



Tech Handout

Maximum Tip Temperature & your Soldering Iron: Understanding the Negative Effects of Excessive Idle Times

If excessive heat is allowed to build-up within a soldering iron for a prolonged period, it begins to have detrimental effects on the very resistive wire that is required to create the heat. Its a phenomenon that we describe as the soldering iron 'baking itself to death'.

American Beauty Soldering Irons have maximum tip temperatures ranging from 800°F to 1150°F, depending upon the size and wattage of the specific iron that you choose. At those extreme temperatures, the natural expansion and contraction that occurs within the heating element's resistive wire, degrades the wire. The result is a physical break in the resistive wire and failure of the heating element due to the interruption of the electrical circuit.

So the natural question is; "Why do we allow our irons to get so hot, if during most soldering applications the required operating temperature will vary between 450°F and 650°F?" American Beauty soldering irons are classified as constant temperature irons, which means that they work on a process of constant recovery of heat. Our irons continue to rapidly produce heat, whether its being drawn out of the iron or not. American Beauty Irons are a benchmark for heavy-duty soldering because of this very feature. For production line workers, roofers, stained glass artists or others with jobs that require a lot of heat, this is a life saver as they are not having to constantly wait for the iron to regenerate enough heat to allow it to re-flow solder after only a single joint, a linear foot, a glass panel, etc. However, if the operator fails to use the iron enough, that heat is no longer transferred from the iron, through the tip and into the 'work'. Instead...it begins to bake!

For applications where there will be significant idle time between solder joints we recommend the use of our Model V3700 to lower the maximum tip temperature of the tool.

FYI ~ In addition to the risk of premature soldering iron failure, allowing your soldering iron to bake at near maximum temperature also has negative effects on the soldering tip which if not constantly re-wetted, will soon oxidize and become non-functional.