
AUROMEX®

TECHNICAL INSTRUCTIONS

DATA SHEETS

DECORMEX EF8000HX

HIGH EFFICIENCY ELECTROFORMING PURE HARD GOLD PROCESS

INTRODUCTION

The AUROMEX **DECORMEX EF8000HX** is a newly developed high efficiency pure hard 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 and ideal for electroforming purpose, especially in jewellery industries for building up thick deposits where subsequent finishing is not required.

FEATURES

- * Semi-Bright to Bright finish 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	: 99.9% up
Karat	: 24 Kt
Hardness	: 140 - 180 mHv20g
Deposit Density	: 18.0 - 18.5 g / dm ²
For 1 micron deposit	: 180 - 185 mgm / dm ²

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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 / dm ² are recommended.

PLATING BATH PREPARATION :

AUROMEX DECORMEX EF8000HX 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%)		175 gms.
Decormex EF8000HX Make Up Salt	(Code 8010)	1.8 kgs
Decormex EF8000HX Make Up Brightener	(Code 8011)	100 mls.
Decormex EF8000HX Make Up Stabilizer	(Code 8018)	100 mls.
Decormex EF8000HX Hardener	(Code 8016)	as request
Decormex EF8000HX Acid Adjustment Solution	(Code 8055)	as request
Potassium Hydroxide (AR Grade)		as request

Make up Procedures :

1. Pour 6 litres of demineralised or distilled water into the clean plating tank.
2. Add in the 1.8kgs Make Up Salt (Code 8010), stir until completely dissolved.
3. Add the 100 mls each of Make Up Brightener and Stabilizer (Code 8011/8018). Check and adjust pH to 6.0 with **Decormex EF8000HX** 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 6.0 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	10 - 15	12
pH electrometric		5.8 – 6.5	6.0
Temperature	°C	35 - 45	40
Cathode current density	A/dm ²	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	55 - 70	60

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (10-15 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 brightener and stabilizer (code 8015 and 8018). 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 EF8000HX** process deposit metal at the following rates

<u>Amp-min</u>	<u>Gold consumed</u>
1100	100 grams

For every 100 grams gold replenishment (147 grams 68.3% PGC) add one units (100 mls) each of **DECORMEX EF8000HX** Replenisher Brightener & Stabilizer(Code 8015 & 8018).

- 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 conducting salt (Code 8014) 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 (within 5.8-6.5). To lower the solution pH by addition of **Decormex 8000HX** Acid (code 8055). To increase pH by addition of 10% potassium hydroxide solution.

Deposit Hardness : Under normal operation, the deposit hardness is depend on the concentration of the organic additive , it can be adjust/increase by addition of **DECORMEX EF8000HX** Hardener (code 8016) in 1-2 mls/litre.

Post Treatment : The hardness, wearing resistance and ductility of gold deposit can further enhanced by dipping the articles in the following electrolyte.

Hot Dipping Solution :

EF8000HX make up salt	30-50 g/l
EF8000HX acid solution	30 cc/l
EF8000HX stabilizer	3-5 cc/l
EF8000HX N0.5 complexer	10 cc/l
EF8000HX wetting agent	0.5-1.0 cc/l

40-50 °C for 10-15 minutes

PACKING :

DECORMEX EF8000HX Make Up Salt	(Code 8010)	1.8 kg / unit
DECORMEX EF8000HX Make Up Brightener	(Code 8011)	100 mls / unit
DECORMEX EF8000HX Stabilizer	(Code 8018)	100 mls / unit
DECORMEX EF8000HX Replenisher Brightener	(Code 8015)	100 mls / unit
DECORMEX EF8000HX No.5 Complexer	(Code 8005)	1 , 2 , 5 litres / unit
DECORMEX EF8000HX Hardener	(Code 8016)	1 , 2 , 5 litres/ unit
DECORMEX EF8000HX Conducting Salt	(Code 8014)	1 , 2 , 25 kgs / pack
DECORMEX EF8000HX Acid Adjustment Solution	(Code 8055)	1 , 2 , 5 litres / pack
DECORMEX EF8000HX Wetting Agent	(Code 8009)	1 , 2 , 5 litres / pack