ITW Chemtronics®

Frequently Asked Questions

Soder-Wick® Lead-Free

1) What exactly is Soder-Wick® Lead-Free SD?

Soder-Wick® Lead-Free SD is a new desoldering braid that has been engineered specifically for optimal removal of lead-free solders, which have a much higher melting point than tin/lead solders. However, it is also effective at removing current tin/lead solders. The SD designation means that the desoldering braid is wound on a static dissipative bobbin to protect the board being reworked from a destructive static discharge.

2) What is the difference between the new Soder-Wick Lead-Free SD and other desoldering braids like the original Soder-Wick® Rosin and Soder-Wick® No Clean?

The innovative weave of Soder-Wick® Lead-Free SD conducts heat more quickly to the solder joint so more heat energy goes where it is needed to melt the higher melting point, lead-free solders. This shortens the time it takes the solder to liquefy and shortens the overall time required to remove solder when using Soder-Wick® Lead-Free SD. Also, since more of the heat is transferred to the solder joint, Soder-Wick® Lead-Free SD alleviates some of the burden on the soldering iron. The quicker heat transfer means that the operator must also work more quickly to prevent overheating of the solder joint, pad or component. Other wick products do not conduct heat to the solder as quickly and place more emphasis on moderating the heat transfer into the joint.

One additional benefit is that some users may find that they can use temperatures for lead-free desoldering similar to conventional tin/lead solders when desoldering with Soder-Wick® Lead-Free. This will reduce oxidation and increase soldering iron tip life compared with much higher temperature applications.

The innovative weave also makes Soder-Wick® Lead-Free smoother than the current Soder-Wick® Desoldering Braid. This is done to reduce scratching and marring pads.

Soder-Wick® Lead-Free SD employs a 'no clean' flux specifically formulated to tolerate the higher temperatures and poorer wetting capability of currently available lead-free solders.

3) Do I have to use Soder-Wick® Lead-Free to remove lead free solders?

No, Soder Wick® Rosin and Soder-Wick® No Clean will also effectively remove lead-free solder but they are not optimized for lead-free solder removal. They will require (a) a soldering iron tip that is slightly larger than the joint and desoldering braid, (b) possibly higher temperatures, which may shorten soldering tip life and (c) a higher power soldering iron for faster thermal recovery.

Some operators may actually prefer the original Soder-Wick® products and are more comfortable adapting their technique and equipment to lead-free solders, rather than changing to the new Soder-Wick® Lead-Free.

4) Does Soder-Wick® Lead-Free remove lead containing solders effectively?

Yes, Soder-Wick® Lead-Free effectively removes conventional lead containing solders. However, operators accustomed to the original Soder-Wick® may find that the braid heats-up more quickly and must adapt their technique.

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5) What is the difference between lead-free solders and a typical Sn63/Pb37 solder?

There are many different lead-free solders available and many solder producers promoting their own solder. As this answer is written, there doesn't seem to be one single lead-free solder that will be a drop-in replacement for Sn63/Pb37 solder. One popular alloy contains tin (Sn), silver (Ag) and copper (Cu). Other alloying metals, which may be used to modify the melt temperatures of the solder, are indium (In) and bismuth (Bi). Antimony (Sb) may be added to increase strength. You should consult several different solder companies to determine what is best for your application.

In general:

- Current lead-free solders have higher melting points than lead containing solders
- Current lead-free solders do not wet as well as lead containing solders
- Current lead-free solders are more expensive than lead containing solders
- Current lead-free solders are less durable in some highly demanding situations
- Current lead-free solder joints are not as shiny as lead containing solders

6) Lead-free solders melt at higher temperatures than current Sn63/Pb37 solders. Does that mean I need to increase the temperature of my soldering iron when desoldering?

Not necessarily. Higher temperatures can damage components or parts of the board as well as the soldering tips. Also, using very high soldering iron temperatures may actually make desoldering more difficult by promoting oxidation and driving off flux and flux activators. Using a slightly bigger soldering iron tip and Soder-Wick® Lead-Free may be enough for some users to use lower temperatures to desolder.

Soder-Wick® Lead-Free uses a flux specially formulated to handle higher temperatures better than conventional fluxes which alleviates some of the effect of the higher temperatures but operator technique and timing play a role. Additionally, Soder-Wick® Lead-Free is designed to conduct heat to the solder joint more quickly which will mitigate some of the need for higher temperatures. Consequently, Soder-Wick® Lead-Free will keep the lead free desoldering process quick and efficient and probably extend the life of expensive soldering iron tips.

It may be necessary and possible for an operator to use higher temperatures successfully in desoldering. However, they should start by trying to use the same temperature they would normally use for typical Sn63/Pb37 solders.

7) Is Soder-Wick® Lead-Free packaged the same as current Soder-Wick® products?

