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STANNOBRITE

INTRODUCTION

PMD Stannobrite is a sulphuric acid based bright tin plating process, suitable for technical and decorative applications. Stannobrite can be used for rack and barrel plating.

BENEFITS

Fully bright, levelled deposits.

Excellent solderability.

High ductility.

Wide current density range - excellent bright throwing power.

Low tendency to Sn^{4+} formation.

SOLUTION MAKE-UP

Sulphuric acid, chem. pure, SG 1.84	105ml/L
Stannobrite Tin Salts	30g/L
Stannobrite Make-up Part 1	20ml/L
Stannobrite Make-up Part 2	5ml/L
Stannobrite Brightener	4ml/L

PREPARATION (for 100 litres)

1. Clean the process tank with water and leach the tank with warm sulphuric acid (5%) overnight pumping through all filters, pumps and pipework. Pump out acid and rinse thoroughly with water.

2. Add 70 litres cold deionised water to the tank.

3. Add carefully, with slow stirring, 10.5 litres sulphuric acid.

4. Add 3kg Stannobrite Tin Salts to the warm solution and stir to dissolve.

5. Allow the solution to cool to room temperature, then add:

   2 litres Stannobrite Make-up Part 1
   0.5 litres Stannobrite Make-up Part 2
   0.4 litres Stannobrite Brightener

6. Top up with deionised water to 100 litres, then stir thoroughly.

EQUIPMENT

Tank	Steel or GRP lined with PVC, polypropylene or hard rubber.
Heating	PTFE immersion with thermostatic control.
Cooling	PTFE coils.
Filtration	Continuous recommended, all plastic construction pump.
Agitation	Work movement (not air agitation).
Anodes	Pure tin to BS 1468.

OPERATING DATA

		Range	Optimum
Stannous tin		8 - 22g/L	15g/L
Sulphuric acid		160 - 220g/L	185g/L
Cathode current density			
	Rack	1 - 2A/dm²	1.5A/dm²
	Barrel	0.5 - 1.5A/dm²	1.0A/dm²
Anode current density		2A/dm²	
Temperature		13 - 29°C	20 - 21°C
Deposition rate		1µm/minute at 2A/dm²	

MAINTENANCE AND CONTROL

The stannous tin and sulphuric acid concentrations should be analysed regularly using the methods detailed in the Data Sheet.

Stannobrite Brightener should be added at a rate of 200 - 300ml/1000 amp hours.

Stannobrite Make-up Part 1 and Make-up Part 2 are lost mainly by drag out. Consult the TROUBLE SHOOTING GUIDE for adjustment.

Drag in of chloride should be avoided.

Post Treatment - after rinsing a dip in 1 - 5% w/w sodium hydroxide is recommended before final rinsing and drying.

ANALYSIS METHODS

Stannous tin

Reagents

Concentrated hydrochloric acid.
Starch indicator.
0.1N iodine.

Procedure

1. Pipette 5ml of the plating solution into a 500ml conical beaker.
2. Add approximately 100ml deionised water.
3. Add 5ml concentrated hydrochloric acid.
4. Add a few drops starch indicator.
5. Titrate with 0.1N iodine to a permanent blue end point.
6. Record titre = t mls.

Calculation

t x 1.187 = g/litre tin.

Replenishment

For every 1g/L tin low, add 1.8g/L Stannobrite Tin Salts.

Sulphuric acid

Reagents

1.0N sodium hydroxide.

Procedure

1. Pipette 10ml of the plating solution into a 500ml conical beaker.
2. Add approximately 150ml deionised water.
3. Titrate with 1.0N sodium hydroxide mixing thoroughly during additions to a turbid end point.
4. Record titre = t mls.

Calculation

t x 4.9 = g/litre sulphuric acid.

Replenishment

For every 1g/L sulphuric acid low, add 0.5ml/L sulphuric acid.

DISPOSAL

Dispose of through an approved specialist contractor.

PRODUCT FAMILIES

The following products or product families are referred to in this data sheets:-

Product Name	Product Number
Stannobrite Tin Salts	573001
Stannobrite Make-up Part 1	574010
Stannobrite Make-up Part 2	574011
Stannobrite Brightener (25L)	574012
Stannobrite Brightener (5L)	574013