



PROCESSING INFORMATION FOR

Nanoksa BioGuard for permanent restorations printed by I-NOX



INDICATIONS:

Nanoksa BioGuard resins are commonly used in dental restorations for indications such as dental fillings, inlays, onlays, veneers, crowns, and bridges over CO&CR bar. They offer good esthetics and durability, making them suitable for both anterior and posterior restorations.

CONTRAINDICATIONS:

While Nanoksa BioGuard resins are versatile, they may not be suitable for every situation. Contraindications may include patients with heavy bruxism (teeth grinding), or those with certain allergies to resin materials.

FINISHING PROCESS:

The finishing process begins. Finishing and contouring can be performed with carbide cutters or diamond grinding stones. This typically involves shaping and polishing the restoration to match the natural contours of the tooth and provide a smooth surface that is comfortable for the patient's bite and resistant to staining.

POLISHING IN THE LABORATORY:

In a dental laboratory setting, polishing of resin restorations is typically done using rotary instruments such as burs, polishers, and abrasive discs. Various grits of polishing materials may be used to achieve the desired level of smoothness and shine. Avoid overheating of the resin during polishing.

STORAGE AND TRANSPORTATION OF PRINTED OBJECTS:

For 3D printed dental restorations made from resin materials, proper storage and transportation are crucial to prevent damage or contamination. Printed objects should be stored in a clean, dry environment away from direct sunlight and extreme temperatures. During transportation, they should be securely packaged to prevent any movement or impact that could cause breakage.

Warm the resin to reach 30–25°C before printing.

CLEANING OF THE RESTORATIONS:

After Printing:

- 1- Fully cured objects made from Nanoksa BioGuard resins can be easily cleaned and disinfected. Steam cleaning or disinfection in the immersion bath (e. g. ethanol 96 % or Alcohol %70) is possible. Follow manufacturer's instructions.
- 2- Post printing light curing for 5 minutes in a UV light cure box is required for optimum curing and color matching. We recommend using Inox N curing box, which works in a vacuum with nitrogen gas to give the best results, as it closes the pores of the restoration with nitrogen to enhance color stability and mechanical properties.

After Delivery: it's important to instruct patients on how to properly clean their restorations to maintain oral health and longevity. This typically involves regular brushing and flossing, along with routine dental check-ups and professional cleanings. Special care may be needed for certain types of restorations, such as avoiding abrasive toothpaste that could scratch the surface of veneers or crowns.

CEMENTATION:

The cementation of Nanoksa BioGuard restorations can vary depending on the specific restoration type and the dentist's preference. Here are some common cementation options:

1- Crowns and Bridges: Nanoksa G-Plus crowns and bridges can be cemented using resin-based cements, such as self-adhesive resin cements or conventional resin cements. It is essential to follow the manufacturer's instructions for the specific cement being used or use Nanoksa Cement and bonding system.

2- Veneers : can be cemented using resin-based cements, such as self-adhesive resin cements or conventional resin cements.

And here are the steps for cementation process :

Natural Tooth preparation

Preparation: Ensure that the tooth surface is clean and free of debris. The tooth may have been prepared prior to this step to accommodate the veneer or crown.

Etching: Etch the tooth surface with an acid solution (usually phosphoric acid) to create micro-porosities on the enamel surface, which enhances bonding.

Bonding: Apply a dental bonding agent or composite primer to the sandblasted tooth surface. This bond serves as a medium for bonding between the tooth and the veneer or crown.

Restoration preparation

Surface Preparation: Clean the inner surface of the restoration to remove any contaminants that might interfere with bonding.

Etching the Veneer: Use hydrofluoric acid to etch the internal surface of the veneer. A 9-5% hydrofluoric acid gel is applied for 60-20 seconds, but specific times should follow the manufacturer's recommendations.

Rinsing and Drying: Thoroughly rinse off the hydrofluoric acid with water to remove all traces of the etchant. Dry the veneer carefully to prepare it for the next step.

Silane Application: Apply a silane coupling agent to the etched surface of the veneer. Allow it to sit for the time recommended by the manufacturer, typically around 60 seconds, to ensure it chemically bonds with the etched surface. Gently air-dry the silane to remove any solvents and ensure a thin, even layer.

4. **Try-in:** Before cementing the veneer or crown permanently, it's essential to do a trial placement to ensure proper fit and aesthetics. Adjustments can be made at this stage if necessary.
5. **Cleaning and Conditioning:** Clean the inner surface of the veneer with a suitable cleaning agent, then condition it with a silane coupling agent. This helps enhance the bond between the veneer and the cement.
6. **Cementation:** Apply Nanoksa veneers cement to the inner surface of the veneer or Nanoska Dual cure resin cement to the inner surface of the crown.
7. **Placement:** Carefully position the veneer onto the prepared tooth surface. Light pressure may be applied to ensure proper seating.
8. **Excess Removal:** Remove any excess cement around the margins of the veneer before it fully sets. Dental floss or a scaler can be used for this purpose.
9. **Curing:** Cure the cement using a dental curing light according to the manufacturer's instructions. This ensures the cement sets properly and achieves its full strength.



