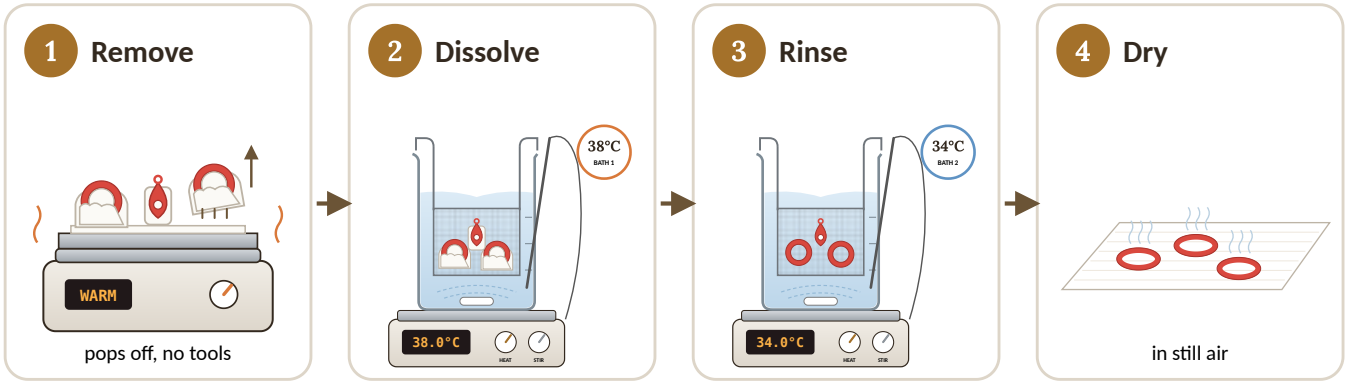
WAX PATTERN POST-PROCESSING GUIDE

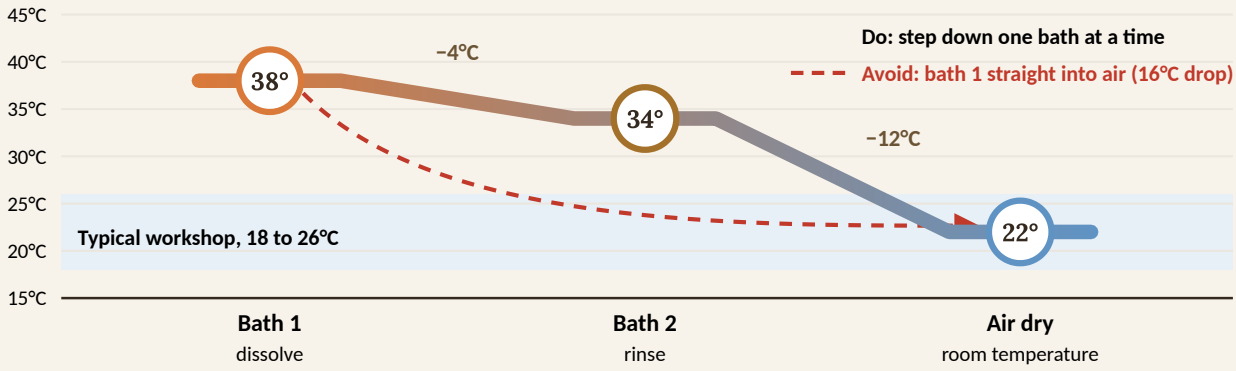
From build plate to casting tree.

Your WaxJet prints each pattern in red casting wax, held in place by white support wax. The support dissolves away in warm isopropyl alcohol (IPA), leaving a clean pattern with every detail intact. This guide walks you through our recommended routine: at least two IPA baths, stepped down in temperature, so the wax is never shocked.



The one rule: warm to room temperature, one step at a time.

Each stage is a little cooler than the one before. Parts go from the warm dissolving bath, into a slightly cooler rinse, and only then into the open air. Small steps protect fine details from cracking and distortion.



