FLOWTIN UPGRADE ALLOY

DESCRIPTION

Flowtin UPGRADE alloy has been developed to enable all users of wave and selective soldering equipment to carry out a **fast** and **economical** change-over to the micro-alloyed solders of the FLOWTIN® series. With this method all users of soldering equipment can benefit from the advantages of the micro-alloyed solders **without** having to shoulder the **expensive** replacement of the complete solder bath:

- **leaching of copper reduced by more than 50%, resulting in**
  - longer possible contact times between PCB and solder wave
  - longer durability of the solder bath – fewer analyses
  - excellent properties for hot air solder levelling of printed circuit boards
- **leaching of iron reduced by more than 50%, resulting in**
  - reduced abrasion, i.e. longer lifetime of un-coated machine components
- **no license fees if parts and PCBs, soldered with FLOWTIN®, are exported to the USA**
- **shiny surfaces** for easy optical inspection as a result of a **finer micro-structure**
- **optimum wetting speed**
- **Stannol Flowtin micro-alloys (<500ppm) can be used in <u>all</u> standard soldering processes (HASL, reflow soldering, wave soldering, selective soldering)**

The following lead-free alloys can be upgraded to FLOWTIN® micro-alloyed solders by adding 2 kg of **UPGRADE** alloy for each 100kg of solder in the solder bath:

Sn99.3Cu0.7	**(TC)**	**upgrade to**	**Flowtin TC**
Sn96.5Ag3.0Cu0.5	**(TSC305 / SAC305)**	**upgrade to**	**Flowtin TSC305**
Sn95.5Ag3.8Cu0.7	**(TSC / SAC)**	**upgrade to**	**Flowtin TSC**
Sn99Cu0.7Ag0.3	**(TSC0307/SAC0307)**	**upgrade to**	**Flowtin TSC0307**

All beneficial FLOWTIN® features will be available right after the addition of the UPGRADE alloy.

Both the financial and the work expended are quite limited. Only 2 kg of the highly concentrated **UPGRADE** alloy, based on pure tin, need to be added for each 100 kg of solder in the pot. Due to the fact that only 2% of the total pot filling must be replaced, the **UPGRADE** alloy can be used for all alloy conversions. The concentration of the alloying elements silver (Ag) and copper (Cu) is changed to a negligible degree only.

The time required for upgrading a solder bath (400kg, operating temperature approx. 270°C) including the required homogenisation and taking the necessary analyses takes approx. 1-2 hrs. This change-over can of course also be implemented after normal operation during regular maintenance.

STANNOL offers a complete **Flowtin UPGRADE package** including all the necessary services.

CONTENT OF THE FLOWTIN UPGRADE PACKAGE

- Exact **determination of the required quantity** of **UPGRADE** alloy, based o a current bath analysis
- **Quickest possible delivery** of the required quantity of highly concentrated alloy
- **Support** by the STANNOL application team
- **10 free metal analyses** in a 6-months period

Haberstr. 24 • 42551 Velbert • Tel: +49 (0)2051-3120-0 • Fax: +49 (0)2051-3120-111 • E-Mail: info@stannol.de • www.stannol.de

TECHNICAL PROCEDURE

DETAILED TECHNICAL PROCEDURE

The current composition of the alloy (including all possible impurities) in your pot has to be checked by means of an analysis in our laboratory before the upgrade operation. For this purpose you will receive – if not yet available in your company – a small mould for casting off the sample, which should be taken from the centre of the solder pot after having operated the solder pot for a certain period (app. 1 shift). The wave should be in operation while the sample is taken.

As soon, as the sample arrives in our laboratory together with the relevant information about your equipment, we will carry out the analysis and – based on the values resulting from the analysis - determine the exact quantity of highly concentrated **UPGRADE** solder required to convert your process to **Flowtin.** This quantity will be shipped to you by the fastest possible way.

The same quantity of solder which is to be replaced by our **UPGRADE** alloy has to be taken out of the solder bath before. This quantity can also be taken out of the solder bath during a regular maintenance service in the form of solder dross and then be replaced by **Flowtin UPGRADE** alloy instead of the standard solder. Please add the **Flowtin UPGRADE** in small amounts slowly over a period of 60-90 minutes at solder bath temperatures of app. 270-280°C. Please do not add the **Flowtin UPGRADE** alloy into the wave area, as the solution speed in these areas may vary. Additionally the solder bath has to be kept in motion for at least 60 minutes at a temperature of 270-280°C in order to homogenize the solder perfectly. According to our experience, the duration for the solder bath to become homogeneous depends strongly on the pumping capacity of the solder pumps, and can be shorter as well as longer then the mentioned 60 minutes. Finally, you should take 3 additional samples from different areas of the solder pot in order to enable us to confirm by a further analysis if the addition of the micro-alloy components was successful and whether the concentration is correct in the range of the operating optimum.

From this time you can replenish your pots with the respective alloy from the **Flowtin** series. The intervals between regular metal analyses can now be extended due to the substantially lower copper leaching rate. For further information, also during the conversion phase, please contact our application support centre:

Fon: +49 (0)202 585-118
Fax: +49 (0)202 585-155
E-Mail: labor@stannol.de

NOTICE