizing the quality and longevity of 3D printed dental restorations necessitates strict adherence to the post-processing instructions. Below are the key steps to be followed:
REMOVAL FROM PRINTER
Post-Printing Removal: Employ low-pressure air to dispel any uncured resin from the

model and build plate.
Aluminum Build Plate Caution: Gently detach the build platform from the 3D printer.
Restoration Removal: Utilize a metal spatula, maintaining a perpendicular angle to the build plate, to carefully pry off the printed restoration. This technique is particularly crucial for bridges.

REMOVING EXCESS RESIN
Resin Removal: Employ low-pressure air to dispel any uncured resin from the model and build plate.
Aluminum Build Plate Caution: Refrain from reusing resin if it has come into contact with an aluminum build plate due to potential contamination with grey metal oxide.
Spatula Guidance: Glide a metal spatula under the print base, encircling the perimeter until the print detaches. Ensure the spatula is parallel to the build plate for bridge removal.

CLEANING RESTORATIONS
Spray Isopropyl alcohol from a spray bottle for 1 min or dip it in isopropyl alcohol for 1 min

Warning: Avoid submerging the printed restorations in isopropyl alcohol (IPA) for more than 1 min. Overexposure can result in a white, chalky surface upon drying.
Wiping Technique: Clean the restoration using a paper towel dampened with 99% IPA.

Detail Cleaning: Thoroughly cleanse embrasures, grooves, and intaglio surfaces using a toothbrush (manual or electric) soaked in 99% IPA until a clean, matte finish is achieved.
SUPPORT REMOVAL
Support Tip Removal: Employ a low-speed handpiece fitted with a dull carbide bur to

excise support tips.
Adjustments: Utilize ceramic wheels, carbide, or diamond burs for necessary contour and occlusal adjustments.
Green State Adjustments: Execute all adjustments while the restoration is in its green state to avert potential micro-fracturing.
These steps are essential to ensure that the 3D printed restorations are safe, clean, and ready for use in dental applications. Proper post-processing not only affects the aesthetic quality but also the structural integrity and biocompatibility of the final product.

Post-Curing Workflows
Light-curable stains, glazes, if applied should be used in their green state, meaning before they have undergone final curing. This state allows for the best adhesion of the products to the restoration surface.

Post-Cure Procedures
Manufacturer Recommendations

After applying the topical products, follow the post-cure procedures as recommended This typically involves curing the restoration under specific light conditions to ensure that the stains and glazes are properly set and bonded.

Avoid Over-Curing
Be cautious not to over-cure the restoration, as excessive exposure to light and heat can alter the color and properties of both the resin and the applied products. By following these recommendations, you can achieve aesthetically pleasing and durable finishes on 3D printed dental restorations without compromising their structural integrity. Always refer to the specific guidelines provided by the manufacturers of both the 3D printing materials and the topical stain and glaze

products to ensure compatibility and optimal results.

Conventional Polishing Recommendations
For the final polish and to achieve a high shine, use a rag wheel with a fine grit diamond paste to provide a glossy finish. Following these recommendations ensures that 3D printed dental restorations have a smooth, high-quality finish that resembles natural teeth. Always use the appropriate tools and compounds designed for dental materials to avoid damaging the restorations during the polishing process.

Validated Light Curing Parameters
For optimal results in post-curing of 3D printed dental restorations, utilize the following validated settings for each respective light-curing device:
Ackuretta Curie
• Duration: 20 minutes
• Settings: P13, D8, T2.30, BON

Note :
For set-up and on-site validation, Maintainance/use-life guidelines of the printer and the post cure system, please refer to the original equipment manufacturer (OEM) labelling for compatible system components. The end user is warned against substituting any of the components of the device system other than those specifically identified in this labelling. It is recommended to contact the manufacturer for compatible systems

Chairside Adjustments and Cementation
CHAIRSIDE ADJUSTMENTS
Material Removal: Treat the 3D printed restoration similarly to a composite material. Utilize carbide burs to carefully remove material from areas requiring adjustment. Be

gentle and precise to avoid unnecessary removal of material.

