

Introduction

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

Crestaform® 3D Tough Grey is an ABS-like material with lower crack propagation unlocking the potential of next generation high resolution LCD and DLP 3D printers. Crestaform® 3D Tough Grey combines strength, stiffness and resilience with high resolution, making it perfect for functional / engineering parts, as well as in applications such as modelling and prototyping. The product is optimised for 385 nm and 405 nm 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, 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 Scott Bader website.

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

Storage and Disposal

Crestaform® 3D Tough Grey 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® 3D Tough Grey 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 are all for printing at layer thickness of 50 µm printed at room temperature. For different layer thickness starting parameters contact us directly at enquiries@scottbader.com or check out our white paper.

Printer	Type	Wavelength (nm)	Power (mW/cm ²)	Base Layer Exposure Time (sec)	Normal Layer Exposure Time (sec)*
Elegoo Mars 4	LCD	405	2	40	1.3
Phrozen Sonic Mega 8K S	LCD	405	2.1	40	1.3
Asiga Max UV385	DLP	385	5	25	0.9

** data as per spot cure testing with 30 micron offset*

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

Printers Compatibility

Crestaform[®]3D Tough Grey has been designed to work with any UV LCD & DLP 385 or 405 nm 3D printer that is open to 3rd party resins, including but not limited to:

- Anycubic
- Elegoo
- Phrozen
- Creality
- Asiga

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 preferred)
- It is recommended that isopropanol (IPA) can be used when cleaning prints.
- It is recommended 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.
- Rinse the parts with IPA for a minimum of 5 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.
- 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. Alternatively, you can place them into a ventilated warming cabinet at 40°C for 30 minutes to dry.
- Parts can also be cleaned with IPA-containing ultrasonic cleaning units.

Post curing

Crestaform[®]3D Tough Grey requires adequate post-curing to achieve the optimal mechanical properties .

- In order to achieve an even curing, parts may need to 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.
- Remove any support structures and smoothen or sand the surface depending on the requirement.

Post-curing unit	Lamp Type	Power (W)	Post-curing duration	Notes
Formlabs FormCure	405nm LED	39	60 minutes	With Heat @ 60 deg C

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®3D Tough Grey is 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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