

envisionTEC

Material Best Practices

Loctite E-IND405 Series

Loctite E-IND405 is a high-strength engineering plastic with good impact resistance and excellent surface finish. Ideal for a wide variety of tools in the production floor including tooling, manufacturing aids, and housings as well as for consumer goods.

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)
- PCA 4000 curing unit Order from EnvisionTEC - SAP # ACC-06-1000
- PWA 2000 parts washer Order from EnvisionTEC - SAP # ACC-22-2000
- Plastic funnel
- Rubber spatula (from Starter Kit)
- Spray bottle (for 99% IPA)
- Storage containers for material - sealable and opaque
- Heat resistant gloves (optional)

Fig. 1 LOCTITE E-IND405



Getting Started

1 Designing models for Loctite E-IND405

Models printed in Loctite E-IND405 must have a **minimum wall thickness of 500µm**.

Read this technical guide in full before starting a print in Loctite E-IND405 material.

Software

2 Orienting models in RP software

Spacing: place models a minimum of **1.5 mm** apart.

Level at build platform for models with supports: place models **5 mm** from the build platform.

Resolution: 100 µm Z resolution.

3 Supporting models in RP software

Some approved applications require supports. Always use **E-IND 405 Base.ini** file for supports-

Minimum support base: 1.5 mm

Minimum contact tip: 0.5 mm

Minimum support beam height: 5 mm

Material Preparation

4 Storing the material between prints

Loctite E-IND405 should be stored at a standard room temperature of 70° F (21° C) to 75° F (24° C). This material performs best in a space with a minimum ambient temperature of 73° F (23° C). See the [Safety Data Sheet](#) for material safety information.

5 Mixing the material

Loctite E-IND405 mixing requirements:

Mix the sealed material bottle on a bottle roller for a **minimum of 30 min** prior to adding material to the printer.

6 Filling the material tray

The material tray should not be filled more than half way to prevent overflow 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.

7 Printing with Loctite E-IND405 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

8 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."

The PWA 2000 is the recommended parts washer. To set up the PWA 2000 -

1 Open the washing compartment lid.

2 Lift the handle to raise the interior grate to the highest position.

3 Pour the 99% IPA into the washing compartment to just below the grate while it is in the lifted position.

4 Close the washing compartment lid and lock until ready to use.

View the [PWA 2000 User Guide](#) for more instructions.

9 Cleaning the printed models

The PWA 2000 is the recommended parts washer. **Always wear gloves when handling uncured material and IPA.**

- 1 Open the washing compartment lid and lift the handle to raise the interior grate.
- 2 Place the models on the grate and gently lower the handle to submerge the model in IPA.
- 3 Close the washing compartment lid and lock in place.
- 4 Plug in the power cable to turn on the PWA-2000.
- 5 Using the touch screen, select the **High** washing program. Use the **Minus** button to set the timer to **00:02:30**, or 2.5 minutes. Press **Start**.
- 6 **Remove the models from the PWA 2000 as soon as the program is complete.**
- 7 Spray the models with the spray bottle filled with 99% IPA.
- 8 Use compressed air to dry the models.
- 9 Return the models to the PWA 2000 and run the same washing program again - **High / 00:02:30**.
- 10 **Remove the models from the PWA 2000 as soon as the program is complete.**
- 11 Spray the models with the spray bottle filled with 99% IPA.
- 13 Use compressed air to completely dry the models.

10 Drying the models

Clean models in Loctite E-IND405 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 **10 min**.

11 Post curing models

Post cure the models using the following method -

- PCA 4000:** 2 x 00:20:00 / 20° C / 100% power, flipping models between curing cycles.
Caution: Models will be **warm** after curing cycle. **Heat resistant gloves are recommended**, but not required.
 See the [PCA 4000 technical guide](#) for instructions on setting a custom curing program.

Place models into the curing unit with as much space between models as possible. Models should never touch one another while post curing. Let models cool completely before handling after the final curing 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 units.

12 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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Fig. 2 PWA 2000 FRONT VIEW

