

# Formlabs Resin Care

## Resin Care

Resin should be handled with care. Proper handling will ensure safe printing and efficient use. Always consult the SDS (Safety Data Sheet) as the primary source of information to understand safety and handling of Formlabs materials.

## Storage

Store resin in a cool, dry place out of direct sunlight. The operating temperature for Formlabs printers is 64–82 °F (18–28 °C). For optimal printing, do not exceed this range in storage. Keep containers closed, and do not pour liquid resin back into the original container. Avoid ignition sources. To reduce the risk of pigment settling, resin containers should be gently shaken once a month in storage and before beginning a print. Before starting a print, agitate or stir resin in the tank.

## Safety & Handling

Formlabs Standard resins are designed to be similar or safer to handle as other household chemicals or adhesives. When measuring potential acute health effects of inhalation or ingestion, there are no known significant effects or critical hazards. Eye contact may cause eye irritation. Skin contact may cause an allergic skin reaction. The safety data sheets (SDS) are up to date for every resin product and follow the latest government guidelines. Always consult the SDS as the primary source of information to understand safety and handling of Formlabs materials.

Use chemical-resistant gloves - such as nitrile or neoprene; do not use latex - when handling liquid resin, including when removing printed parts from the printer. Exposure to resin in the liquid form can cause mild skin irritation for some people. If you get any on your skin, make sure to wash thoroughly with soap and water before moving on to other activities. Do not use solvents to wash hands, face, or any body parts. Wear gloves and use alcohol, followed by soap and water, to clean tools after handling resin. See the safety data sheets (SDS) for more detailed chemical information.

**WARNING:** Unless specifically indicated, Formlabs resin is not approved for use with food, drink, or medical application on the human body. Do not attempt to use printed parts for purposes other than the described application. Never ingest resin. Do not eat, drink, or smoke in the printing work area.

## Resin Lifetime

Shelf life, or lifetime, is the amount of time a material may be stored and still function as designed. The shelf life of resin starts on the date of manufacture.

Many variables affect the shelf life. Resin may be usable for a longer period than advised, depending on handling, use, and storage. Because many variables determine resin lifetime, Formlabs advises a general lifetime for each material instead of a strict shelf life or an expiration date.

Like all chemicals, Formlabs materials require proper storage to maximize the usable lifetime. Light and temperature impact shelf life significantly. Exposure to extreme temperatures may alter the chemical composition of the resin. Toward the end of the resin's shelf life, the resin's photoreactivity decreases and the chemical composition changes. As a result, prints may fail and, in extreme cases, expired resin may become viscous or gelatinous. When switching resin tanks, use the wiper to inspect the resin for signs of expiration, such as higher viscosity than normal and large agglomerates in the resin.

## For the best printing results:

- Store the resin according to the SDS: in the original container, away from direct sunlight, in a dry, cool, and well-ventilated area.
- Shake resin containers periodically to agitate the mixture when in storage.
- Store resin in a separate, opaque container from the resin tank.
- To avoid the risk of contamination and preserve the integrity of resin, never pour resin back into the original container.
- For standard Resin Tanks, store the tank empty and away from light if the tank will be unused for one month or a longer amount of time.
- For Resin Tank LT, store the tank empty and away from light if the tank will be unused for two months or a longer amount of time.
- Some resins, such as Dental SG Resin, Dental LT Clear, and High Temp Resin, are known to wear down tanks more quickly. For these materials, print using Resin Tank LT (Long Term) for best results and a longer tank lifetime. Learn more about resin tank compatibility.

## The lot number of a resin cartridge, located near the bite valve

Each bottle or cartridge of resin includes a lot number, sometimes indicating the year of production followed by the month and date. For bottles, the lot number and/or best use date are located on the label; for cartridges, the lot number is on the underside, near the dispensing valve.

The lot number on a cartridge or bottle should be formatted YYYYMMDD. If the bottle or cartridge lot number has a different format, the resin is most likely past its shelf life and may not print properly.

The table right advises the recommended shelf life for each material:

### TIP:

The lot number is 8-10 digits and is different from the formulation code. The formulation code begins with FL, immediately followed by four letters and two numbers. For example, a cartridge of Tough Resin may have formulation code FLTLT002 and lot number 20170302. Since Tough has a shelf life of 18 months, this resin is best used before September 2018.

## Reusing Resin

The remaining liquid resin in the tank can be used for your next print, but should not be returned to the original bottle or cartridge to avoid potential contamination. Keep unused resin in the resin tank. The orange acrylic of the tank and printer cover will protect your unused resin from ambient light. To avoid possible exposure to light or heat, use the resin tank lid when storing resin outside the printer and store resin tanks away from direct sunlight. Make sure to check the resin tank for clarity of the optical window and consistency of the liquid resin before starting a new print.

**WARNING:** Mixing resins could result in failed prints and machine damage. Only use one type of resin with each resin tank. Formlabs products are tested and recommended for use with Formlabs resins; other materials may trigger safety concerns.

## Using Multiple Resins

It can be challenging to fully clean a resin tank without smudging the optical path. For the best printing results, use a different resin tank with each type of Formlabs resin. Extra tanks are available through the Formlabs Store. With a separate tank for each resin type, switching print materials between prints is as easy as cleaning the build platform and switching the tanks. For Standard resins, cleaning the resin tank to change resins is possible, but may lead to contamination between formula (Grey mixing with Clear, for example). Functional resins should have their own designated tank due to chemical differences. Resins designated as biocompatible must maintain separate accessories, including a dedicated resin tank, build platform, and finishing equipment.

## Resin Disposal

To dispose of resin or empty resin containers, follow the instructions described in section 13 of the resin's safety data sheet (SDS). Expose empty containers to light, then dispose of in accordance with governmental regulations. Cleaned parts and cured (hardened) resin cannot be recycled, but can be discarded with household items as trash. Liquid resin (whether pure liquid, dissolved in alcohol, or partially cured) may be classified as hazardous waste and must be disposed of with care:

Do not pour or dispose of liquid or partially cured resin in drains or with household waste.

Place the liquid in a container and label and dispose of it according to your local regulatory guidelines.

Cure pure resin (i.e., resin that is not dissolved in the alcohol from washing) in sunlight or under a UV lamp. Then dispose as normal waste. A simple trick is to put the liquid in a clear plastic bag and leave it in the sun until cured (1–10 days). Curing happens most effectively with exposure to 405 nm light and heat.

## Resin Spills

Spills can damage your Formlabs printer or workspace so be careful to only fill your tank to the maximum line.

**WARNING:** If resin spills outside of the resin tank, wear gloves and clean the resin spill immediately before the material hardens. To avoid further damage, before using IPA or other cleaning agents, spot test the cleaner on a small, inconspicuous area of the affected surface. Thoroughly wash affected surfaces with soap and water. If resin spills inside the printer, contact Formlabs to report the spill and follow cleaning instructions.

Material	Recommended shelf life
<b>Translucent materials</b>	18 months
Clear Resin	18 months
High Temp Resin	18 months
Tough Resin	18 months
Durable Resin	18 months
<b>Opaque materials</b>	12 months
White Resin	12 months
Grey Resin	12 months
Black Resin	12 months
Color Resin	12 months
Castable Resin	12 months
Castable Wax Resin	12 months
Flexible Resin	12 months
Dental Model Resin	12 months
Grey Pro Resin	12 months
Rigid Resin	12 months
Ceramic Resin	12 months
<b>Other materials</b>	
Dental SG Resin	24 months
Dental LT Clear Resin	24 months