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prizma 3D

LIGHT CURING RESIN
FOR 3D PRINTING

BIOCROWN

RESIN COMPOSITE IN 3D PRINTING

PRIZMA 3D BIO CROWN

Aiming to develop aesthetic materials similar to dental structures, the first composite resins in dentistry were launched in the 60's, initially in powder/liquid and paste-to-paste versions, and quickly became very popular all over the world. In the first versions, they already consisted of an organic matrix, inorganic matrix, and bonding components. The fast evolution of composite resins during the last years brought to the dentist several types of resins for various applications, evolving, in terms of esthetics, resistance, types of polymerization, and durability. Now, in the new digital phase of dentistry, composite resins have also come to occupy their space in 3D printing.

Similarly to conventional composite resins, 3D composite resins are formed by organic and inorganic matrix and bonding agents, however for indirect use, that is, they will be made in a 3D printer and then cemented with resinous or provisional agents as it is done in conventional compomers. The main differences in their composition are in the quantity and quality of the inorganic fillers, which need to be present in smaller quantities to obtain an acceptable viscosity for the printers. On the other hand, the organic and inorganic matrices must compensate in quality to achieve the same physical characteristics required for good performance that meet the ISO 4049 standards.

PHOTO BY JULIANA GONÇALVES

PriZma 3D Bio Crown resin from Makertech Labs is an example of such new resins. Balancing opacity, translucency and fluorescence, PriZma 3D Bio Crown is a Class II biocompatible nano hybrid composite resin developed for long-term use for crowns, veneers, small bridges, inlay and onlay in Bleach, A1 and A2 colors, and can also be used for temporary elements.

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RESINA FOTOPOLIMERIZÁVEL PARA IMPRESSÃO 3D

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The balance between inorganic and organic matrices gives this material outstanding strength. Due to the presence of high silanized nano and micro hybrid ceramic fillers, as well as silanized zirconia and others, it gives exceptional resistance to breakage and flexural strength and high abrasion resistance. It has ideal viscosity for 3D printing, low material consumption and faster cleaning, and keeps fillers in suspension longer during printing. High compatibility with LCD and DLP printers and easy parameter setting ensure precise adaptation and adjustment, and flawless production sequences.

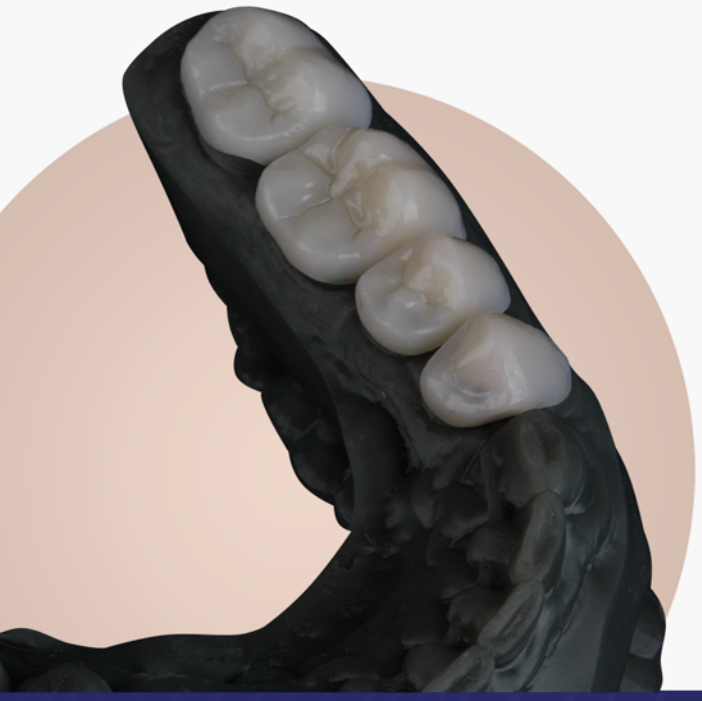

PHOTO BY JULIANA GONÇALVES

The material is easy to process and surface polish, it can be featured with any type of composite staining/make-up kit, and get maximum brightness with PriZma Seal glaze.

Being a class II device, it has extremely low water solubility, which guarantees biocompatibility and patient safety, with no odor, irritation or toxicity after processing. Several tests were performed to ensure biocompatibility and safety to patients such as skin sensitization, oral mucosa irritation, cytotoxicity and intracutaneous reactivity.

ADVANTAGES:

- Used for long-term and temporary elements
- Ease of impression with optimal viscosity
- Natural tooth fluorescence
- Exceptional esthetics in Bleach, A1 and A2 colors
- Compatibility with a wide range of printers with high print quality and adaptability
- High resistance to flexural strength, tensile strength and abrasion, following ISO4049 standards
- Easy processing after printing, with simple polishing and finishing
- Compatible with any composite resin and compomer glazing and staining systems
- Biocompatibility and patient safety

DIFFERENTIALS OF THE PRIZMA 3D BIO CROWN RESIN:

- The fillers that are part of the inorganic matrix of Bio Crown resin are silanized, which enhances the bonds between organic and inorganic matrix, bringing greater strength to the composite. Moreover, the silanization of inorganic components contributes for a good cementation with resin agents, reducing infiltrations and loosening.
- **The lower viscosity** compared to competing resins of the same application provides a lower amount of failures during impression taking, less resin waste, and easier cleaning.
- **Fluorescence that mimics the natural tooth** is an important feature of PriZma 3D Bio Crown resin, ensuring that a tooth does not look artificial in both light and dark environments.
- Compatibility with LCD, DLP and SLA printers without loss of quality. Makertech Labs has developed the Bio Crown resin thinking in printing excellence for different systems, for this purpose, it has developed a resin with acceptable curing times per layer in all systems without losing productivity. In other words, an LCD printer will carry a longer layer time than a DLP printer, but with an average that favors both equipments, without loss of quality.

