

Introduction

The below user guidance is for professionals using Crestaform[®] Dental Orthomodel Ivory.

Crestaform[®] Dental Orthomodel Ivory is optimised for rapid production of orthodontic dental models featuring outstanding part strength and rigidity, and exceptional detail capture and design fidelity. Crestaform[®] Dental Orthomodel Ivory boasts robust thermal resistance ensuring maximum compatibility with the thermoforming process. Crestaform[®] Dental Orthomodel Ivory is compatible with open-source 385 and 405nm mSLA/LCD & DLP vat-based 3D printers and is also validated on Asiga and Rapidshape machines.

Below, you will find suggested workflow which includes examples of 3D printers and printing parameters. For more technical information please refer to the relevant TDS, visit our website or contact Scott Bader directly at enquiries@scottbader.com.

Health and Safety

The relevant Safety Data Sheet (SDS) can be obtained from your supplier or request through our website.

For more information, please refer to the country specific SDS for advice.

Storage and Disposal

Crestaform[®] Dental Orthomodel Ivory should be stored in its original packaging in a dry and dark environment, out of direct light. It is recommended that the storage temperature be between 15°C and 35°C. If the material is not in-use, remove it from vat/tray, filter and return to its original packaging to prevent dust or debris contamination.

The Crestaform[®] Dental Orthomodel Ivory must be disposed of in accordance with the local regulations.

For more information, please refer to the country specific SDS for advice.

Printing

Printing should be carried out at room temperature. Always shake or mix the resin thoroughly before use. Open the container and pour slowly the appropriate amount of resin into the resin vat/tray. It is recommended to allow the resin to settle for several minutes, ensuring a smooth, bubble-free surface before beginning a print. Once a print has been completed, resin should be removed and filtered back into the original packaging.

The 3D printer examples, and corresponding settings included in this document are for general guidance only. Users should always determine their own optimised setting, according to the requirements of their printer and print file. For advice on this topic, please refer to our website and "Optimising print settings for open-source machines" white paper, which provides instructions on developing printing profiles for different open-source machines, and how to troubleshoot different print failures through adjustment of different printing parameters.

Examples of 3D Printers and Settings

The given values in the table are for printing on open-source LCD 405 nm printers at room temperature. For printing profiles for Asiga and Rapidshape machines, please refer to our website or contact Rapidshape. For different layer thickness starting parameters contact us directly at enquiries@scottbader.com or check our white paper.

Printer	Layer Height (µm)	Base Layer Exposure Time (sec)	Normal Layer Exposure Time (sec)	Normal Layer XY scaling (%)**	Normal Layer XY compensation/tolerance (mm)***	Wait Before Print (sec)
Elegoo Mars 4	100	15 – 40	2.7 – 3.2	100.4	-0.02	2
	150	25 – 50	4.0 – 4.5	100.4	-0.02	2
Phrozen Sonic Mega 8K S	100	15 – 40	2.4 – 2.9	100.4	-0.02	2
	150	25 - 50	3.6 – 4.1	100.4	-0.02	2

* data as per spot cure testing with 80 micron offset

For Asiga users (Asiga Max UV385), material profile can be found at scottbader.com.

For Rapidshape users, material profile can be found on Rapidshape proprietary software.

Printers Compatibility

Crestaform[®] Dental Orthomodel Ivory has been designed to work with any UV LCD & DLP 385 or 405 nm 3D printer, including, but not limited to:

- Anycubic
- Elegoo
- Phrozen
- Asiga
- Nexa
- Rapidshape

General post-processing workflow

The below advice provides a general post-processing workflow for those without prior experience or those not using post-processing workflows recommended by printer manufacturers.

Cleaning

- It is recommended after print to allow resin to drain from parts and platform before removing parts. A plastic scraper can be used to aid in this process.
- Printed parts should be removed carefully from the build platform with a suitable tool.
- At this stage you can carefully remove any supports (if applicable).
- It is recommended that isopropanol (IPA) be used when cleaning prints.
- It is recommended that a two-step IPA wash cycle is used, rinsing with reused IPA first to remove the bulk of the residual resin followed by a clean IPA step to ensure the parts are fully cleaned.
- Rinse the parts with IPA for a minimum of 3 minutes until all the visible uncured resin has been removed. A syringe or pipette may be used to clean fine structures or holes. Note that reusing IPA in multiple cleaning cycles can reduce the cleanliness and clarity of a print.
- Parts can also be cleaned with centrifugal methods and IPA-containing ultrasonic cleaning units.
- If parts still appear dirty after drying, utilise another wash-dry cycle until parts appear clean.
- Leave the prints to dry off any residual solvent prior to post-curing for at least 60 minutes. Alternatively, you can dry them with compressed air or place them into a ventilated warming cabinet at 40°C for 30 minutes to dry.

Post curing

Crestaform[®] Dental Orthomodel Ivory requires adequate post-curing to achieve the optimal mechanical properties.

- In order to achieve an even curing, parts should be flipped over during the post-curing cycle.
- Additionally, if UV only is used for post curing, thermal step may be employed. This will increase the rigidity of the print and ensure optimal properties.
- Vacuum, nitrogen or temperature can be used in combination with UV during post cure.

Post-curing unit	Lamp Type	Power (W)	Post-curing duration	Notes
Formlabs FormCure	405 nm LED	39	30 minutes	UV only

Curing Units Compatibility

Crestaform[®] Dental Orthomodel Ivory is compatible with array of different post curing models, including, but not limited to:

- Dreve PU90
- RS Cure XL
- Otofash
- Formlabs
- Photocentric

These steps serve merely as broad recommendations. The post-curing process should be tailored to each situation by the user, as the most suitable performance of the material depends on the user's specific requirements and the available equipment.

For more information about mechanical properties, please refer to the product specific TDS.

Packaging

Crestaform[®] Dental Orthomodel Ivory can be supplied in 1kg, 5kg and 10kg containers. For bulk supply contact us directly.

General advice

- Always read material SDS before use.
- Always wear Personal Protection Equipment (PPE), protective eyewear and chemical nitrile gloves when handling resin.
- Always shake the resin well before use.
- If spilled, clean area immediately with paper towel, and Isopropanol (IPA).
- Store in original container at room temperature. Keep away from direct light, heat sources, sparks and open flames.
- Keep material and printed parts away from children and pets.
- Use it in well ventilated rooms.
- Use every sensible preventive precaution to avoid skin contact, spillage of resin, eye contact or swallowing. Make note of Local Poison Centres availability.
- Dispose resin or used IPA according to local regulations.

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