Crestaform® 3D

RAPID

USER GUIDELINE

Introduction

The below user guidance is for professionals using Crestaform 3D® Rapid.

Crestaform 3D® Rapid combines for high reactivity with low depth of cure, unlocking the potential of next generation high resolution LCD and DLP 3D printers. Crestaform 3D® Rapid excels in applications where high resolution and intricate details are necessary such as modelling and prototyping, The product is optimised for 385nm and 405nm wavelengths.

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 or contact Scott Bader directly at scottbader.com.

Health and Safety

The relevant Safety Data Sheet (SDS) can be obtained from your supplier or Scott Bader website. You may also contact Scott Bader directly at scottbader.com.

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

Storage and Disposal

Crestaform 3D® Rapid 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. Once opened, the material should be used immediately. If the material is not in-use, the material should be removed from vat/tray, filtered and returned to its original packaging to prevent dust or debris contamination.

The Crestaform 3D® Rapid 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. It is recommended that 3D resin exposure finder test prints be undertaken to find optimum cure settings.

Always refer to the user manual of the relevant 3D printer for instructions on printer settings and handling.

Remove printed parts carefully from the build platform with a suitable tool. Refer to the user manual of the relevant printer for more information.

Examples of 3D Printers and Settings

The given values are all for printing at layer thickness of 50 μm. For different layer thickness starting parameters contact us directly at scottbader.com

Printer	Type	Wavelength (nm)	Power (mW/cm^2)	Base Layer Exposure Time (sec)	Normal Layer Exposure Time (sec)*
Elegoo Mars 4	LCD	405	2	60	1.9
Asiga Max UV385	DLP	385	5	33	1.3

* power measured directly on glass
** data as per spot cure testing with 30 micron offset

Cleaning (It is recommended that isopropanol (IPA) be used when cleaning prints.)

- Rinse the parts with IPA for a minimum of 2 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.
- It is reccomended that a two step wash cycle is used, rinsing with reused IPA first to remove the bulk of the residual resin and clean IPA second to ensure the parts are fully cleaned.
- Leave the prints to dry off any residual solvent prior to post-curing. Alternatively, you can place them into a ventilated warming cabinet at 40^{0}C for 30 minutes to dry.
- Parts may also be dried using compressed air.

Post curing

Crestaform 3D® Rapid require post-curing. See recommended post-curing procedure below.

- Every print should be post cured for a minimum of 30 minutes, using a dedicated 405nm post curing unit.
- 385 nm or mercury lamp post curing units can also be used
- In order to achieve an even curing, parts may need to be rotated during the post-curing cycle.
- Additionaly, after the UV post-cure thermal post curing may be employed. This will increase the rigidity of the print.
- Remove any support structures prior or after post curing. Surfaces may require further post processing or sanding depending on extent of support structures used.

Packaging

Crestaform 3D® Rapid is supplied in 1kg, 5kg and 10kg containers. For bulk supply contact us directly.

✓Do

- 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, away from children, direct light, heat sources, sparks and open flames.
- 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.

X Do not

- Expose resin to sunlight, UV light, heat sources, sparks and open flame while handling and storing the resin.
- Touch the resin with bare hands. If skin contact occurs, wash it with soapy water. If you feel unwell, immediately seek medical assistance.
- Swallow resin or printed objects.
- Expose to children or pets.
- Handle before completing training.
- Expose persons sensitive to the resin components, please see Material Safety Datasheet.
- Inhale the resin fumes. Use only in well ventilated rooms or areas.
- Dispose of the resin or used IPA in household waste streams.