Phrozen Sonic :Resin 3D Printer clean up

Resin Printer Cleanup Procedures

> **IMPORTANT: Do not print with resin until you have been trained on this equipment.**

> **WARNING!** Uncured resin is harmful! **Uncured resin should not be thrown away or sent down any drain.**

> **WARNING!** You must always wear **gloves**, a **mask**, and **eye protection** when working with uncured resin.

After finishing a print, whether successful or unsuccessful, the resin 3D printer and tools must be properly cleaned. All waste materials must be safely and properly saved or discarded.

Waste materials may include

- Failed prints
- Printed Support Structures
- Resin-soaked paper towels
- Water with resin in it

Step 1: Cleaning the Print

First, you should remove the 3D print (whether successful or not) from the printer base plate. Some prints may be challenging to remove. **Do not force the print off the plate.** You should work carefully and slowly, to avoid damage to the base plate or the print.

Hot water can be used to soften the printed resin and make the print easier to remove, but this water should not go down the drain. If a print sticks excessively to the plate, you may need to adjust your print settings.

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> **It is always preferrable** to damage your print rather than damaging the printer base plate.

Once the print is removed from the base plate, it will require additional clean-up to ensure quality. You should remove all supports using hand tools. Then either:

- **Use the cleaning station** (preferred) to automatically clean the print and collect uncured resin. Cleaning water/alcohol can remain in the cleaning station for multiple prints before being properly disposed of.

- **Hand-clean the print** using the provided "toothbrush" tool. Use water for water-based resin or alcohol for alcohol-based resin. You must hand clean the print in a separate basin (not the sink) so that uncured resin does not go down the drain.

Step 2: Cure the Print

You must now cure your print. Resin cures under ultraviolet (UV) light. Use the *Phrozen Cure Mega* UV curing station to cure your print. After thorough cleaning, the print may be placed on the turntable. Set a curing time and let the curing station run to completion.

> **WARNING! Do not open the curing station door while the UV light is operating.**

Step 3: Clean Up

While your print is curing, you should begin the cleanup process. You must thoroughly and carefully clean the following:

- The printer build plate
- The printer itself (anywhere resin has dripped or spilled)
- Tools such as the cleaning "toothbrush," scrapers, etc.
- The workspace

Wearing gloves, mask, and eye protection, use paper towels to wipe uncured resin from all of the above. Set aside all paper towels for final cleanup.

> **NOTE:** You do not need to clean the resin reservoir after every print. Uncured resin can remain in the reservoir for long periods.

You should clean the resin reservoir only if:

- Your print has failed and left debris in the reservoir
- If you intend to print with a new color or type of resin, and mixing colors would be unacceptable
- If the uncured resin has been sitting for too long in the reservoir and is likely to cause print failure.

> **WARNING! Do not rinse items in water** until they are thoroughly wiped clean of resin.

> **WARNING! Do not throw away paper towels** that are saturated with uncured resin.

Once you have **thoroughly** wiped away all uncured resin, such that there is virtually no resin left on these objects, you may rinse the tools and printer components (if needed) in running water.

Replace the build plate. Remember to t**ighten the hold down screws**. Properly store all tools.

If you hand-cleaned the print, you will have some amount of water or alcohol with uncured resin in it. This basin of water can be saved for use on future prints. If it must be disposed of, **cure the water and filter it as in step 5 below.**

Step 4: Curing Waste Resin

To complete the clean-up process, you must **cure all waste resin**, including support resin and all resin-saturated paper towels from clean up. **Continue to wear protective equipment** while doing this.

Take all resin-saturated paper towels, uncured supports, failed prints, and other items with uncured resin on them and place them in the UV curing station. Make sure they are spread out enough that all objects will receive enough UV light on all sides. You may need to cure these items in batches, depending on how much curing is needed.

Run these items through the UV curing process as you would a finished print. Don't forget to remove your finished print first!

> **Remember**, even a failed print must be cured before it is discarded.

> **Remember to cure your gloves as well!**

Once all waste materials have been cured, they are safe to dispose of in the trash. Take a final look around the workspace to ensure that all **uncured resin has been taken care of**, the area is **clean and tidy**, and the **printer is cleaned and reset to operational configuration**.

Step 5: Refreshing the Cleaning Station Wastewater

> **NOTE!** It is not necessary to discard cleaning station wastewater/alcohol after each print. This material can be **re-used.**

> **WARNING!** Cleaning water/alcohol may have uncured resin in it. **Always wear gloves and other protective equipment.**

Periodically, it may become necessary to filter or dispose of the cleaning station water/alcohol when it becomes too saturated with uncured resin to be useful.

To accomplish this:

1. Use the **cleaning station spigot** to drain cleaning water into one of the **transparent curing flasks** provided for this task.
2. Taking care not to spill or drip the contaminated cleaning water, **place the curing flask into the curing station**.
3. **Run the curing flask through a curing cycle** to cure any resin saturated into the water.
4. **Repeat** this process until the curing station is almost empty.
5. Pour the **last remaining water** (likely the most contaminated water) into a final flask and **cure as above**.

The cleaning container may now be wiped clean.

> **Remember**, the paper towels used to wipe the cleaning station should also be cured as in step 4 above.

Using provided filters, the cured cleaning water can be poured back into the cleaning station for **re-use.**

The used filters may be **discarded into the trash**.

Infrequently, the cleaning water may be so dirty that it cannot be reused. In this event, SCiL staff will use a curing and evaporation process to safely dispose of it.

Helpful Guidance

The following video, by Edward Peak, provides helpful guidance for resin printing:

https://www.youtube.com/embed/6HeBpAnBPc8

Revision #9
Created 2025-08-19 13:35:22 UTC by Nate
Updated 2026-02-02 16:33:54 UTC by Mariah