

# MOIIN Tough Clear

## Life Series

### NOTES FOR USE

MOIIN Tough Clear is a (meth)acrylate-based light-curing resin for the manufacturing of technical objects using 3D printing.

### PRINT

MOIIN Tough Clear is suitable for use in vat photopolymerization devices (e.g., DLP / SLA / LCD printers) operating at a wavelength of 405 nm or 385 nm.

Particularly precise details can be achieved when printing with a light wavelength of 385 nm, as the material has been optimized for this wavelength. A slightly lower accuracy will be achieved with 405 nm DLP or LCD printers.

The recommended temperature range is 20°C to 35°C / 68°F to 95°F. Notes on the printer parameters and starting values for light-curing times can be found at:

<https://www.moiin-resins.de/technische-daten/>

- 405 nm: critical energy  $E_c = 6.0 \text{ mJ/cm}^2$  and penetration depth  $D_p = 0.13 \text{ mm}$  at an intensity of  $10 \text{ mW/cm}^2$
- 385 nm: critical energy  $E_c = 6.0 \text{ mJ/cm}^2$  and penetration depth  $D_p = 0.15 \text{ mm}$  at an intensity of  $7 \text{ mW/cm}^2$

### CLEANING

Cleaning is important, because all liquid resin residues should be removed from the object before post-curing. Any suitable 3D printing cleaning agent can be used. We recommend isopropanol (IPA) or MOIIN Smart Clean. The product properties obtained may differ when using cleaning agents other than IPA. Care should be taken not to leave the printed object in contact with the cleaning agent for too long (less than 10 minutes). Additionally, the printed object should be completely dry before post-curing.

- |             |   |                 |       |
|-------------|---|-----------------|-------|
| 1. Cleaning | IPA   | Ultrasonic bath | 3 min |
| 2. Cleaning | IPA (clean)                                   | Ultrasonic bath | 2 min |
| 3. Dry      | Compressed air or air-dry for at least 30 min |                 |       |

### POST-CURING

Post-curing device	UV light source	Light-curing time	Additional settings
Anycubic Wash & Cure	UV LED (405 nm)	2 x 5 min	
RS cure	UV LED (415 and 365 nm)	8 min	170% upper and lower wavelength, 50 mbar
NK-Optik Otoflash	Flash lamp with a wide wavelength range	2 x 2,000 flashes	
Heraeus Heraflash	Flash lamp with a wide wavelength range	2 x 180 s	
Kulzer HiLitePower3D	Flash lamp with a wide wavelength range	2 x 180 s	

### SAFETY INSTRUCTIONS

- Using the device incorrectly and failing to observe the specifications may place the user at risk or impair the quality of the printed object.
- Observe the safety data sheet.
- Irritates the eyes and skin (sensitization possible).
- Wear safety gloves (nitrile gloves), protective clothing and safety goggles while processing.
- Avoid eye contact! In the event of the liquid material accidentally coming into contact with the eyes, immediately rinse eyes thoroughly with plenty of water and consult a doctor if necessary.
- Avoid skin contact with the non-polymerized material and the inhalation of monomer vapors. In rare cases, allergic reactions to components in the material may occur. If this occurs, consult a doctor.
- Avoid release into the environment.

### COMPOSITION

Mixture of acrylate and methacrylate resins, photoinitiators and additives.

### STORAGE

- Store in a dry place at room temperature (15 °C – 25 °C / 59 °F – 77 °F) protected from light.
- Even low exposure to light can trigger polymerization.
- Do not use after the expiration date.
- Keep out of the reach of children!

### DISCLAIMER OF LIABILITY

- These instructions do not represent safety information according to the applicable chemicals legislation.
- No liability for the type and use of the 3D printed products.
- If relevant, applicable laws and regulations must be observed.
- No guarantee for the function and durability of the 3D printed products.
- MOIIN Tough Clear was manufactured according to high quality standards in an ISO 13485-certified company. The use of objects printed with MOIIN Tough Clear in the life science sector is possible, if appropriate testing for the intended purpose is carried out in each case. We would like to point out that it is the responsibility of those placing the printed objects on the market to define the intended purpose of a medical device, to classify and, if necessary, to certify the respective device according to medical device legislation.

### PACKAGING

REF 179020 1 Bottle @ 1 kg