Regaining Luster
After the adjustments, use acrylic polishing compounds to buff the adjusted areas. This helps to restore the shine and ensure that the restoration blends seamlessly with the surrounding natural teeth.

CEMENTATION PROCESS
Surface Etching
Prior to cementation, it's recommended to etch the preparation surface of the tooth. This step creates a rougher surface, which enhances the bonding strength between the tooth and the restoration.

Choosing The Right Cement
A dual cure composite cement system is recommended for cementing the restoration in place. Dual cure cements combine the benefits of light curing (fast setting in exposed areas) and chemical curing (ensures setting in areas not reached by light).

Follow Manufacturer Instructions
Each cement system may have specific instructions regarding mixing, application, setting time, and light curing. Always follow the manufacturer's instructions carefully to ensure optimal bonding strength and longevity of the restoration.

Chairside Repairs
If any repairs are necessary after cementation, use the dual cure composite cement system to make these repairs, again following the manufacturer's instructions for application and curing.
Patient Care Recommendations
DAILY ORAL HYGIENE

Toothbrush Selection
Use a soft or medium bristle toothbrush. Hard bristles can be abrasive to both natural teeth and restorations, potentially causing wear or damage.
Toothbrush Choice
Avoid using whitening toothpastes. These often contain abrasive particles designed to remove surface stains on natural teeth, but they can also wear away the surface of dental restorations, diminishing the topical stain and glaze, and potentially affecting appearance.

ADDITIONAL CARE TIPS
Regular Dental Checkups
Schedule regular dental checkups and cleanings. This allows for professional monitoring of the condition of the restorations and overall oral health.
Avoid Hard Foods
Be cautious with very hard or sticky foods, as they can exert excessive force on restorations, leading to potential chipping or dislodgement.

RESIN HANDLING
Bottle Sealing: Always keep resin bottles tightly sealed when not in use.

This prevents contamination from dust or other particles and minimizes the risk of accidental light exposure.
Cleanliness: Ensure that the resin tank and tools used for stirring or handling the resin are clean to avoid introducing contaminants that can affect print quality.

TEMPERATURE CONTROL
Optimal Printing Temperature: Most photopolymer resins have an optimal printing temperature range, typically around 70°F to 85°F (21°C to 29°C). Maintaining this temperature range ensures consistent viscosity and print performance.
Heated Environments: For printers with temperature regulation, setting the printing

environment to around 35°C can optimize performance. This helps maintain the resin's ideal flow characteristics.
Cold Conditions Management: If the resin is stored or used in colder conditions, gently warming the resin to the optimal temperature is necessary. This can be done using a warm water bath or temperature-controlled heating mats, ensuring the resin is sealed to prevent water contamination.
By adhering to these guidelines, you can ensure that the resin maintains its intended properties and that the 3D printing process produces accurate and reliable dental restorations. Proper environmental control is a key factor in achieving the high-quality results expected in dental applications.

RESIN VAT MANAGEMENT
Dedicated Vats: Assign a specific resin vat for each type of resin, especially different shades. This prevents cross-contamination and ensures that the resin's properties are preserved.
Residual IPA: After cleaning, ensure that vats are completely free from isopropyl alcohol (IPA) residues before refilling them with resin. IPA can react with the resin, potentially altering its properties.

RESIN HANDLING AND TRANSFER
Avoid Pouring Back: Do not transfer resin from the vat back into the original bottle. This can introduce contaminants into the bottle, compromising the quality of the remaining resin. Alternatively the vat can be stored in a dark enclosure free from dust and other contaminants.
Use of Original Containers: Always store the resin in its original container.
Containers have been specifically designed to protect the resin from light and air exposure.

