
AUROMEX®

TECHNICAL

INSTRUCTIONS

DATA SHEETS

AUROSIGN P180

HEAVY PINK ALLOYED-GOLD ELECTROPLATING PROCESS

INTRODUCTION

AUROSIGN P180 is a new pink alloyed-gold electroplating process for high quantity jewellery, spectacle frames, pens, pencils, lighters, watch cases and cutlery. Plated out of an alkaline medium, AUROSIGN P180 solutions contain absolutely no cyanide, either free or complexed, based on an entirely new gold complex that contains no cyanide in any form. High alloy content, low specific gravity, even distribution characteristics and an exceptional throwing power make AUROSIGN P180 an extremely economic process to use. Increase throughput is obtained with a plating rate of 75 mgm/Amp-min. (3.5 minutes to deposit 1 micron at 0.5 A/dm²)

AUROSIGN P180 produces mirror bright deposits of approximately 18 Karats that are uniform pink in colour. Hardness values in the range 300-350 Vickers prolong the fine appearance and value of AUROSIGN P180 coatings and eliminate wear point problems. The deposits are non-porous and resistant to tarnishing and corrosion.

PROCESS CHARACTERISTICS

- * Excellent deposit distribution
- * Extremely economic
- * Very ductile
- * Distinguished 18 Karat pink gold finish
- * Tarnish and corrosion resistant

DEPOSIT CHARACTERISTICS

Karat	: 18-20 Kt
Hardness	: 300-350 HV
Specific gravity	: 14.5 – 15.5 g/cc
For 1 μ deposit	: 145-155 mgm/dm ² approx

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CHEMICALS CORPORATION

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EQUIPMENT REQUIRED

Tank	Polypropylene or PVC glass fibre 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, Platinised Titanium anodes with an area sufficient to provide a maximum current density of 0.25A/dm^2 are recommended.

MAKE UP INSTRUCTION

Gold complex : For the preparation and maintenance of the solution, gold is added in the form of a liquid gold complex. Each litre unit contains 100 grams of gold metal.

Preparation of solution :

The following instructions are for the preparation of 10 litres of electrolytes.

Materials required :

Gold complex (100 g/litre gold metal)	1 litre
AUROSIGN P180 Make Up concentrate (Code 8100)	2 litres
AUROSIGN P180 Make Up Brightener A (Code 8101)	1 litre
AUROSIGN P180 Make Up Brightener B (Code 8102)	500 mls
AUROSIGN Conditioner E (Code 8005)	
Potassium Hydroxide	

PROCEDURES

- 1) Pour 5 litres of demineralised or distilled water into the clean plating tank.
- 2) Add in the 2 litres make up concentrate (Code 8100), stir and then add the 1 litre make up brightener A (Code 8101) and 500 mls make up brightener B (Code 8102).
- 3) Check and adjust pH to 9.5 with 10% potassium hydroxide or AUROSIGN Acid.
- 4) Add in the 1 litre AUROSIGN Gold Complex, stir and check pH again.
- 5) Dilute the solution to 10 litres with demineralised or distilled water. The solution is then ready to use.

OPENATING CONDITIONS

	<u>Unit</u>	<u>Optimum</u>	<u>Range</u>
Metallic gold content	g/l	10	6-10
pH, electrometric		9.5	8.5-10
Temperature	°C	65	60-70
Solution Density	°Be	10	10-20
Anode Current Density	A/dm ²	0.25 max.	0.25 max.
Cathode Current Density	A/dm ²	0.5	0.4-0.8
Anode : Cathode Ratio		4 : 1	or higher
Agitation	m/min	vigorous	vigorous
Plating rate (mgm/Amp-min)		75	70-80
Time to deposit 1 μ at 0.5 A/dm ²	min	3.5	3.5-4.0

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (6-10 g/l) by periodic additions of AUROSIGN Gold Complex.

Replenishment material AUROSIGN P180 Replenisher Pack is supplied as a liquid in units. Each unit contains 200 mls and 400 mls of AUROSIGN Replenisher Brightener A (Code 8105) and B (Code 8106), to be added with appropriate quantity of gold complex corresponding to 100 grams of gold metal. Under optimum operating conditions, gold is consumed at a rate of approximately 100 grams of gold metal in 1770 Amp/mins.

pH CONTROL

As the bath is used, the pH trends to drop and should be maintained between pH 9.0 and 10.0 electrometric. pH is raised through the use of 10% reagent grade potassium hydroxide solution. The AUROSIGN P180 bath is alkaline (pH = 9.5). The pH must not be allowed to drop below 8.0 since this will cause the solution to decompose.

BRIGHTENER ADJUSTMENT

Normally, the Make Up and Replenisher materials contain enough brightening agent to maintain brightness of the deposit. If a slightly hazy deposit occurs, either with an operating or idle bath whose gold content is within recommended limits (and all other operating conditions are correct), a small addition of AUROSIGN Brightener E (Code 8005) should be made.