

## How to Draw a Solder Sample

A homogeneous, representative sample of 150 – 200 g (about 5 ounces or 0.33 pound ) is required for the analysis of the solder bath. The main constituent of the commercially available lead-free solders is tin with additions of copper and/or silver. The solvability of these metals in tin is rather limited and highly dependent on the temperature. Taking a sample from the melting pot shortly after start-up of the machine will therefore not yield a representative analytical result with reliable information on the solder quality.

In no case should the solder sample be taken on Monday morning before production start, and/or after having remained un-used over the weekend. A representative sample should be taken at operating temperature and after thorough mixing/stirring of the solder bath. To achieve this objective the solder bath must be completely heated, 2-3 hrs after start-up and only after a thorough mixing of the solder bath has been completed. In case of wave soldering equipment the wave must be switched on to complete the mixing (running for at least 1 hour ) and the sample should be taken directly from the wave within 5 minutes of turning the wave off to safely extract the solder. The optimum time for taking the sample is when a production shift is half over.

Please take care that all safety precautions are taken (IE Protective Eyewear, Heat resistant gloves, no loose clothing or hair, etc) as you are dealing with extremely hot liquid metal.

Additionally, please follow some basic rules when preparing your solder samples. Unfortunately we often receive samples in shapes and forms that cannot be directly tested and require costly, time-consuming re-melting (see below).

WRONG



RIGHT



Ideally the sample should weigh no less than 5 ounces and have the shape of a disk with approx. 1.5 " diameter and .75" thickness (about the size of 5 or 6 quarters stacked together). This can be achieved by casting the solder into a, pre chilled special mold such as the SolderLab Collection Crucible seen above. A pre-chilled mold will enhance the molten solder cooling rate and provide a much more homogenous sample. After letting the solder solidify and cool down it can be easily removed from the mold.

**Follow these Instructions to insure prompt delivery and processing of your sample.**

- ◆ Fill enclosed solder cup(s) completely – For best results make sure solder is completely mixed, clear of dross, take sample from 2" below the surface and take the sample in one continuous draw (do not layer the solder in the cup).
- ◆ Mark solder cup or solder slug with identifying numbers order # or alloy.
- ◆ Complete enclosed sample card(s), matching solder sample with card.
- ◆ Place solder cup and sample card in included Blue Envelope Peel and seal envelope.
- ◆ Add postage and send back to SolderLab.

**Please Note: Solder Sample should weigh no less than 5 ounces, and be the approximate size of 1.5 inch diameter by .75" thick.**