DECORMEX EF980

HIGH EFFICIENCY ELECTROFORMING 24K HARD GOLD PROCESS

INTRODUCTION

The AUROMEX **DECORMEX EF980** is a newly developed high efficiency acidic pure hard gold process, specially designed to give a bright, hard, ductile and fine grained pure gold deposits at thickness in excess of 1.25mm (0.050 inches). This process is advantageous to many applications especially in decorative jewellery industries and ideal for electroforming purpose, for building up thick deposits where subsequent finishing is not required.

FEATURES

- Semi-Bright to Bright finish gold deposits
- Deposits are fine, hard and highly ductile
- Non-critical in operation and control
- No accumulation of deleterious brightener decomposition products
- Exceptional throwing and covering power
- High Cathode Efficiency with even thickness distribution
- Extremely economy

DEPOSIT PROPERTIES

Appearance	:	Semi Bright to Bright finish (rich lemon yellow colour)
Deposit purity	:	99% up
Karat	:	24 Kt
Hardness	:	120 - 160 mHv20g
Deposit Density	:	18.0 - 18.5 g / dm^2
For 1 micron deposit	:	180 - 185 mgm / dm^2

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EQUIPMENT

Tanks	Polypropylene or PVC glass fiber reinforced tanks are suitable.
Heater	Heating is required and temperature regulation is essential. Therefore, thermostatic 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 step less 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.

PLATING BATH PREPARATION :

AUROMEX DECORMEX EF980 make up chemicals are supplied in unit form. Each unit contains all the necessary additives required to make 10 litres working 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%)		118 gms.
Decormex EF980 Make Up Salt	(Code 10980)	1.7 kgs
Decormex EF980 Make Up Brightener A	(Code 10981)	500 mls.
Decormex EF980 Make Up Brightener B	(Code 10982)	100 mls.
Decormex EF980 Acid Adjustment Solution	(Code 10985)	
Potassium Hydroxide (AR Grade)		

Make up Procedures :

1. Pour 6 litres of demineralised or distilled water into the clean plating tank.
2. Add in the 1.7kgs Make Up Salt (Code 10980), stir until completely dissolved and then add the 500 mls each of Make Up Brightener A and 100mls Make Up Brightener B (Code 10981/10982).
3. Check and adjust pH to 4.5 with **Decormex EF980** acid or 10% KOH solution

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 4.5 if necessary.
6. Dilute the solution to 10 litres with demineralised or distilled water. The solution is then ready to use.

OPERATING CONDITIONS :

	UNIT	RANGE	OPTIMUM
Metallic gold content	g/l	6 - 8	8
pH electrometric		4.2 – 4.8	4.5
Temperature		30 - 50	40
Cathode current density	A/dm²	0.5 – 1.0	0.8
Density	Be	12 - 20	16
Anode : Cathode ratio		3:1 – 5:1	4:1
Agitation		moderate	moderate
Plating rate	µm/hour	20 - 70	40

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (6-8 g/l) by periodic additions of gold potassium cyanide 68.3%. Replenisher Brightener is supplied as a liquid in units of 100 mls each of Replenisher brightener A and Replenisher B (code 10983 and 10984). One unit contains all the necessary additives 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 EF980** process deposit metal at the following rates

Amp-min	Gold consumed
1400	100 grams

For every 100 grams gold replenishment (147 grams 68.3% PGC) add one units 100mls each of **DECORMEX EF980** Repl. Br A& Repl.Br. B (Code 10983 & 10984).

Conductivity : Specific gravity of the solution should be maintained between 12-20 baume. If for any reason excessive drag out occurs, and specific gravity of the solution drops below 8 Be conducting salt (Code 10986) should be added to the solution. For every 16 g/l addition of this conducting salt will Increase 1 Be at 35℃.

pH adjustment : The pH of the solution will rise slowly during use and should be checked periodically (within 4.2-4.8). To lower the solution pH by addition of **Decormex EF980 Acid** (code 10985). To Increase pH by addition of 10% potassium hydroxide solution.

PACKING :

DECORMEX EF980 Make Up Salt	(Code 10980)	1.7 kg / unit
DECORMEX EF980 Make Up Brightener A	(Code 10981)	500 mls / unit
DECORMEX EF980 Make Up Brightener B	(Code 10982)	100 mls / unit
DECORMEX EF980 Replenisher Brightener A	(Code 10983)	100 mls / unit
DECORMEX EF980 Replenisher Brightener B	(Code 10984)	100 mls / unit
DECORMEX EF980 Conducting Salt	(Code 10986)	1 , 2 , 25 kgs / pack
DECORMEX EF980 Acid Adjustment Solution	(Code 10985)	1 , 2 , 5 litres / pack