
AUROMEX®

TECHNICAL INSTRUCTIONS

DATA SHEETS

DECORMEX 850

HIGH EFFICIENCY ACID HARD GOLD ELECTROPLATING PROCESS

INTRODUCTION

AUROMEX DECORMEX 850 is a new complexed metallic brightened high efficiency acid hard gold electroplating process specially formulated for high quality jewellery , spectacle frames , watch cases and cutlery.

DECORMEX 850 is based on an entirely new acid gold electrolyte that contains an effective organo metallic complex. High efficiency , even distribution characteristics and an exceptional throwing power make **DECORMEX 850** an economic process to use. Increased output is obtained with a plating rate of 30-45 mgm/Amp-min (4.0-6.0 minutes to deposit one micron at 1.0 A/dm² depends on operating temperature). **DECORMEX 850** produces mirror bright extreme hard , ductile deposits of

approximate 22-22.5 karats that are uniform pale yellow in colour. There is on need to employ special additional finishing procedures with this process. Hardness values in the range 250-350 Vickers prolong the fine appearance and value of **DECORMEX 850** coatings and eliminate wear point problems. The deposits are non-porous and resistant to tainishing and corrosion.

PROCESS FEATURES

- * Higher cathode efficiency and ability to plate thicker deposit.
- * Excellent distribution and throwing power.
- * Good corrosion resistance.
- * Lower internal stress of deposits.
- * Wear and abrasion resistant.
- * Good tolerance to metallic impurities.
- * Easy to operate.

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CHEMICALS CORPORATION

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DEPOSIT CHARACTERISTICS

Appearance	: Mirror bright, lustrous deposit
Deposit purity	: 92-94% approx.
Karat	: 22-22.5 Karats
Hardness	: 250-350 mHv20g
Deposit Density	: 16.5-17.5 g/cm ³
For 1 micron deposit	: 170-175 mgm/dm ²
Colour of deposit	: Hamilton 9

EQUIPMENT REQUIRED

Tank	Polypropylene or PVC glass fibre reinforced tanks are suitable.
Heater	Heating is required and temperature regulation is assential. 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.

PREPARATION OF SOLUTION

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

Materials required :

Potassium Gold Cyanide (68.3%)	58.5 grams
DECORMEX 850 Make Up Salt (Code 85100)	1.5 kgs.
DECORMEX 850 Make Up Brightener (Code 85110)	1 litre
DECORMEX ACID (Code 85200)	
Potassium Hydroxide	

Make Up Procedures :

- 1) Pour 6 litres of demineralised or distilled water into the clean plating tank.
- 2) Add in the 1.5 kgs. Make Up Salt (Code 85100), stir until completely dissolved and the 1 litre Make Up Brightener (Code 85110) .
- 3) Check and adjust pH to 3.8 with 10% potassium hydroxide or **DECORMEX ACID**.
- 4) Dissolve the gold potassium cyanide in a separate quantity of demineralised or distilled water and then add to the above solution.
- 5) Stir and check the pH again. Adjust to pH 3.8 if necessary with **DECORMEX ACID** or potassium hydroxide.
- 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>
Metallic gold content	g/l	3.0-6.0	4.0
pH electrometric		3.5-4.2	3.8
Temperature	°C	30-45	35
Cathode current density	A/dm ²		
still vat plating		0.5-2.0	1.0
barrel plating		0.2-0.4	0.2
Density	°Be	13-18	15
Anode : Cathode ration, Vat		3:1-5:1	4:1
Barrel		2:1-3:1	2:1
Agitation		vigorous	vigorous
Plating rate	mgm/Amp-min	30-45	38
Time to deposit 1u at 1 A/dm ²	min	4-6	4.5

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (3-6 g/l) by periodic additions of gold potassium cyanide 68.3% .

Replenisher Brightener is supplied as a liquid in units of 100 mls. One unit contains all the necessary agents to be added with the appropriate quantity of gold salts corresponding to 100 grams of gold metal.

Replenishment should be based on regular analysis but under optimum operating conditions; **DECORMEX 850** process deposit metal at the following rates.

<u>Amp-min</u>	<u>Gold consumed</u>
2800	100 grams (at 35°C, 1 ASD)

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

For every 100 grams gold replenishment(147 grams 68.3% PGC) add one units (100 mls.)

DECORMEX 850 Replenisher Brightener (Code 85150)

Conductivity : Specific gravity of the solution should be maintained between 13-18 Baume. If for any reason excessive drag out occurs, and the specific gravity of the solution drops below 12 °Be conducting salts (Code 85250) should be added to the solution. For every 16 g/l addition of this conducting salt will increase 1°Be at 35°C .

pH adjustment : The pH of the solution will rise slowly during use and should be checked periodically. To lower the solution pH by addition of **DECORMEX ACID**. To increase pH by addition of 10% w/v potassium hydroxide.

CONTROL OF IMPURITIES

In general, any metallic impurities could interfere with the operation of the **DECORMEX** gold bath. Introduction of metallic impurities into the bath should be prevented by proper rinsing of the parts to the plated and a **DECORMEX S-100** gold strike prior to gold plating.

PACKING

When ordering, reference should be made to the following code numbers:

DECORMEX 850 Make Up Salt (Code 85100)	1.5 Kgs./pack
DECORMEX 850 Make Up Brightener (Code 85110)	1 litre/pack
DECORMEX 850 Replenisher Brightener ((Code 85150)	100 mls.
DECORMEX 850 Conducting Salt (Code 85250)	1,2,5 kgs/pack
DECORMEX 850 Special Conducting Salt (Code 85500)	1,2,5 kgs/pack
DECORMEX 850 Acid (Code 85200)	1,2,5 litre/pack