# Instruction for Use
## Ultracur3D® DM 2505

The following Instruction for Use is for dental professionals who use: **Ultracur3D® DM 2505** as a technical dental model material.

The safety data given in this publication is for information purposes only and does not constitute a legally binding Material Safety Data Sheet (MSDS). The relevant MSDS can be obtained upon request from your supplier or you may contact BASF directly at *sales@basf-3dps.com.*

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

### *Manufacturer*

*BASF 3D Printing Solutions GmbH*

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### *Storage Conditions and Disposal Considerations*

Keep container tightly closed in a room temperature, well-ventilated place. Keep container dry. If Material is not being used fill it back through a filter in the corresponding material bottle. The filter prevents to fill cured pieces or failed prints back into the bottle. Ultracur3D® DM 2505 must be disposed of or incinerated in accordance with local regulations.

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

### *Delivery units*

Ultracur3D® DM 2505 is available in the following packaging sizes: 1 kg, 5 kg and possible larger volume packaging are also available upon request.

### *Intended Use*

These instructions are intended to produce dental models and dental models for thermoforming. Ultracur3D® DM 2505 is a technical material based on (meth-)acrylate resin for suggested LCD and DLP systems. Working wavelength: 385 nm or 405 nm. Attached a list of suggest 3D printer and Printing parameters. For more information contact BASF directly at sales@basf-3dps.com.

### *Available Color*

- Beige

### *Suitable 3D Printer and Settings*

| PRINTER | MIICRAFT ULTRA 125 | MIICRAFT ULTRA 125 | HALOT-SKY CL-89 (CREALITY) |
|---|---|---|---|
| **Wavelength** | 405 nm | 385 nm | 405 nm |
| **Power** | 4 mW/cm² | 4 mW/cm² | Ca. 2 mW/cm² |
| **Curing time** | 3.5 s | 3.5 s | 7 s |
| **Voxel depth** | 100 µm | 100 µm | 100 µm |

If you cannot find your printer in the table, you can use the values below as starting parameters. These are only approximations, different 3D-Printers may require different curing times and further optimization, but these values should be a good starting point.

The given values are all for printing at a layer thickness / voxel depth of 100 µm. If you need starting parameters for a different layer thickness, please contact us.

**405 nm WAVELENGTH 3D-PRINTER**

| | | | | |
|---|---|---|---|---|
| **Power *** | 5 mW/cm² | 4 mW/cm² | 3 mW/cm² | 2 mW/cm² |
| **Suggested curing time** | 3.6 s | 4.5 s | 6 s | 9 s |

**385 nm WAVELENGTH 3D-PRINTER**

| | | | | |
|---|---|---|---|---|
| **Power *** | 5 mW/cm² | 4 mW/cm² | 3 mW/cm² | 2 mW/cm² |
| **Suggested curing time** | 4.6 s | 5.8 s | 7.8 s | 11.7 s |

*Power measured directly on the glass

### *Design Information*

For designing the dental model and the model for thermoforming, we recommend using only certified Software. If the model is hollowed make sure to have drainage channels (if no platform with holes is used) to make sure that the material is not trapped inside. For some hollowed models support structures might be needed. We recommend printing horizontal and always with a connector.

### *Printing Process*

**Preparation of Resin**

The material should be processed at room temperature. Before usage the material should be mixed well. It's recommend to use a e.g. bottle roller (roller bench) for mixing with suitable ceramic beads/balls for at least 30 minutes. Pour it slowly in the vat and wait a couple minutes, until the bubbles are gone before starting the print job. Make sure to not pour the ceramic beads/balls into the vat. Ultracur3D® DM 2505 should be well mixed before each print job, color deviation or failed prints might occur when not mixed thoroughly.

**Printing Process**

Suitable 3D printer and setting are guidelines the optimal setting must be defined by the user himself. Please see Instruction for Use of the used 3D-Printer for the printer settings and handling.

**Removing parts**

Remove the parts carefully from the build platform with a suite able tool, for more information see the Instruction for Use of the used 3D-Printer.

## *Cleaning and Post-curing process*

**Cleaning Process**

Ultracur3D® DM 2505 can be cleaned with water (preferably distilled or purified), please refer to the following cleaning procedure.

**Cleaning with water (preferably distilled or purified)**

*Step 1:* Place the parts in a container filled with used water and *place this container* in an Ultrasonic bath filled with water for 4 minutes.

*Step 2:* Rinse the parts with water for a few seconds. Fine structures or holes may be better cleaned by using water and a syringe or by separate brushing. Next, place the parts in a container filled with fresh water and *place this container* in an Ultrasonic bath filled with water for 4 minutes.

*Step 3:* Blow dry the parts with pressure air/nitrogen, until the parts are clean.

Remark: *Even though water is used for the cleaning, this water will contain photopolymer traces after use and should be handled according to local regulations for chemical waste. Please refer to the MSDS.*

**Drying**

Place the parts into a warming cabinet @40°C for 30 minutes.

## Post curing

Ultracur3D® DM 2505 parts require adequate post curing to achieve the optimized final mechanical properties. After each post-curing cycle, the part needs to be flipped to achieve an even curing.

Examples of post curing procedures

**MiiCraft Ultra 125**

| Post-curing unit | Dymax ECE 2000 flood | Otoflash G171 |
|---|---|---|
| **Amount of cycles** | 2 | 2 |
| **Duration of one curing cycle** | 300 seconds | 2000 flashes |

**Halot-Sky CL-89 (Creality)**

| Post-curing unit | Dymax ECE 2000 flood | Otoflash G171 |
|---|---|---|
| **Amount of cycles** | 2 | 2 |
| **Duration of one curing cycle** | 180 seconds | 2000 flashes |

## Finishing Process

Supports can be removed with a conventional dental handpiece and a dental grinding tool for plastics, if needed.

These proceedings are only general guidelines, the optimal printing settings as well as curing time must be defined by the user himself. The post-curing might differ by using different 3D-Printers and different post-curing units may require different settings.