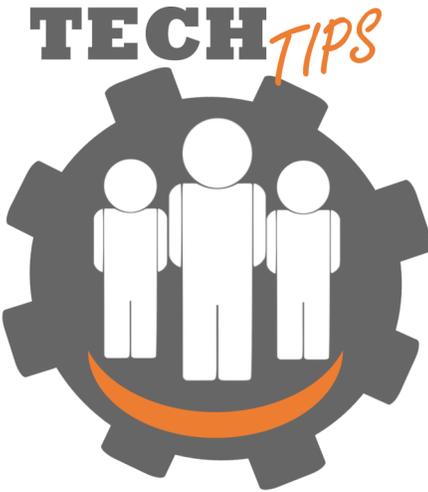

JEWELRY INJECTION WAX GUIDELINES



Jewelry casters use specially formulated injection waxes to produce high quality wax patterns. To make the most of the inherent features and benefits in your jewelry injection wax, R&R recommends following these simple guidelines.

Filling the Wax Pot

Periodically, all wax pots should be fully drained and cleaned. Wax left idle for an extended period should be gently stirred.

R&R recommends wax pots be filled at the end of each day, allowing the wax to slowly attain and stabilize to desired injection temperature.

If you need to refill the wax pot during a production run, and you don't have a separate wax melter, you can fast-melt the wax at 200 °F (93 °C). Be sure to take wax temperature readings at the inside wall of the pot while stirring lightly to eliminate air bubbles. This stirring action will also help to evenly distribute heat throughout the wax. If trapped air is still present, it is also helpful to spray the surface with silicone mold release agent. This will reduce surface tension and allow any trapped bubbles to break.

Once the wax has reached proper injection temperature and before pressurizing the pot, let the wax settle for a short while to permit any remaining air bubbles to escape and for the wax to return to the required injection temperature.

Wax Pot Operation

Most wax pots rely on conduction to heat the wax from the inside walls of the pot towards the center. Consequently, wax in contact with the walls is exposed to higher temperatures.

The properties of all injection waxes are diminished by high temperatures and excessive on/off melting cycles. For these reasons, R&R recommends wax pots be kept on continuously at the chosen injection temperature setting. This will keep the wax at a constant and even overall temperature and will eliminate cool- down/heat-up cycles that can accelerate the degradation of wax properties.

Wax Temperature

R&R suggests purchasing a separate testing thermometer that is accurately calibrated. The secret to consistent injection is monitoring and reproducing the same temperature every time you inject.

Most thermometers built into wax injection pots read temperature inside a hollow, air filled metal sleeve located somewhere near the center of the pot. While this provides some idea of temperatures inside the pot, it is not nearly as accurate as taking the actual wax temperature by submersing a separate testing thermometer into the wax.

To get an accurate wax temperature reading, all the wax in the pot must be at a relatively even temperature overall. To get the most accurate temperature reading with a separate thermometer, leave the wax pot on continuously at the appropriate injection temperature setting.

You may notice a temperature reading differential from 4-8° depending upon the pot's thermometer location versus the testing thermometer. Make note of this difference for future reference.

Taking all factors into consideration that will affect wax injection, such as: thermometer accuracy, drafts, proximity of air conditioning vents, etc., set the temperature controller to the lowest possible recommended setting for the particular wax.

To obtain optimum results, you should tweak the wax temperature 1° at a time, bringing it down to the coolest injection



RANSOM & RANDOLPH

3535 Briarfield Boulevard, PO Box 1570 | Maumee, OH 43537 USA
800.253.4502 | 419.865.9497 | 419.865.9997 (FAX) | www.ransom-randolph.com



Investing with Innovation™

JEWELRY INJECTION WAX GUIDELINES

temperature possible. Be sure to allow at least 1-hour soak time between tests to permit the wax to fully stabilize at the new temperature setting.

Injection Pressure

Always inject molds at the lowest possible pressure setting (typical injection pressures range from 2-10 psi). This will eliminate or minimize flashing and mold lines, greatly reduce clean up time, and will ensure similar pieces are the same weight. Improving pattern injection often results in reduced metal loss and faster finishing later in the process.

Remember to clear the nozzle before starting injections. This will balance the nozzle temperature and promote a more efficient wax flow into the mold.

Nightly Shutdown

Incorporate three important routines into your nightly shutdown procedures:

- Always release the air pressure
- Fill your pot with fresh wax
- Check to be sure your wax pot is left on

Some injector operators turn the wax pot thermostat off at shutdown, then turn it on high each morning to quickly melt the wax. This practice is not recommended for the following reasons:

- It poses a serious risk of accidental burns to the operator
- It consumes/dissipates wax ingredients which are critical to maintaining the original properties of the wax
- Wax injected at higher than recommended temperatures can cause excessive pattern shrinkage
- It diminishes or eliminates the glossy surface finish on patterns, resulting in rougher castings and increased finish work

Proper Pattern & Wax Storage

After injection, all waxes go through a crystallization process which takes approximately 24 hours. After this time period, the wax has matured, and its properties are stabilized.

Wax patterns and unused bulk wax should be stored in closed containers at normal room temperatures, away from direct sunlight and sources of heat.

Remember, keeping your jewelry injection wax clean and fresh will ensure that you obtain maximum results from every batch.



RANSOM & RANDOLPH

3535 Briarfield Boulevard, PO Box 1570 | Maumee, OH 43537 USA
800.253.4502 | 419.865.9497 | 419.865.9997 (FAX) | www.ransom-randolph.com



Issue Date: February 26, 2020

Investing with Innovation™