AUROMEX®

TECHNICAL INSTRUCTIONS

DATA SHEETS

MIROBRITE ISC

TIN COBALT ALLOY PLATING PROCESS

INTRODUCTION

The **AUROMEX MIROBRITE ISC** is an newly developed alkaline tin-cobalt alloy plating process that can produce a brilliant white deposit up to 5 microns. This process is specially designed to give a reasonable hard, ductile and fine grained deposit both as undercoats or top coloring and deposits of this process are excellent in high resistance to tarnishing and oxidation, it is advantageous to many application in decorative purpose an the deposit color I is compatible with the color of Rhodium or palladium-Nickel.

The **AUROMEX MIROBRITE ISC** can be used for both rack and barrel plating.

FEATURES

- Brilliant – white color deposit finish up to 5 micros
- Deposits are hard and highly ductile
- Non-critical in operation and control
- No accumulation of deleterious brightener decomposition products
- Good corrosion resistance
- Relatively low cost
- High plating efficiency

DEPOSIT CHARACTERISTICS

Appearance	:	Mirror bright , white color deposit
Alloy compostion	:	50-60% tin , 15-20% cobalt , 20-25% copper
Hardness	:	180-280 vickers (depends on ratio of alloying metal)
Deposit Density	:	8.5-9.0 g/c㎡
For 1 micron deposit	:	90 mgm/d㎡

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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 — High quality stainless steel anodes should be used with an area sufficient to provide a maximum current density of 0.25A/dm² are recommended.

PREPARATION OF SOLUTION

AUROMEX MIROBRITE ISC make up electrolyte is supplied ready to use, containing all necessary chemicals and reagents.

OPERATING CONDITIONS

	Unit	Range	Optimum
Metallic Cobalt content	g/l	2.0-8.0	4.0
Metallic Copper content	g/l	3.0-7.0	5.0
Metallic Tin content	g/l	20-30	25
Free KCN content	g/l	25-40	30
Potassium Hydroxide (KOH)	g/l	10-20	15
Temperature	℃	50-60	55
pH electrometric		12-13	12.5
Cathode current density (rack)	A/dm²	0.5-3.0	1.0
(barrel)		0.1-0.5	0.2
Density	°Be	12-25	15
Agitation		moderate	moderate
Plating Efficiency	mgm/Amp-min	30-40	35
Plating rate at 1 A/dm²	Min/um	2.0-3.0	2.5

BATH MAINTENANCE

The alloy metal content of the solution should be maintained at the recommended concentration at ratio (ie copper at 5 g/l, tin at 25 g/l, cobalt at 4 g/l. copper : tin : cobalt at 1 : 5 : 08) by periodic additions of Replenishment Chemicals.
Replenishment Chemicals are supplied in unit form, each unit containing all necessary materials plus brightener.
Replenisher should be based on regular analysis but under optimum operating conditions, **MIROBRITE ISC** process deposit metal at the following rates.

Amp-min	Deposit consumed
2850	100 grams

For every 100 grams deposit replenishment, add one litre **MIROBRITE ISC** Replenisher R1, 200 mls **MIROBRITE ISC** Replenisher R2 and 100 mls **MIROBRITE ISC** Replenisher Brightener.

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 replenish by make up electrolyte or specific copper or tin complex solution (metallic content is 100 g/l)

PH ADJUSMENT :

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:

DECORMEX ISC Make Up Electrolyte	20 litre / drum
DECORMEX ISC Replenisher R1	1 litre / pack
DECORMEX ISC Replenisher R2	200 mls / unit
DECORMEX ISC Replenisher Brightener	100 mls / unit
DECORMEX ISC Copper Complex (100 g/l metal)	1,2,5 litre / pack
DECORMEX ISC Tin Complex (100 g/l metal)	1,2,5 litre / pack
DECORMEX ISC Cobalt Complex	1 litre / pack
DECORMEX ISC Special Additive	1,2,5 litre / pack
DECORMEX ISC Wetting Agent	1,2,5 litre / pack
DECORMEX ISC Complexing Salt	1,2 kgs / pack