
AUROMEX®

TECHNICAL

INSTRUCTIONS

DATA SHEETS

DECORMEX IP1000

DECORATIVE ACID HARD GOLD ELECTROPLATING PROCESS

INTRODUCTION

AUROMEX DECORMEX IP1000 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 IP1000 is based on an entirely new acid gold electrolyte that contains an effective metallic complex. High efficiency, even distribution characteristics and an exceptional throwing power make **DECORMEX IP1000** an economic process to use.

DECORMEX IP1000 produces mirror bright extreme hard, ductile deposits of 24 karat colour. There is no need to employ special additional finishing procedures with this process. Hardness values in the range 180-200 vickers prolong the fine appearance and value of **DECORMEX IP1000** coatings and eliminate wear point problems. The deposits are non-porous and resistant to tarnishing and corrosion.

PROCESS FEATURES

- * Higher cathode efficiency
- * 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

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

DEPOSIT CHARACTERISTICS

APPERANCE	:	Mirror bright, lustrous deposit
DEPOSIT PURITY	:	99.7% approx
KARAT	:	24 Karats
HARDNESS	:	180-200 mHv20g
DEPOSIT DENSITY	:	17-18 g/cm ³
FOR 1 MICRON DEPOSIT	:	170-180 mgm/dm ²
COLOUR OF DEPOSIT	:	24 Karat colour

EQUIPMENT REQUIRED

TANKS	:	Polypropylene or PVC glass fiber reinforced tanks are suitable.
HEATERS	:	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 0.25 A/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%)	29.3 grams
DECORMEX IP1000 make up salt (Code 10000)	1.3 kgs.
DECORMEX IP1000 make up Brightener (Code 10010)	200 mls.
DECORMEX Acid (Code 10070)	
Potassium Hydroxide	

MAKE UP PROCEDURES :

- (1) Pour 6 litres of demineralised or distilled water into the clean plating tank.
- (2) Add in the 1.3 kgs. Make Up Salt (Code 10000), stir until completely dissolved and then add the 200 mls. Make Up Brightener (Code 10010).
- (3) Check and adjust pH to 4.5 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 4.5 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	1.0-3.0	2.0
METALLIC COBALT CONTENT	g/l	0.3-0.8	0.5
pH ELECTROMETRIC		3.8-4.8	4.5
TEMPERATURE	°C	35-40	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	8-15	10
ANODE : CATHODE RATIO, VAT		3:1-5:1	4:1
BARREL		2:1-3:1	2:1
AGITATION		vigorous	vigorous
PLATING RATE	mgm/Amp-min	25-30	28
TIME TO DEPOSIT 1u at 1 A/dm ²	min	6-8	6.5

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (1.0-3.0 g/l) by periodic additions of gold potassium cyanide 68.3%.

Replenishment 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 IP1000** process deposit metal at the following rates.

<u>Amp-min</u>	<u>Gold consumed</u>
3580	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 IP1000** Replenisher Brightener (Code 10050).

CONDUCTIVITY : Specific gravity of the solution should be maintained between 8-15 Brume. If for any reason excessive drag out occurs, and the specific gravity of the solution drops below 8 °Be conducting salts (Code 10060) should be added to the solution. For every 16 g/l addition of this conduction 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.

PACKING

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

DECORMEX IP1000 Make Up Salt (Code 10000)	1.3 kgs/unit
DECORMEX IP1000 Make Up Brightener (Code 10010)	200 mls/unit
DECORMEX IP1000 Replenisher Brightener (Code 10050)	100 mls.
DECORMEX IP1000 Conducting Salt (Code 10060)	1,2,5 kgs/pack
DECORMEX IP1000 Acid (Code 10070)	1,2,5 litre/pack