Yes, absolutely! The original Soder-Wick® has the best packaging of any desoldering braid product and we will offer the same for Soder-Wick® Lead-Free.

- It will be available on the same non-contaminating, static dissipative plastic alloy bobbins that we currently use. This protects the reworked device from damaging static discharge.
- For convenience, we will offer Soder-Wick® Lead-Free in 5 foot and 10 foot lengths.
- For freshness, Soder-Wick® Lead-Free will be available in the VacuPak™ cans where the braid is vacuum processed and sealed in an inert gas blanket. It will also be available in the Performance Pak sleeve, which locks out moisture and locks in freshness and quality.

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8) Is Soder-Wick® Lead-Free available in all sizes?

For the introduction of Soder-Wick® Lead-Free, we are concentrating on the most popular and useful braid sizes. It will be available in the following sizes:

Size #2 (0.060in. /1.5mm) for Small Pads, SMDs

Size #3 (0.080in. /2.0mm) for Medium Pads

Size #4 (0.110in. /2.8mm) for Large Pads

9) What kind of flux is used on Soder-Wick® Lead-Free? Will I have to clean the board after desoldering with it?

Soder-Wick® Lead-Free uses a no clean flux specifically formulated for lead-free desoldering. It can be used successfully around both rosin and no clean fluxes. Being a 'no clean', it is generally not necessary to clean the printed circuit board because of the flux from Soder-Wick® Lead-Free SD.

However, some users prefer to clean 'no clean' fluxes. For these people, we have developed a flux remover capable of removing the lead-free flux, which is uniquely designed for the higher temperatures and poorer spreading of lead free solders. The product code is ES197 and is called Flux-Off® Lead-Free.

The flux used on the Soder-Wick® Lead-Free is designed to meet the same specifications as the flux used on our current Soder-Wick® No Clean desoldering braid.

It is important to note that the fluxes used to apply lead free solder are often more reactive than fluxes for leaded solder, because lead-free solders are poor at wetting. In general, higher activity increases the risk of corrosion and requires cleaning more. Also, the higher temperatures that some people use with lead-free solders will cause flux residues to spatter more widely across the board. Consequently, the user may consider cleaning more often with lead-free solders.

10) I see that Soder-Wick® Lead-Free is patent pending. What does that mean?

This product has been submitted to the US Patent and Trademark Office and certain foreign patent offices for review and approval. It is currently Patent Pending, which means that the patent application has been accepted and the various Patent Offices are reviewing it. This can take 6 months or more. Eighteen to twenty-four months is typical.

For this product, it also means that it has a unique design and properties, which are advantages for the end user. We feel that these features are valuable and important enough that others may unfairly try to copy them.

11) Who would use Soder-Wick® Lead-Free?

Companies who want to comply with new regulations, such as RoHS and WEEE, requiring lead free electronics and electrical equipment or who want to reduce the environmental burden and potential hazards of lead containing solders.

These are global organizations that manufacture electrical equipment, electronics and components that may be sold in Europe on or after July 1, 2006, when electronics must be RoHS (e.g. lead-free) compliant. Companies must implement lead-free processes into their production scheme to meet the July 1, 2006 delivery date for European countries.

Soder-Wick® Lead-Free would be integral in easing the transition in the rework portion of a comprehensive lead-free process.

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12) What is RoHS?

RoHS is the European Parliament Directive entitled, "Restrictions on the use Of Hazardous Substances." RoHS prohibits the use of lead (Pb), cadmium (Cd), mercury (Hg), hexavalent chromium (Cr(VI)), polybrominated biphenyls (PBBs) and polybrominated diphenyl ethers (PBDEs) in electrical and electronic equipment. This directive is intended to protect the environment.

There are exceptions to RoHS. These exceptions include: lead in the glass of cathode ray tubes, lead in special high-melt solders, lead in solders for servers, storage and storage array systems, and lead in solders for network infrastructure equipment for switching, signaling, transmission, as well as network management for telecommunications.

Consult a legal expert regarding RoHS and other regulatory matters.

13) I've also heard the term WEEE in regard to lead free electrical equipment and electronics. What is WEEE?

WEEE stands for 'Waste Electronic and Electrical Equipment'. The quantity of electronic and electrical equipment waste is growing at a rate 3x that of other types of waste. 90% of that waste is not treated and that exposes the environment and the people in the environment, to the danger of exposure to dangerous substances such as lead. WEEE is intended to keep the hazardous materials out of the environment. It requires recycling of electronics and electrical components containing lead and some other ingredients. The producer is responsible for recycling costs and the retailer is responsible for having a take-back strategy in place by August 13, 2005.

Consult a legal expert if you manufacture electronics or electrical equipment for Europe, so you fully understand RoHS and WEEE and how they may affect your business!

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