PHOTO BY JULIANA GONÇALVES

PHOTO BY DIÓGENES HOLANDA

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PHYSICAL CHARACTERISTICS

SHORE D HARDNESS	78-85
VISCOSITY	255-500 CPS
TENSILE STRENGTH (MPA)	61,87 MPA
DEFORMATION AT BREAK (%)	4,51%
MAXIMUM LOAD (N)	1276,60 N
FLEXURAL MODULE (GPA/MPA)	2,85GPA / 2850MPA
DRYING MODULE 1% (GPA/MPA)	2,84GPA / 2840MPA
FLEXURAL STRENGTH AT 5% AVERAGE (MPA)	>105,5 MPA
FLEXURAL STRENGTH AT 5% (MPA) MAXIMUM	111,20 MPA
SORPTION	< 31 µG/MM3
SOLUBILITY	< 2,2 µG/MM3

INSTRUCTIONS FOR USE:

1- Shake vigorously for 40 minutes before use. The use of laboratory mixers is indicated.
2- Pour the quantity indicated by the printer manufacturer into the printer tank and start printing. Wear gloves to handle the product.
3- After printing, place the objects in isopropyl alcohol for 3 to 5 minutes in motion to remove resin from the surface and dry completely.
4- Place in UV light chamber for post-curing for 10-20 minutes.
5- Perform mechanical polishing or glaze. It is normal for the piece to have a whitish external layer, due to the high presence of the load. If this occurs, the piece can be sandblasted before polishing.
6 - Wash and dry the piece in running water and detergent before proceeding with the cementation.

IMPORTANT: Do not leave the resin in the tank after printing. It must be homogenized again before the next printing. Ideal working temperature in the printer is 25 to 38 degrees Celsius. Perform resin calibration at each lot change. Store in a cool, dark place. When returning resin to the same bottle or new bottle, use fine mesh to avoid debris and small pieces of resin from printing.

CEMENTATION:

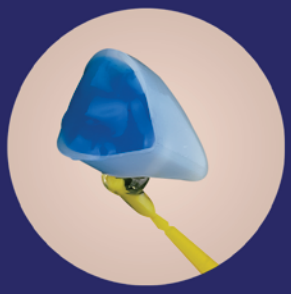
The **cementation protocol for prolonged use**, *with resin cements is the same used in conventional compomers, being:*

1- Sandblasting of the surface
2- Phosphoric acid for 45 seconds
3- Total washing to remove phosphoric acid
4- Drying
5- Application of the adhesive system
6- Cementation with resin cement of your choice

Note: since this is a resin with silanized inorganic fillers and has a high degree of conversion during the impression, it is not necessary to use silanes between steps 4 and 5.

For **cementation for temporary use**, *a variety of cements based on calcium hydroxide or zinc oxide can be used, preferably without eugenol, as follows:*

1- Sandblasting of the surface
2- Washing and drying
3- Application of the temporary cement of your choice.



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MAKE-UP AND/OR STRATIFICATION:

1- Sandblasting of the surface
2- Phosphoric acid for 45 seconds
3- Total washing to remove phosphoric acid
4- Drying
5- Application of stain. Make-up systems must be compatible with composite resins/compomers/indirect resins, make-ups should not be used for ceramic systems.
6- Application of the glaze of your choice, we indicate the use of Glaze PriZma Seal.

Note: *since it is a resin with silanized inorganic fillers and has a high degree of conversion during the impression, it is not necessary to use silanes between steps 4 and 5.*

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Relining: If necessary, it should be done with low viscosity composite resins, called "flow" resins. Acrylic resins (PMMA) are not compatible for relines and must not be used. If it is directly relined on a tooth, do not forget to isolate it properly.

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EXPIRATION DATE
2 years from date of manufacture or 3 months after opening

DISPOSAL MODE
Do not reuse the product and dispose of it according to local legislation.

ANVISA REGISTRATION NUMBER: 80483749003

Other information such as precautions, adverse effects, first aid, transport conditions, and others can be found in the IFUs on our website and on the ANVISA website. Questions and support by whatsapp or phone:

(15) 99116-0827

Access our website
www.makertechlabs.com.br

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RESINA FOTOPOLIMERIZÁVEL PARA IMPRESSÃO 3D

BIO compatível

BIO CROWN
CERAMIC ZIRCON
PREPARATION OF DENTAL CROWNS IN RESIN
IMPRESSORAS DLP/LCD/SLA