

## Soldering Iron and Tip Care Guide

Most iron tips today are a copper core surrounded by iron, hence the term ‘iron clad’ that is then nickel or chrome plated. Because solder won’t stick to nickel or chrome the plating on the chisel end of the tip, (where you melt the solder) is removed to expose the iron cladding. Solder does stick to iron. To keep the tip from rusting you must keep it coated with a layer of tin, hence the term tinning. This is why solders used in stained glass are a mixture of tin and other metals (generally lead).

You will extend the life and improve the performance of your soldering iron and tips by following a few simple guidelines

### Soldering Iron Care

- Always place your soldering iron in a stable iron stand whether it is being used or not.
- Make sure you plug the iron into the correct type of outlet with the proper voltage.
- Try not to use an extension cord. If you must, use a heavy duty one.
- Regularly check the cord for burns or cracks and have a professional electrician replace worn cords before using.
- Make sure that the cord is not hanging in such a way that it comes under the hot tip or can be pulled off the work surface and pull the iron with it.
- Don’t drop or bang the iron. Ceramic heaters are especially easy to crack or break.
- Do not allow the iron to idle at operating temperatures for extended periods. This could burn out the element or even the iron. If you are using a rheostat, turn it down to a low “idle” setting. If not, unplug the iron.
- Occasionally, remove the tip and lightly tap the barrel of wire wound heater irons to remove debris.
- If you will not be using your iron and tips for an extended period of time, you may want to store it (after it has fully cooled) in a resealable bag to protect it from corrosion and humidity.

### Soldering Tip Care

- Using a quality solder will go a long way to keeping your tip working properly. Impurities in the metals used to make the solder will collect on the iron tip as you work. This causes the tip to work less efficiently, degrades the surface, and requires more frequent cleaning.

Alloy	Tin %	Lead %	Solid at (°F)	Liquid at (°F)	Pasty Range (°F)
50/50	50	50	361°	417°	56°
60/40	60	40	361°	374°	13°
63/37	63	37	361°	361°	0°

**50/50 Solder:** This is composed of 50% tin and 50% lead. This solder melts at 417° F, (higher than 60/40) but below that remains partially liquid until it cools to 361° F and solidifies giving it a pasty range of 56° F. This solder traditionally was used for lead came projects where a flatter solder joint is desired. It can be difficult to get a smooth beaded seam because it starts to solidify sooner, that is at a higher temperature.

**60/40 Solder:** Composed of 60% tin and 40% lead, this solder completely melts at 374° F, but doesn't become completely solid until it cools to 361° F. This means it has a “pasty range” or “working range” of 13 degrees. This solder stays liquid longer so tends to form higher and rounder solder seams making it a preferred choice for copper foil projects.

**63/37 Solder:** This solder is 63% tin and 37% lead. It becomes liquid at 361° F, and solid at 361° F, giving it a pasty or working range of 0 degrees. This solder is called an eutectic alloy which means at 361° F, you can go instantly from solid to liquid to solid just by applying or removing the heat source that is at 361° F or higher.

**Lead-Free Solder:** Depending on the specific mix of metals, lead free will produce differing liquid, solid, and pasty range temperatures. Check with the solder manufacturer for these specifics.

- Keep the tip clean while you work. Have a damp sponge handy to *occasionally* wipe your tip on while soldering to remove residues that collect. A properly cleaned tip is bright and shiny. Keeping the tip clean is important but *constantly* wiping it on a wet sponge can cause early tip failure. Excessive wiping causes the tip temperature to repeatedly rise and fall (cycle) and the different metal layers in the tip to repeatedly expand and contract. This leads to metal fatigue and ultimately tip failure where the copper core bubbles out. There are brass wool coils that are used like a sponge to wipe the tip off on as you solder and will not cool the tip.
- If your tip becomes blackened and will not come clean after wiping on a damp sponge or brass pad, you might try a tinning block or a soft brass brush or brass wool. A tinning block (sal-ammoniac) is used by placing a small amount of flux on the block and rubbing the tip of your hot iron in it then wipe the tip on a damp sponge to remove debris. You may need to repeat this several times if your tip is very dirty. Once the tip is clean reflush it with a high tin content solder.

Care should be taken as the block is abrasive and excessive use can wear away the iron cladding, exposing the copper core and make the tip unusable. You can try brass wool or a soft brass brush as an alternative.

- Avoid the practice of dipping your tip into flux in order to clean it. Flux is corrosive.
- Never use sandpaper or any abrasive material to clean a tip. The best way to minimize your tip maintenance is to use a good quality solder, one that has a high tin content and high metal purity.
- At the end of a soldering session, wipe the tip clean, flood the tip with solder (63/37 or 60/40 is best), wipe it again and then unplug the iron. This will flush and re-tin your tip, protecting it from oxidation and corrosion.
- Prevent the tip from seizing (becoming stuck) in the barrel by loosening the nut or screw that secures it. This is an especially good practice when storing your iron. If you find the tip has become stuck in the iron barrel it is best to return it to the manufacturer for removal as you can easily damage the irons heating element trying to remove it.

See our [Common Causes of Tip Failure](#) for practices to avoid.



**inland**  
building what we'd like to own  
**Inland Craft Products, Co.**  
32052 Edward Drive  
Madison Heights MI 48071  
[www.inlandcraft.com](http://www.inlandcraft.com)