WHAT YOU NEED

- **Industrial IPA** — 99% purity or higher
- **Two or three glass beakers** — with lids, and a stir bar in each
- **Magnetic stirrer hotplate** — with temperature control
- **Soft-tipped tweezers** — or tweezers with a rubber sleeve
- **Stainless mesh basket** — hangs clear of the stir bar
- **Temperature probe** — reads the IPA, not the plate
- **Ice block or freezer pack** — for cold release (optional)
- **Nitrile gloves, safety glasses** — and good ventilation
- **Lint-free cloth** — or clean paper towel

Before you start: set up your IPA baths

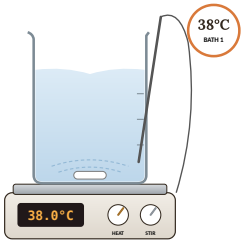
Use industrial IPA with a purity of 99% or higher. Pharmacy and hardware store IPA is often only 70%, with the rest water. Water slows the dissolving and can leave a white haze on the pattern.

Two baths is the minimum, each in its own beaker on a magnetic stirrer:

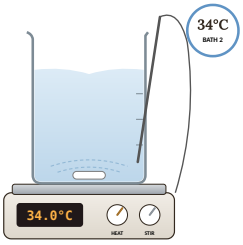
- **Bath 1, bulk removal** ABOUT 38°C
  Does the heavy work and collects most of the dissolved support.
- **Bath 2, rinse** ABOUT 34°C
  Clean IPA that removes the last traces. Held a little cooler, so it is also the first step down towards room temperature.
- **Optional bath 3, final dip.** Fresh IPA for an even cleaner finish. See step 3.

SETTING UP

- Fill each beaker so the basket and parts will sit fully under the surface, and drop in a stir bar.
- Set the temperature and let it settle before any parts go in. Check it with a probe in the IPA, not just the dial.
- Around 38°C is a good starting point (see page 4). Never go above 43°C.
- Keep lids on when you can. IPA evaporates fast and absorbs moisture from the air.



Bath 1: bulk removal. Heated and stirred. Does the heavy lifting.

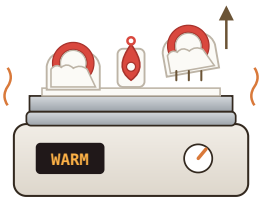


Bath 2: rinse. Clean IPA, a little cooler, for the rinse.

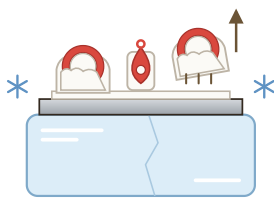
1 Remove the parts from the build platform

- Wear nitrile gloves. Jewellery patterns are very delicate, so **never use a scraper or pry them off.** Let temperature do the work. Choose one method:
- **Warm release (gentlest).** Sit the build platform on the hotplate at a low setting, starting around 40 to 45°C on the platform itself, well below the red wax's 63°C softening point. As the white support at the base softens, the parts come free. Lift them off one at a time.
- **Cold release.** Sit the build platform on an ice block. The wax contracts faster than the metal and the parts pop off. Take them off as soon as they release, as over-chilled wax turns brittle, then let them reach room temperature before bath 1.
- If a part has not released, give it more time. Never push, twist or lever it.
- Handle parts with soft-tipped tweezers and place them loosely in the basket so they do not touch.
- To clean the platform, warm it on the hotplate and wipe off the softened residue with lint-free paper.

The parts pop off by themselves. No scraper, no prying.



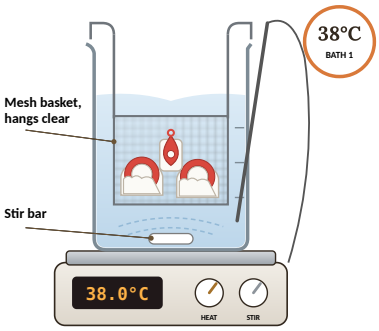
Warm: on a hotplate

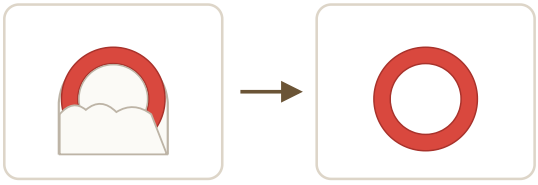


Cold: on an ice block

2 Bath 1: dissolve the support ABOUT 38°C

- Lower the basket into bath 1. It must **hang clear of the stir bar** so parts never touch it.
- Bring the stirring up gradually. Faster stirring dissolves the support quicker, but stop short of the point where parts start to shake or tumble.
- Leave the parts in until the white support is **fully dissolved**. Time depends on part size, the amount of support and how much wax the bath already holds.
- Check every minute or so. Look closely under prongs and settings, inside galleries and in pierced details, where support hides longest.
- **Move on as soon as the support is gone.** Do not leave patterns soaking.



