Uberkote™ Sn Regenerator

Uberkote™ Sn Regenerator is a liquid additive used to precipitate stannic tin (Sn^{+4}) from tin plating bath.

The oxidation process is well-understood in the plating industry where stannous tin (Sn^{+2}) converts to stannic tin (Sn^{+4}) while operating tin or tin-lead electroplating baths with the stannous tin exposed to oxygen. The Uberkote™ Sn SO_4 process contains stabilizers to retard oxidation but not eliminate it. However, combined with proper filtration, this will greatly diminish the oxidation of the divalent tin.

When dealing with stannic tin (Sn^{+4}) in a plating bath, the liquid flocculating agent in our product coagulate the colloidal tin (IV). Here is how it works. Add our product with the specific designed flocculant by introducing the flocculating agent to the plating bath with about 0.25 % concentrate. This agent helps bind and aggregate the colloidal tin (IV) particles. The flocculant causes the colloidal tin (IV) to come together, forming larger particles that can more easily be filtered out. This process is known as coagulation. It takes about 24 hours. After coagulation use 1 micron filters for filtration to remove the aggregated stannic tin particles. This process restores clarity to the tin plating bath.

Product Advantages

1. It is a concentrated product; applications of 0.25% are usually adequate.
2. Increases the life of the plating bath.
3. Forms a stannic precipitate, which is dense and compact resulting in less loss plating solution and makes it easier for decanting the treated solution.
4. Plating solution does not require further treatment once precipitation is complete.
5. This product does not affect solder ability or ductility of the deposit of tin, even if reasonable excesses are added.
6. The product is liquid additive, which is easy to use.

Operating Instructions

Take four samples of the operating bath and add respectively 0.25%, 0.5%, 0.75%, and 1% of Uberkote™ Sn Regenerator, mix well and let stand for 30 minutes. The optimum addition is the minimum required to obtain the clearest solution at the top of the samples. It is not predicated by the speed of the settling precipitate. Adding an excessive amount of Uberkote™ Sn Regenerator will result in accelerating the settling of the precipitate, however it is likely there will remain excessive colloidal suspension of the stannic tin (IV) resulting in incomplete precipitation.

Once the volume of the product has been determined, add Uberkote™ Sn Regenerator to the tin or tin-lead solution in an off line tank and allow to settle for 24 hours. Once completed, the clear solution can be decanted back to the process tank, analyzed and adjusted for lost solution. The solution is ready to use.

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Analytical Procedure for tin metal

1. The analysis of Tin metal is determined by using Potassium Iodate.

2. Apparatus: 5 ml pipette
250 ml Erlenmeyer Flask
100 ml graduated cylinder
10 ml graduated cylinder
10 ml burette

Reagents: DI Water
Hydrochloric Acid (CP)
Sodium Bicarbonate (Lab Grade)
1% Starch Indicator solution
0.1 N Potassium Iodate

Procedure: 1. Pipette 5 ml acid tin plating solution into 250 ml Erlenmeyer flask.

2. Add: a) 100 ml DI water.
b) 50 ml concentrated Hydrochloric Acid.
c) approx. ½ gram Sodium Bicarbonate slowly, to dispel air.
d) 1 ml 1% Starch Indicator solution.

3. Titrate with 0.1N Potassium Iodate to a blue colour which persist for 30 seconds.

4. Calculation: g/L Tin Metal = ml 0.1 N Potassium Iodate X 1.185
oz/gal Tin Metal = ml 0.1 N Potassium Iodate X 0.158

Analytical Procedure for Sulphuric acid in Acid Tin Solutions

1. The analysis of Sulphuric Acid is determined by using Sodium Hydroxide.

2. Apparatus: 5 ml pipette
250 ml Erlenmeyer Flask
50 ml graduated cylinder
10 ml graduated cylinder
25 ml burette

Reagents: 4% Ammonium oxalate solution
Methyl red indicator solution
1 N Solution hydroxide

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Procedure: 1. Pipette 5 ml acid tin plating solution into 250 ml Erlenmeyer flask.

2. Add: a) 50 ml 4% Ammonium oxalate solution
b) 5 ml Methyl red indicator solution

3. Titrate with 1N Sodium hydroxide to colour change from red to yellow.

4. Calculation: (ml 1 N NaOH) X .53 = % H_2SO_4 (B.V.)

The data and statements contained in this bulletin are based on testing information and are believed to be accurate and reliable. This bulletin is not a Guarantee or Warranty, express or implied regarding the products use. The product is sold on the condition that the purchaser will do their own tests to determine the suitability of the product in a particular application.
READ THE SDS BEFORE USING THIS PRODUCT

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