
AUROMEX[®]

TECHNICAL

INSTRUCTIONS

DATA SHEETS

DECORMEX EF99C **HIGH EFFICIENCY ELECTROFORMING PURE GOLD PROCESS**

INTRODUCTION

The AUROMEX **DECORMEX EF99C** is a high efficiency low stress, neutral gold process, specially designed to give a hard, ductile and fine grained deposits at thickness in excess of 1.25mm (0.050 inches). This process is advantageous to many applications especially for decorative industries and ideal for electroforming purpose, for building up super thick deposits where subsequent finishing is not required.

FEATURES

- * Fine grained, Semi-Bright deposits
- * Deposits are highly ductile with lower internal stress
- * Non-critical in operation and control
- * No accumulation of deleterious brightener decomposition products
- * Exceptional throwing and covering power
- * High Cathode Efficiency and good thickness distribution

DEPOSIT PROPERTIES

Appearance : Semi Bright Finish (rich lemon yellow colour)
Deposit purity : 99.9% up
Karat : 24 Kt
Hardness : 80 - 120 mHv20g
Deposit Density : 18.7 - 19.0 g / dm²
For 1 micro deposit : 187 - 190 mgm / dm²

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CHEMICALS CORPORATION

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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 / dm² are recommended.

PLATING BATH PREPARATION :

AUROMEX DECORMEX EF99C 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%)		366 gms.
Decormex EF99C Make Up Salt	(Code 11190)	1.0 kg
Decormex EF99C Make Up Brightener	(Code 11191)	100 mls.
Decormex EF99C Acid Adjustment Solution	(Code 11195)	

Potassium Hydroxide

Make up Procedures :

1. Pour 6 litres of demineralised or distilled water into the clean plating tank.
2. Add in the 1.0 kgs Make Up Salt (Code 11190), stir until completely dissolved and then
3. add the 100 mls Make Up Brightener (Code 11191).
Check and adjust pH to 7.5 with **Decormex EF99C**(code 11195) acid or 10% potassium hydroxide 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 7.5 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>
Metallic gold content	g/l	20 - 30	25
pH electrometric		6.5 – 8.5	7.5
Temperature		30 - 50	40
Cathode current density	A/dm ²	0.5 – 2.0	1.0
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 (20-30 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 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 EF99C** process deposit metal at the following rates

<u>Amp-min</u>	<u>Gold consumed</u>
820	100 grams

For every 100 grams gold replenishment (147 grams 68.3% PGC) add one units (100 mls) **DECORMEX EF99C** Replenisher Brightener (Code 11198).

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 12 Be **Decomex EF99C** conducting salt (Code 11199) 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 EF99C** Acid (code 11195). To increase pH by addition of 10% potassium hydroxide solution.

PACKING :

DECORMEX EF99C Make Up Salt	(Code 11190)	1.0 kg / unit
DECORMEX EF99C Make Up Brightener	(Code 11191)	100 mls / unit
DECORMEX EF99C Replenisher Brightener	(Code 11198)	100 mls / unit
DECORMEX EF99C Conducting Salt	(Code 11199)	1 , 2 , 25 kgs / pack
DECORMEX EF99C Acid Adjustment Solution	(Code 11195)	1 , 2 , 5 litres / pack