MIROBRITE SN-50

TIN COPPER ALLOY PLATING PROCESS

INTRODUCTION

The AUROMEX **MIROBRITE SN-50** is an newly developed alkaline tin-copper alloy plating process that can produce a whit-coloured, mirror bright deposit up to 10 microns. This process is specially designed to give a reasonable hard, ductile and fine grained deposit both as undercoats or top colouring and deposits of this process are excellent in high resistance to tarnishing and oxidation, it is advantageous to many application in decorative purpose and the deposit colour is compatible with colour of Rhodium or palladium – Nickel.

The AUROMEX **MIROBRITE SN-50** can be used for both tack and barrel plating.

PROCESS FEATURES

- Mirror Bright, white coloured deposit finish up to 10 microns.
- Deposits are hard and highly ductile
- Non-critical in operation and control
- No accumulation of deleterious brightener decomposition products
- Reasonable corrosion resistance
- Relatively low cost
- High plating efficiency

DEPOSIT CHARACTERISTICS

Appearace	:	Mirror bright , white colour deposit
Alloy composition	:	50-55% copper,40-45% tin
Hardness	:	200-320 vickers (depends on radio of alloying metal)
Deposit Density	:	8.0-8.5 g/cm^2
For 1 micron deposit	:	85-90 mgm/dm^2

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EQUIPMENT REQUIRED

Tank — Polypropylene or PVC glass fiber reinforced tanks are suitable.

Heater — Heating is required and temperature regulation is essential. Therefore, thermostatically controlled immersion heater are recommended.

Rectifier — A standard D C power supply should be used with an ampere output capacity sufficient to meet the requirements of the plating operation. The power supply should be equipped with a Voltmeter, ammeter and stepless control for accurate regulation of the current.

Filtration — The solution should be filtered continuously through polypropylene or cotton cartridges to maintain clarity.

Agitation — Moderate to vigorous agitation is necessary to maintain uniform metal distribution. Jet Stream and mechanical agitation at 7-14 m/min may be used.

Anodes — Insoluble anodes should be used, Platinized Titanium anodes with an area sufficient to provide a maximum current density of 0.25A/dm² are recommended.

PLATING BATH COMPOSITION

AUROMEX **MIROBRITE SN-50** make up electrolyte is supplied ready to use, containing all necessary chemicals and reagents.

OPERATING CONDITIONS

	Unit	Range	Optimum
Metallic copper content	g/l	8-12	8
Metallic tin content	g/l	12-18	15
Free KCN content	g/l	40-60	50
Potassium Hydroxide (KOH)	g/l	15-25	20
Temperature	℃	50-60	55
pH electrometric		12-13	12.5
Cathode current density	A/dm²		
(rack)		0.5-3	1
(barrel)		0.1-0.5	0.2
Density	°Be	15-25	18
Agitation		moderate	moderate
Plating Efficiency	mgm/Amp-min	20-35	25
Plating rate at 1 A/dm²	min/um	2.8-3.5	3

BATH MAINTENANCE

The alloy metal content of the solution should be maintained at the recommended concentration and ratio (ie copper at 8 g/l, tin at 15 g/l, copper : tin at 1:2) by periodic additions of Replenisment chemicals.
Replenisher chemicals is supplied unit form, each unit containing all necessary materials plus brightener, no extra chemicals required in normal routine replenisment.
Replenishment should be based on regular analysis but under optimum operating conditions, **MIROBRITE SN-50** process deposit metal at the following rates.

Amp-min	Deposit consumed
4000	100 grams

For every 100 grams gold replenishment, add one litre **MIROBRITE SN-50** Replenisher Brightener A and 100 mls. **MIROBRITE SN-50** Replenisher B.

CONDUCTIVITY

Specific gravity of the solution should be maintained between 12-25 degree Baume. If for any reason excessive drag out occurs, and the specific gravity of the solution drops below 15 degree Baume, we can replenisher by make up electrolyte or specific copper or tin complex solution (metallic content is 100 g/l).

PH ADJUSTMENT

The pH of the solution is recommended to keep between 12.0-13.0 to lower or raise the solution pH by addition of 25% potassium hydroxide or phosphoric acid.

PACKING

When ordering, reference should be made to the following code numbers:

MIROBRITE SN-50 Make Up Electrolyte (Code SN500)	20 ltrs / unit
MIROBRITE SN-50 Replenisher Brightener A (Code SN501)	1 ltrs / unit
MIROBRITE SN-50 Replenisher Brightener B (Code SN502)	100 Mls / unit
MIROBRITE SN-50 Copper Complex)100 g/l metal)	1,2,5 ltrs /pack
MIROBRITE SN-50 Tin Complex (100 g/l metal)	1,2,5 ltrs /pack
MIROBRITE SN-50 Special Additive	1,2,5 ltrs /pack
MIROBRITE SN-50 Wetting Agent	1,2,5 ltrs /pack