
AUROMEX[®]

TECHNICAL

INSTRUCTIONS

DATA SHEETS

AUROMEX EF-18K

DECORATIVE 18K ALLOY ELECTROFORMING GOLD PROCESS

INTRODUCTION

AUROMEX EF-18K is a high efficiency alkaline 18 karat Gold-Copper-Cadmium alloy gold electroforming process that produces an 18 Karat gold deposit very similar in colour to the Swiss Standard NIHS 2N18. The process is specially designed to give a hard, ductile and fine grained gold deposits at thickness in excess of 1.25mm (0.050 inches). This process is advantageous to many applications especially in jewellery industries and ideal for electroforming purpose, for building up thick deposits where subsequent finishing is not required.

AUROMEX EF-18K produces extremely hard, fully bright deposit with a uniform colour and long durability. High hardness makes these coatings hard wearing with excellent resistance to tarnishing and corrosion. **AUROMEX EF-18K** process is extremely stable, and easy to operate.

PROCESS FEATURES

- * Economic, easy to operate
- * Uniform in deposit karat
- * High resistance to tarnishing and wearing
- * Uniform distribution, thickness

DEPOSIT CHARACTERISTICS

Karat	18 kt green gold colour (approx.)
Purity	72.5-77% gold (approx.)
Hardness	300-350 mHv20g
Colour	Similar to Swiss Standard NIHS 2N18
Deposit Density	16.0-16.5 g / dm ²
For one micron deposit	160-165 mgm/ dm ²

P.1

AUROMEX[®]

CHEMICALS CORPORATION

UNIT NO. 2, 4/F., INTERNATIONAL PLAZA, 20 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.

TEL: 2796 7238

FAX: 852-2796 7117

EQUIPMENT REQUIRED

Tank	: Polypropylene containers or steel containers lined with a suitable plastic material such as Tygon, polyvinyl chloride, or Koroseal are recommended. Glass tanks may also be used.
Rectifier	: A standard D C Power supply, with an ampere output capacity sufficient to meet the requirements of the plating operation, should be used.
Filtration	: Solution clarity should be maintained by continuous filtration through double cotton cartridges.
Agitation	: Moderate agitation is necessary to maintain metal distribution. Mechanical (radial) agitation at 8 m/min. may be used, combined with a jet stream equipped with special diffusers.
Temperature Control	: Solution temperature should be maintained at optimum by thermostatically controlled stainless steel or titanium immersion heaters.
Anodes	: Platinized titanium. Stainless steel (316 or 347) anodes may also be used.

PLATING BATH PREPARATION

AUROMEX EF-18K make up agent is supplied in unit form. Each unit contains all the products required to make 10 litres of solution. It does not contain gold.

The following instructions are for the preparation of 10 litres of solution. Material required :

Gold Potassium Cyanide (68.3%) 87.8 grammes

AUROMEX EF-18K Make Up Solution (Code 8040) 10 litres

AUROMEX EF-18K Acid (Code 8047)

Potassium Hydroxide

Procedures :

- 1) Add in the 10 litres **AUROMEX EF-18K** Make Up Solution (code 8040).
- 2) Check and adjust pH to 10.5 with 10% potassium hydroxide or **AUROMEX EF-18K** Acid.
- 3) Dissolve the Gold Potassium Cyanide (68.3%) in a separate quantity of demineralised or distilled water and then add to the above solution.
- 4) Stir and check the pH again if necessary.
- 5) The solution is then ready to use

OPERATING CONDITIONS

	<u>Unit</u>	<u>Range</u>	<u>Optimum</u>
Gold metal content	g/l	6.0-8.0	6.0
Copper metal content	g/l	40-60	50
Cadmium metal content	g/l	0.8-2.0	1.0
Free Cyanide (KCN)	g/l	20-30	25
Anode to Cathode ratio		1 to 2	
Cathode current density	A/ dm ²	1.0-1.5	1.0
pH, electrometric at 60°C		10-12	10.5
Density	°Be	18 or higher	18
Temperature	°C	68-75	70
Cathode Agitation	m/min	8-12	12
Plating rate	mgm/Amp-min	70-80	70
Time to deposit 1 μ at 1.5A/dm ²	min	2.0-2.5	2.2

BATH MAINTENANCE

The gold metal content should be maintained at the recommended concentration (6.0-8.0 g/l) with periodic additions of gold potassium cyanide (68.3%).

Gold and alloy metal replenishment :

Replenishment based on regular analysis is the best method of control but replenishment can be made according to ampere-minutes consumed.

<u>Amp-min</u>	<u>Gold Deposit</u>
1850	100 grams

For every 100 grams gold metal replenishment (147 grams 68.3% PGC), needed to be added together with one unit each of the 120mls **AUROMEX EF-18K** Replenisher Brightener (code 8056) and 100 g **AUROMEX EF-18K** Copper Replenisher Salts (code 8055).

As drag out losses cannot be accounted for accurately, analytical checks should performed periodically.

pH Adjustment : This should be measured daily, using a meter, at the operating temperature of the bath. In order to maintain the pH value of **AUROMEX EF-18K** between 10-12 electrometric, proceed as follows :-
To raise pH, use 10% w/v solution of potassium hydroxide (chemically pure).
To lower pH, add **AUROMEX EF-18K** Acid (Code 8047)

Packaging :

AUROMEX EF-18K Make Up Solution	(code 8040)	10 litres/unit
AUROMEX EF-18K Replenisher Brightener	(code 8056)	120 mls/unit
AUROMEX EF-18K Copper Replenisher Salt	(code 8055)	100 grams/unit
AUROMEX EF-18K Acid Adjustment Solution	(code 8047)	1,2 or 5 litres/unit
AUROMEX EF-18K Complexing Agent	(code 8049)	0.5 or 1.0 kgs/unit
AUROMEX EF-18K Wetting Agent	(code 8050)	1,2 or 5 litres/unit