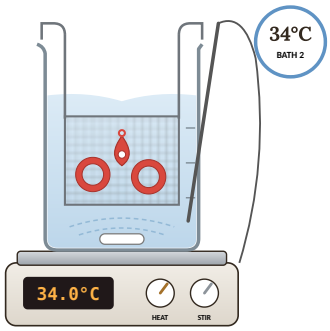


Before: support attached

After: clean red wax

3 Bath 2: rinse ABOUT 34°C

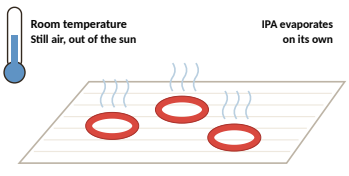
- Move the basket **straight from bath 1 to bath 2**. Do not let the parts sit in the air in between.
- Rinse for 2 to 10 minutes with gentle stirring. A few minutes is usually enough.
- This rinse washes off the film of used IPA that carries dissolved support. Skip it and that film dries as a white haze.
- Bath 2 is a little cooler, so the parts start stepping down towards room temperature.



Optional bath 3: final dip. For the cleanest finish, dip the parts in a third beaker of fresh IPA for about 20 seconds, held a few degrees below bath 2.

4 Dry at room temperature

- Lift the parts out with soft-tipped tweezers and lay them on a lint-free cloth or absorbent paper.
- Let the IPA evaporate on its own in still air, out of direct sun and away from fans, air conditioning vents and open windows.
- **No heat guns, hair dryers or compressed air.**
- Handle as little as possible until dry. Inspect under magnification and the patterns are ready for spruing. Our casting tree guide takes them from here, and the casting defects guide helps if a casting ever shows a flaw from the pattern.



Why the temperature steps matter

Wax expands when warm and shrinks as it cools. If a warm pattern goes straight from the bath into cool air, the surface cools and shrinks faster than the core. That strain can show up as fine surface cracks, warped thin sections or distorted prongs.

Evaporating IPA makes it worse, because it pulls heat out of the surface as it dries. For a moment the pattern is colder than the room.

Stepping down one bath at a time keeps every change small. Bath 2 is the stepping stone between the warm dissolving bath and the open air.

Set bath 1 to suit your room. In a typical workshop, around 38°C works well. Keep the room itself at a steady temperature. In a cold workshop, bring the baths down a little so the final step into the air stays small, and allow extra time in bath 1 for the support to dissolve.

TROUBLESHOOTING

WHAT YOU SEE	LIKELY CAUSE	WHAT TO DO
Part will not release from the platform	Not enough time on the hotplate or ice block	Leave it longer. Never scrape, pry or twist the pattern.
White support still there after a long soak	Bath 1 is loaded with support, too cool, or the IPA has taken on water	Refresh bath 1 with fresh 99% IPA. Check the temperature with a probe.
White haze once dry	Rinse skipped, too short, or bath 2 is dirty	Refresh bath 2 and rinse again for a few minutes.
Fine cracks or warped thin sections	Temperature change too large, or drying in a draft	Keep each step down small. Dry in still air at room temperature.
Chipped or bent details	Basket overloaded, stirring too fast, or parts touching the stir bar	Smaller loads, gentler stirring, basket raised clear.
Dissolving slower than usual	IPA water contaminated or nearly saturated	Replace with fresh industrial IPA.

LOOKING AFTER YOUR IPA

- **Know when bath 1 is spent.** Plan on about 100 to 120 g of dissolved support per litre of IPA. After that, dissolving slows noticeably.
- **Rotate the baths.** Empty bath 1 into a waste container, move each bath up one place, and fill the last bath with fresh IPA. The cleanest IPA always does the final rinse.

SAFETY

- IPA is highly flammable and gives off flammable vapour even at room temperature. Heat it only on a hotplate stirrer, away from flames, sparks and heaters. Before you use the hotplate to warm the build platform, move any IPA beaker off it and away.
- Never put IPA straight into an ultrasonic cleaner.
- Work in a well ventilated area with nitrile gloves and safety glasses. Never leave a heated bath unattended.
- Dispose of used IPA through a licensed chemical waste service, never down the drain. Read the supplier's Safety Data Sheet.

3D WERK

Local Flashforge WaxJet support in Sydney

Questions about your wax patterns?

support@3dwerk.com.au

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