
AUROMEX®

TECHNICAL

INSTRUCTIONS

DATA SHEETS

AUROPLEX AG-18

DECORATIVE ALLOY GOLD PLATING PROCESS

INTRODUCTION

AUROPLEX AG-18 is an alkaline cyanide alloy gold electroplating process that produces a 16 karat pale yellow, full bright, ductile deposit to any desired thickness. The deposit, which are Gold-Silver alloys, have excellent wear resistance and are highly resistant to corrosion products associated with watch case and jewellery requirements. The process is specially designed for fine jewellery, watch cases, band and spectacle frame as an undercoating for saving cost.

PROCESS FEATURES

- * Economic, easy to operate.
- * Uniform 18 karat pale gold colour.
- * High resistance to tarnishing and wearing.
- * Uniform distribution, thickness.

DEPOSIT CHARACTERISTICS

Karat	:	18 Kt. (approx.) gold/silver
Purity	:	75% (gold), 25% (silver)
Hardness	:	140-160 mHv20g
Colour	:	Pale yellow
Specific gravity	:	16-16.5

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CHEMICALS CORPORATION

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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. (when needed)
- Anodes : Platinized titanium ruthenium anodes may also be used.

PLATING BATH PREPARATION

AUROPLEX AG18 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.

Materials required :

Gold Potassium Cyanide (68.3%)	88 grammes
Silver Potassium Cyanide (54%)	27 grammes
AUROPLEX AG18 Make Up Salt (Code 88600)	1.5 kgs.
AUROPLEX AG18 Make Up Brightener (Code 88601)	1 litre
AUROPLEX AG18 Make Up Additive (Code 88602)	200 mls.
AUROPLEX AG18 Acid (Code 80605)	
Potassium Hydroxide	

Procedures:

- 1) Fill to a clean plating tank 2/3 of the required final volume with distilled or deionised water.
- 2) Add in the 1.5 kgs. Make Up Salt (Code 88600), stir until completely dissolved and the 1 litre Make Up Brightener (Code 88601) and 200 mls. Make Up Additive (Code 88602).
- 3) Check and adjust pH to 11.0 with 10% potassium hydroxide or **AUROPLEX AG-18 ACID**.
- 4) Dissolve the gold potassium Cyanide (68.3%) and Potassium Silver Cyanide in a separate quantity of demineralised or distilled water and then add to the above solution.
- 5) Stir and check the pH again if necessary.
- 6) Dilute the solution to 10 litres with demineralised or distilled water, the solution is then ready to use.

OPERATING CONDITIONS

	<u>UNIT</u>	<u>RANGE</u>	<u>OPTIMUM</u>
Gold metal content	g/l	6-10	8
Silver metal content	g/l	1.2-1.5	1.5
Free Cyanide (KCN)	g/l	70-90	80
Anode to Cathode ratio		1 to 2	
Cathode current density	A/dm ²	0.3-0.8	0.5
pH electrometric at 60°C		10-12.5	12
Density	°Be	10 or higher	15
Temperature	°C	20-25	20
Cathode Agitation	m/min	3-8	5
Plating rate	mgm/Amp-min	70-80	75
Time to deposit 1u at 0.8 A/dm ²	min	2.5-3.5	3

BATH MAINTENANCE

The gold metal content should be maintained at the recommended concentration (6-10 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>
1780	100 grams	35 grams

For every 100 grams gold metal and 35 grams silver metal replenishment(147 grams 68.3% PGC and 65 grams 54% potassium silver cyanide), add one units **AUROPLEX AG-18** replenishment.

1 unit **AUROPLEX AG-18** Replenishment consists of:
100 mls. **AUROPLEX AG-18** Replenisher Brightener (Code 80650)

As drag out losses cannot be accounted for accurately, analytical checks should be 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 **AUROPLEX AG-18** between 10-12 electrometric, proceed as follows:

To raise pH, use 10% w/v solution of potassium hydroxide (chemically pure) .

To lower pH, add **AUROPLEX AG-18** Acid (Code 80670)