

# envisionTEC

## Technical Guide

### Loctite E-IND402 Series Best Practices

Loctite Engineering Grade products are high performance fluids developed to be highly consistent with extraordinary attributes. Loctite E-IND402 exhibits high resilience while maintaining excellent tensile strength. E-IND402 is a single component system with excellent green strength and does not require thermal post processing. This material is available in two colors: Loctite E-IND402 Black and Loctite E-IND402 Grey.

This technical guide details the best practices for preparing models, post-processing, and material handling.

**Applicable Printers:** Envision One cDLM series

### Primary Supplies

- 99% isopropyl alcohol (IPA)
- Air compressor
- Cone-shaped paint filter (from Starter Kit)
- Nitrile gloves
- Paint brush
- Paper towels
- Paint scraper (from Starter Kit)
- Plastic funnel
- 3 Post-processing containers, 1 qt each
- Rubber spatula (from Starter Kit) or mixing cards
- Spray bottle (for 99% IPA)
- Storage containers for material - sealable and opaque

**Fig. 1** MODEL PRINTED IN LOCTITE E-IND402 GREY



### Getting Started

#### 1 Designing models for Loctite E-IND402

Models printed in Loctite E-IND402 must have a **minimum wall thickness of 1.0 mm**.

**Read this technical guide in full** before starting a print in Loctite E-IND402 material.

### Software

#### 2 Orienting models in RP software

**Spacing:** place models a minimum of **5 mm apart**

**Level at build platform for models with supports:** place models **10 mm** from the build platform and **enable base support**

**Resolution:** only print at **100 µm Z resolution**

Loctite E-IND402 material has a very high viscosity and requires more space between models for the material to flow during a print.

Always use **IND 402 Base.ini** file for supports. Supports must be thicker than most printing materials due to the elasticity of the material.

### Material Preparation

#### 3 Storing the material between prints

Loctite E-IND402 should be stored at a standard room temperature of 70° F (21° C) to 75° F (24° C). This material works best in a space with a minimum ambient temperature of 73° F (23° C).

Loctite E-IND402 does not separate easily and does not require a bottle roller for storage. See the *Safety Data Sheet* for material safety information. All SDS are available at [EnvisionTEC.com/Safety-Data-Sheets](https://www.envisiontec.com/Safety-Data-Sheets).

#### 4 Filling the material tray

The material tray should not be filled more than half way to prevent overflow when the build platform moves down at the start of a print job.

To add more material to the printer, carefully pour material into the material tray between print jobs. Adding material while the print is paused, or during a print, will cause a small shift line in the model.

#### 5 Printing with Loctite E-IND402 material

Mix the material in the material tray gently with the rubber spatula from the Starter Kit before each print. Make sure there are no small cured particles in the material.

If cured particles are found in the material, then the material must be filtered. See [Maintaining EnvisionTEC Materials](#) or the [Maintenance guide](#) for instructions for filtering the material.

### Post-Processing

#### 6 Setting up the Post Processing Zone

After the print job is complete and the models have been removed from the build platform, the models must be cleaned, dried, the supports removed (when applicable), and the models post cured. This process is referred to as "Post Processing."

Set up the three post-processing containers in the Post Processing Zone. Refer to the three post-processing containers as follows -

**"Dirty Bath"** - This is the first the models will be placed in for cleaning. It is referred to as the "dirty bath" because this solution will receive the most uncured material.

**"Medium Bath"** - This is the second the models will be placed in during the cleaning cycle.

**"Clean Bath"** - This is the third the models will be placed in. It will receive the least uncured material.

## 7 Cleaning the printed models

Loctite E-IND402 material requires a three-phase cleaning process.

**Always wear gloves when handling uncured material.**

- 1 Place the models in the **Dirty Bath** for 5 min. Agitate with the paint brush as needed
- 2 Remove the models from the Dirty Bath. Spray the models with the spray bottle of 99% IPA, then spray with compressed air
- 3 **Remove any supports** from the model using snips, if applicable
- 4 Place the models in the Medium Bath **for 2 min**, brushing if necessary
- 5 Remove the models from the Medium Bath. Spray the models with the spray bottle of 99% IPA, then spray with compressed air
- 6 Place the models in the Clean Bath **for 2 min**, brushing if necessary
- 7 Remove the models from the Clean Bath. Spray the models with the spray bottle of 99% IPA, then spray with compressed air. Use compressed air to remove all IPA from the surface of the model and dry the models

## 9 Post curing models

Cure the models using the following method -

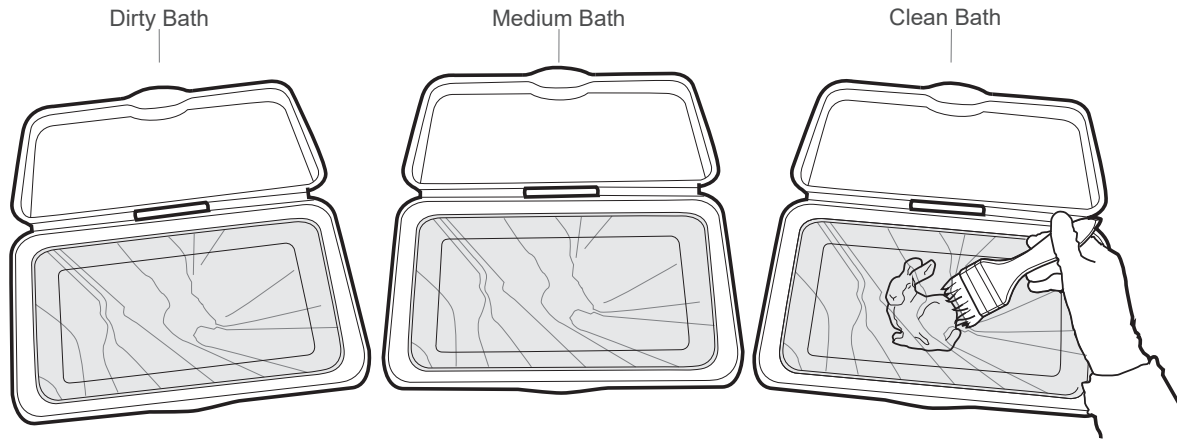
**UVCA 2000:** 40 min at room temperature

See the *UVCA 2000 User Manual* for instructions on setting a custom curing program

Place models into the curing machine with as much space between models as possible. Models should never touch one another while post curing. Let models cool completely before handling them or starting the next cycle.

*Curing options vary, based on chosen methods. EnvisionTEC only supports EnvisionTEC curing ovens. Any other post curing oven has to be calibrated by the client. It is not the responsibility of EnvisionTEC to support third party curing ovens.*

**Fig. 2** POST-PROCESSING CONTAINERS



Do not expose Loctite E-IND402 material to alcohol for longer than the recommended cleaning times. Excess exposure to alcohol will dry out the models.

## 8 Drying the models

Clean models in Loctite E-IND402 material must be completely dry before post curing -

- 1 Set the models on a clean paper towel lined surface
- 2 **Air dry** in ambient room temperature / humidity **for 60 min**

## 10 Finishing the models

Finishing involves using sandpaper and other tools to smooth the supported surfaces of models. Initially, rough areas left by supports can be carefully sanded using a fine Dremel bit followed by sandpaper. Sand beginning with 80 grit sand paper.

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