STORAGE ENVIRONMENT

Light Protection: Store resin containers in a dark place, away from direct sunlight and bright artificial light, to prevent inadvertent curing.
Dust-Free: Ensure the storage area is clean and free from dust.
Dust particles can contaminate the resin, affecting the quality of the prints.
Temperature Control: Store resins at a consistent, moderate temperature, away from extremes of heat or cold. Extreme temperatures can affect the viscosity and curing properties of the resin.

SHELF LIFE
Manufacturer Guidelines: Adhere to the manufacturer's recommended shelf life for each resin. Over time, even well-stored resins can degrade and lose their optimal printing properties. Regular Checks: Periodically inspect stored resins for signs of separation or changes in consistency. Stir or shake them as recommended by the manufacturer to maintain uniformity. By following these storage recommendations, you can extend the life of your resins and ensure that they perform as expected, producing high-quality dental restorations and models. Proper storage is an integral part of successful 3D printing operations in dental practices and laboratories.

Shelf life : 3 Years from the date of manufacturing. Opening the bottle under proper environmental and storage conditions will not impact the shelf life of its contents.
Disposal Recommendations
CLASSIFICATION OF WASTE
Regulatory Compliance: Familiarize yourself with and comply with all applicable federal, state, and local regulations concerning hazardous waste disposal. Hazardous Waste Identification: Consult the US EPA guidelines and other relevant sources to accurately classify whether the waste you're disposing of is considered hazardous.

DISPOSAL OF LIQUID RESIN

Curing Before Disposal: Never dispose off liquid resin directly into the trash or down the drain. Uncured resin should be fully cured before disposal.
Sunlight Curing: Pour the liquid resin into a clear container and expose it to direct sunlight. UV light will cure the resin. Alternatively, use a UV lamp if sunlight is not sufficient.
Solidification: Once the resin is fully cured and solidified, it can generally be disposed off as regular trash. However, always verify with local regulations, as there may be specific guidelines for cured resins.

SOLID RESIN WASTE
Printed Objects and Supports: Cured resin objects, failed prints, and supports should be considered for disposal as solid waste.
Ensure they are fully cured before disposal.
Containment: Place the cured resin waste in a sealed bag or
container to prevent any potential exposure or reaction.

Legal Disclaimer
Release of Liability
Prevest ("the Company") expressly disclaims any and all liability associated with the improper use of its products, including but not limited to its range of 3D printing resins, tools, and equipment intended for dental applications. The end user ("User") acknowledges and agrees that strict adherence to the instructional guidance provided by the Company is essential for the correct function and performance of the medical device ("Product"). The User understands that deviation from the provided instructional guidance, or the use of invalidated or unauthorized equipment in conjunction with the Product, may result in alterations to the function and performance of the Product. The Company shall not be held responsible or liable for any such alterations or any consequences thereof. By using the Product, the User agrees to indemnify, defend, and hold harmless Prevest, its officers, directors,

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The User's acceptance of the Product constitutes acceptance of these terms and an agreement to be bound hereby.

Presentation: Ref : 18017 : 1 x 250g Bottle
Ref : 18013 : 1 x 500g Bottle
Ref : 18014 : 1 x 1000g Bottle

LOT Symbol for "BATCH CODE" Symbol for "USE-BY DATE" Symbol for "NON STERILE" Symbol for "KEEP DRY" Symbol for "CAUTION" Symbol for "CONSULT INSTRUCTION FOR USE"
REF Symbol for "CATALOGUE NUMBER" EC REP Symbol for "AUTHORIZED REPRESENTATIVE IN THE EUROPEAN COMMUNITY/EUROPEAN UNION" Symbol for "DO NOT USE IF PACKAGE IS DAMAGE"
Symbol for "WARNING" Symbol for "KEEP OUT OF THE REACH OF CHILDREN" Symbol for "MANUFACTURER" Symbol for "TEMPERATURE LIMIT" Symbol for "KEEP AWAY FROM SUNLIGHT"
MD Symbol for "MEDICAL DEVICE" UDI Symbol for "UNIQUE DEVICE IDENTIFIER" ℞ ONLY Symbol for "PRESCRIPTION ONLY"

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