
AUROMEX[®]

TECHNICAL

INSTRUCTIONS

DATA SHEETS

AUROMEX EF-12G

DECORATIVE 12K ALLOY ELECTROFORMING GOLD PROCESS

INTRODUCTION

AUROMEX EF-12G is a high efficiency alkaline alloy gold electroforming process that produces an 12 Karat deposit very similar in colour to the Swiss Standard NIHS 1N. 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-12G produces extremely hard, fully bright deposit with a uniform colour and long durability. High hardness in the range of 400-450 vickers makes these coatings hard wearing with excellent resistance to tarnishing and corrosion. **AUROMEX EF-12G** 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	12 kt green gold colour (approx.)
Purity	50% gold, 47.5% silver, 2.5% cobalt (approx.)
Hardness	160-180 mHv20g
Colour	Similar to Swiss Standard NIHS 1N
Deposit Density	11.5-12.5 g / dm ²
For one micron deposit	115-125 mgm/ dm ²

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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-12G 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%) 88 grammes

AUROMEX EF-12G Make Up Solution (Code 31000) 10 litres

AUROMEX EF-12G Acid (Code 31400)

Potassium Hydroxide

Procedures :

- 1) Add in the 10 litres **AUROMEX EF-12G** Make Up Solution (code 31000).
- 2) Check and adjust pH to 11.0 with 10% potassium hydroxide or **AUROMEX EF-12G** 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	5.0-8.0	6.0
Silver metal content	g/l	4.0-6.0	5.0
Free Cyanide (KCN)	g/l	70-90	80
Anode to Cathode ratio		1 to 2	
Cathode current density	A/ dm ²	0.5-1.5	0.8
pH, electrometric at 60°C		10-12	11.0
Density	°Be	10 or higher	15
Temperature	°C	20-25	20
Cathode Agitation	m/mim	8-12	12
Plating rate	mgm/Amp-min	60-80	75
Time to deposit 1 μ at 0.8A/dm ²	min	2.0-2.5	2.0

BATH MAINTENANCE

The gold metal content should be maintained at the recommended concentration (5.0-8.0 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>	<u>Silver Deposit</u>
2650	100 grams	96 grams

For every 100 grams gold metal replenishment (147 grams 68.3% PGC), 96 grams silver metal (178 grams 54% potassium silver cyanide) needed to be added together with one units, 100mls **AUROMEX EF-12G** Replenisher Brightener (code 31600).

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-12G** 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-12G** Acid (Code 31400)

Packaging :

AUROMEX EF-12G Make Up Solution	(code 31000)	10 litres/unit
AUROMEX EF-12G Replenisher Brightener	(code 31600)	100 mls/unit
AUROMEX EF-12G Acid Adjustment Solution	(code 31400)	1,2 or 5 litres/unit
AUROMEX EF-12G Complexing Agent	(code 31900)	0.5 or 1.0 kgs/unit
AUROMEX EF-12G Wetting Agent	(code 31500)	1,2 or 5 litres/unit