

TECHNICAL DATA SHEET

BRIGHT ACID TIN PROCESS

The Bright Acid Tin plating solution gives a mirror bright pure tin deposit with excellent tarnish and corrosion resistance.

The process gives easily solderable deposits with excellent ductility and can be used in both rack and barrel plating

SOLUTION COMPOSITION:

	OPTIMUM	RANGE
Stannous sulphate	30 gm/l	24-35 gm/l
Sulphuric acid	100 ml/l	90-110 ml/l
Acid Tin Carrier	30 ml/l	20-40 ml/l
Acid Tin Brightener	3 ml/l	2-6 ml/l

OPERATING CONDITIONS:

	RACK	BARREL
Temperature	20-30°C	25°C
Cathode current density	0.5-3.5 A/dm ²	0.5-1.0 A/dm ²
Anode current density	0.5-2.0 A/dm ²	0.5 A/dm ²
Filtration	Recommended	
Agitation	Cathode rode movement	
Anodes	99.99% pure tin	

BATH PREPARATION:

- The new plating tank should be leached with 3-5 % by volume sulphuric acid and 1.0 ml/l Acid Tin Carrier. Leave the leaching solution overnight in the plating tank and in the leaching solution. Rinse the tank with clean water.
- Fill the plating tank with distilled or deionised water to half of its working level. Add cautiously 10% by volume C.P. grade sulphuric acid.

- Add calculated quantity to stannous sulphate preferably after making a slurry of it in distilled water, with continuous stirring. Make up the level and allow it to cool to room temperature.
- Add the calculated amount of Acid Tin Brightener and Acid Tin Carrier and start plating.

PRETREATMENT:

All trace of rust and scale must be removed before the parts goes to electrolyte cleaning.

A sulphuric acid dip is recommended prior to the plating.

Hydrochloric acid dip must be avoided as a chloric content above 400 mg/l affects the low current density brightness.

Brass parts should be plated with 2-3 microns of copper or nickel prior to the tin plating to prevent migration of zinc into the tin deposit. Migration of zinc will cause poor solderability and discolor the tin finish.

EQUIPMENT REQUIRED:

- **TANKS:**
Polyethylene or flexible PVC lined mild steel tanks are recommended. For medium size installations PVC reinforced fibre glass tanks can be used.
- **AGITATION:**
solution agitation or cathode rod movement is recommended.
- **ANODES:**
Pure tin (99.99%) anodes with titanium hooks are recommended. Polypropylene anode bags are recommended.

PROCESS CONTROL:

The parts should be thoroughly cleaned for rust scale and oil on the surface.

Sulphuric acid dip is recommended prior to plating. Hydrochloric acid dip must be avoided as chloride content above 400mg/l affects low C.D. brightness

BATH MAINTENANCE:

Tin metal content and sulphuric acid concentration should be maintained as follows:

Tin metal	Range	optimum
Rack	10-30 g/l	15 g/l
Barrel	7.5-16 g/l	10 g/l
Sulphuric acid		
Rack	70-100 ml/l	90 ml/l
Barrel	80-120 ml/l	100 ml/l

A lower tin content is recommended for barrel plating to minimize the drag out losses.

Barrel plating requires lesser Acid Tin Make Up that rack plating.

Acid Tin Carrier and Acid Tin Brightner replenishment depends upon degree of brilliance required, drag out loss and temperature, the quantity recommended in normal recommended condition is:

Acid Tin Brightner ----- 100-150 cc/KAlI

Acid Tin Carrier ----- 200-300 cc/KAlI

CAUTION:

Acid tin bath contains sulphuric acid and is acidic in nature. Precaution should be taken while handling the electrolyte.

WASTE TREATMENT:

Acid tin bath contains sulphuric acid and is acidic in nature. Neutralize the solutions before discharging into sewage systems.

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