

## Do HAKKO soldering iron tips have a shelf life?

HAKKO soldering iron tips do not have any type of shelf life. The only time they wear or degrade is when they are heated and in contact with solder.

There are various factors that make every soldering iron tip wear out. They affect all tips the same way. Some of these factors include:

- Abrasion from rubbing the tip against pads, RF shields, component terminations, or pressing against trimmed leads
- Corrosion from acidic or highly aggressive fluxes
- Corrosion from the tin content in the solder as it reacts with iron which is the plating that all tips use.
- Oxidation from improper maintenance of the tip allowing the iron to become exposed to the air and as a result of the oxidation, heat transfer diminishes and the solder will no longer flow properly.

Corrosion and oxidation are both chemical reactions and are directly influenced by the amount of energy in the reaction. The energy comes from the soldering iron tip temperature. The lower the temperature, the slower the reactions occur. Higher temperatures mean higher reaction rates. Best way to illustrate this is the difference between pouring cold water over an ice cube, and pouring hot water over an ice cube. The ice cube melts faster because there is more heat energy in the process when you pour hot water over the ice cube as compared to pouring cold water over the ice cube.

If you've recently changed from tin/lead solders to lead-free solders, you can expect a shorter tip life because there is more than 2x the tin content on lead-free solders, and tin reacts with iron.

HakkoUSA Knowledge Base

<http://kb.hakkousa.com/KnowledgebaseArticle10632.aspx>