MATERIAL DATA

Flexural Strength	> 195MPa
Flexural Modulus	> 4300MPa
Compressive Strength	> 320Mpa
Viscosity	3800 – 2000mPa.s
shrinkage rate	Very low
Organic tin	free
water solubility	≤ 1,6 µg/mm ³
residual monomer	<%0.1
Fully compliant with the Quality requirements of ISO 1-20795 and ISO 1-10993	
Hydrophobic, ultra-low water sorption ULWA ≤ 32 µg/mm ³	
Fully compliant with the Quality requirements of FDA, ISO 10993 & 13485 ,20795	
Nanoksa BioGuard for a relatively High Viscosity version <8000 cps at 25°C for printing with heated printers or above 25°C, for overall improved durability and mechanical properties	

First-Aid Measures

After inhalation: Remove from source of exposure into fresh air. Seek medical attention if any irritation develops.

After skin contact: Wash skin with soap and water. Remove any contaminated clothing and shoes and clean before reuse. Seek medical

attention if irritation develops

After eye contact: Hold eye open and rise continuously with a gentle stream of clean running water for at least 15 minutes. Seek medical

attention if any irritation develops.

After swallowing: First aid is unlikely to be required but if necessary, rinse mouth repeatedly with water, ensuring that the water is not swallowed. Seek medical attention.

Information for Doctors: Treat symptoms conventionally after thorough decontamination.

Disposal: Nanoksa BioGuard restorations are not water soluble, are inactive, pose no risk for the groundwater and can thus be disposed of as normal household waste.

CURING RECOMMENDATIONS:

For optimal curing and color matching of Nanoksa BioGuard restorations, a specific post-printing light-curing process is required. This process ensures the restoration achieves the desired mechanical properties and color stability.

Ideal Light-Curing Process post printing:

1- Post-Printing Light Curing:

Duration: A post-printing light curing time of 5 minutes is essential.

Equipment: Utilize a UV light cure box for this process.

2- Stains Curing:

Duration: Stains Light Curing time of 60 seconds is essential.

Equipment: Utilize a UV light cure box for this process.

3-Glaze Curing:

Duration: Stains Light Curing time of 40-20 seconds is essential.

Equipment: Utilize a UV light cure box for this process.

Curing Box Recommendation:

Inox N Curing Box: For best results, it is recommended to use the Inox N curing box, which operates under vacuum conditions with nitrogen gas.

Vacuum and Nitrogen Environment: The vacuum and nitrogen environment help close the pores of the restoration, thereby enhancing color stability and improving mechanical properties.

Benefits of the Inox N Curing Box:

Enhanced Color Stability:

The nitrogen gas environment helps maintain the color of the restoration by preventing oxidation and other chemical changes.

Improved Mechanical Properties

The vacuum with nitrogen gas promotes a denser and more uniform structure, which contributes to the strength and durability of the restoration.

Pore Closure:

The nitrogen atmosphere aids in closing the micro-pores within the restoration, leading to a smoother surface finish and reduced risk of staining or discoloration.

Ideal Light-Curing Process for cementation:

The ideal light-curing properties and time required for curing dental cement when cementing Nanoksa BioGuard depend on several factors, including the type of resin cement, the thickness of the veneer, and the specific curing light used. Here are the general guidelines:

Ideal Light-Curing Properties:

Wavelength: The curing light should emit light in the wavelength range of 460–390 nm, which matches the absorption spectrum of the photoinitiators (typically camphorquinone) used in resin cements.

Intensity: The light intensity should be at least 1200–600 mW/cm². Higher intensity must be used carefully to avoid excessive heat generation.

Uniformity: The light output should be uniform across the tip to ensure even curing of the resin cement.

Curing Time:

The curing time varies based on the light intensity and the specific resin cement used. Generally, the following guidelines can be applied:

4- Standard Resin Cements:

Moderate-Intensity Light (1200–600 mW/cm²): 40–20 seconds per surface.

5- Thicker Veneers:

Increase the curing time proportionally if the veneer is thicker, as more light will be absorbed and scattered by the ceramic material.

6- Dual-Cure Cements:

For dual-cure cements, the initial light curing time can be 20–10 seconds to ensure initial set, followed by a self-curing process. The self-curing time is typically around 6–4 minutes to achieve full polymerization.

INOX L.L.C

 www.i-nox.us

 info@i-nox.us

 30 NGould ste R Sheridan,WY82801 USA



Inox

WARRANTY

Our recommendations for use whether given verbally, in writing, or by practical instruction, are based upon our own experience and trials and can therefore only be regarded as guidelines. Our products are subject to continuous development. We thus reserve the right to make modifications in design, appearance and materials without notice.