

poli3Dent MODEL pro

EN Instructions for use

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Device description:

Light-curing resin based on (meth)acrylate for additive manufacturing of dental models. Suitable for DLP 3D printers that use wavelengths between 385-405 nm. Compatible and verified 3D printing system for Poli3Dent Model Pro resin is Asiga Max UV.

Area of application:

Fabrication of all kinds of dental models - working, study and presentation dental models, including models for thermoforming appliances.

Safety information:

For professional use only.
Not for intra-oral use. For lab work only.
Prior to use refer to the relevant Safety Data Sheet for hazard and safety information!
Wear proper personal protective equipment (protective gloves, goggles) when handling with Poli3Dent resins and uncured material. Whether you are pouring, removing models from the platform, or even after models have been washed, must wear protective gloves to limit exposure to resin. When pouring the resin, be careful not to splash.
The processing instructions and precautionary measures must be observed.

Contraindications:

The product contains acrylates and phosphine oxides, that may cause an allergic reaction in accordingly disposed individuals.

Processing tips:

1. Preparation before use

Prepare all needed tools, equipment and materials for manufacturing dental models:

- verified 3D printing system (3D printer, washing and post-curing unit),
- appropriate CAD software,
- 3D printing resin Poli3Dent Model Pro,
- soft / flexible spatula and tweezers, sharp flat object for removing parts from the build platform,
- cleaning solution: we recommend water-based cleaning solution made with Poli3Dent Cleaner (concentrate for preparation of water-based cleaning solution intended for washing of resin prints in an ultrasonic bath). Alternatively, ethanol min. 95% or IPA min. 91% can also be used,
- spray bottle (for ethanol or IPA),
- soft toothbrush to help remove excess resin from the surface of printed parts,
- compressed air,
- towels,
- side cutters to remove supporting structures,
- personal protective equipment (gloves, eyewear..).

2. Temperature conditioning of the material

Before use, make sure that this device is tempered to room temperature (approx. 22°C) in the original, tightly closed bottle in a dark and dry place. Also check the expiration date of the resin, as it is not possible to guarantee optimal processing for expired devices.

3. Designing of dental model, nesting and preparing the model for printing

From 3D intraoral/dental scans create an object in STL format using commercial CAD software intended for dental applications and optimize the model for 3D printing. For hollow print models ensure a min. wall thickness of 2,5 mm. Position the dental model design with teeth facing up / away from the platform and the base lying flat on the print platform. Final step is slicing the model and manually or automatically generating supportive structures, where needed. In order to ensure optimal processing, please read carefully the information contained in the IFU for nesting and slicing software.

4. Preparing 3D printer

Follow the instruction in the operating manual for 3D printer. Proper calibration and setup of the 3D printer are crucial to ensure accurate and reliable prints, which may involve levelling the build plate and loading the chosen 3D resin into the printer:

- Before use, shake the bottle with 3D resin for about 3 min to ensure homogeneous mixture (but with no air bubbles) and pour the resin into the printer tank. During pouring the resin, ensure minimum exposure of resin to daylight. For resin already in the tank, use resin wiper to stir the material gently and take care not to damage the bottom of print vat. Make sure the resin tank is fully secured and filled to the recommended resin level.
- Make sure the print platform is clean, dry, securely placed and locked on the platform arm.

5. Printing

In verified dental printers select pre-installed print setting for Poli3Dent Model Pro resin, define layer thickness in micrometers and initiate printing. It is important to monitor the progress of the print to address any potential issues that may arise during the printing process.

6. Cleaning

Once printing is completed, printed object has to be removed from the print platform using spatula and washed in the cleaning solution. The resin coated parts should be washed within approx. 8h from the completion of the print and takes place in two stages:

- first bath with reusable cleaning solution is the first wash of any printed part,
- the second bath is composed of fresh cleaning solution or cleaning solution with lower concentration of contaminants.

As a cleaning solution, we recommend using water-based solution prepared from Poli3Dent Cleaner; after cleaning in ultrasonic bath allow the liquid to drain from the surfaces of the printed parts to prevent contamination of the second ultrasonic bath with resin residues. Then, repeat the process of ultrasonic cleaning and use fresh cleaning solution for the second bath. For finishing, we recommend spraying washed parts with alcohol to remove any cleaning solution residue and blowing off with compressed air to speed up the drying process.

Alternatively, printed parts can also be cleaned in an unheated cleaning device using ethanol or IPA, applying 2-step cleaning as described above in the beginning of this chapter. In total, do not allow the parts to sit in cleaning solutions for more than 5 min, as the properties may begin to deteriorate (swelling). After cleaning parts in cleaning device, spray the parts with alcohol to fully remove any resin residue from the surface of the printed parts. Using soft scrub brush or tooth brush soaked in cleaning solution may help remove resin residues.

After cleaning, use compressed air to dry printed parts. Check, if residual resin remains, what is indicated by shiny surfaces. In case of resin residues, repeat spraying parts with alcohol followed by drying with compressed air.

Never pour used resin from the printer vat back into the original bottle, as this can contaminate the unused resin. Also do not leave resin sitting in the printer vat for extended periods when not in use. For long-term resin storage, transfer to a sealed container and keep away from light to prevent premature curing.

7. Preparation for post-curing

Before curing, remove support structures by using side cutters. Optional: supporting structures may be removed before post-curing.

8. Post-curing

The final mechanical characteristics are achieved by post-curing, i.e. light polymerisation; for the resin Poli3Dent Model, curing unit Otofash H171 is recommended. Place the printed and cleaned part in the post-processing unit and ensure to place the part flat to prevent warping. Post-curing regime 2 x 1000 flashes is sufficient to obtain stable and functional dental model.

Allow the part to cool completely before removing from the cure box to prevent surface defect or warping.

Printed parts that are not used or they were not cured yet (they have only 'green strength'), should be stored at room temperature and protected from light sources to prevent changes in form.

9. Final processing

Perform final processing (e.g. smoothing contact points of support structures).

Printed and cured models can be steam cleaned, cleaned with running water, soap and tooth brush, but should not be poured over with boiling water!

Storage

Store in a cool and dry place, protected from light. During storage keep resin bottles tightly sealed to prevent dust and moisture exposure that can reduce print quality. Storage temperature should be between +10°C and +30°C.

Processing temperature

Recommended range for processing temperature is: 22 -28 °C.

Ordering information

The resin is supplied in lightproof, sealed bottles.

Catalogue no.: 08201

Filling qty: 1 kg.

Disposal

In its final, fully cured state, Poli3Dent Model is not considered an environmental hazard; cured material can be disposed as domestic waste. Dispose of unused and non-recyclable liquid resin materials, ethanol/IPA mixes etc in accordance with relevant and local regulations.



POLIDENT d.o.o., Volčja Draga 42, 5293 Volčja Draga, Slovenija
Phone: +386 5 330 48 40, E-mail: polident@polident.si, www.polident.si

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