
AUROMEX®

TECHNICAL

INSTRUCTIONS

DATA SHEETS

DECORFIN B14K

NEUTRAL BLACK GOLD ELECTROPLATING PROCESS

INTRODUCTION

AUROMEX DECORFIN B14K is a newly developed complex metallic brightened neutral black gold alloy electroplating process specially formulated for high quality jewellery , spectacle frames , watch cases and cutlery. **DECORFIN B14K** is based on an entirely new neutral gold electrolyte that contains an effective organo-metallic complex. High efficiency , even distribution characteristics and an exceptional throwing power make **DECORFIN B14K** an economic process to use. **DECORFIN B14K** produces bright extreme hard , ductile deposits of approximate 12.0-14.0 karats that are uniform grayish black to deep black in colour. There is on need to employ special additional finishing procedures with this process. Hardness values in the range 200-260 Vickers.

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.

DEPOSIT CHARACTERISTICS

Appearance	: Bright grayish black to deep black deposit
Deposit purity	: 56-58.5% approx.
Karat	: 12.0-14 Karats
Hardness	: 200-260 mHv20g
Deposit Density	: 13.5-14.0 g/cm ³
For 1 micron deposit	: 135-140 mgm/dm ²
Colour of deposit	: Black

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CHEMICALS CORPORATION

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EQUIPMENT REQUIRED

Tank	Polypropylene or PVC glass fibre reinforced tanks are suitable.
Heater	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 0.25A/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%)		11.7 grams
DECORFIN B14K Make Up Salt	(Code B1400)	0.8 kgs.
DECORFIN B14K Make Up Brightener	(Code B1401)	0.5 litre
DECORFIN ACID SOLUTION	(Code B1490)	
DECORFIN AKALINE SOLUTION	(Code B1495)	

Make Up Procedures :

- 1) Pour 6 litres of demineralised or distilled water into the clean plating tank.
- 2) Add in the 0.8 kgs. Make Up Salt (Code B1400), stir until completely dissolved and add the 0.5 litre Make Up Brightener (Code B1401) .
- 3) Check and adjust pH to 7.0 with DECORFIN alkaline or DECORFIN 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 7.0 if necessary with DECORFIN acid or DECORFIN alkaline.
- 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	0.5-1.0	0.8
pH electrometric		6.5-7.5	7.0
Temperature	°C	40-60	50
Cathode current density	A/dm ²		
still vat plating		0.5-1.2	1.0
barrel plating		0.2-0.4	0.2
Density	°Be	6-12	8
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	15-30	25

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (0.5-1.0 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;

DECORFIN B14K process deposit metal at the following rates.

<u>Amp-min</u>	<u>Gold consumed</u>
6600	100 grams

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 (300 mls.)

DECORFIN B14K Replenisher Brightener (Code B1410)

Conductivity : Specific gravity of the solution should be maintained between 6-12

Baume. If for any reason excessive drag out occurs, and the specific gravity of the solution drops below 12 °Be conducting salts (Code B1415) 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 DECORFIN acid. To increase pH by addition of DECORFIN alkaline solution.

PACKING

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

DECORFIN B14K Make Up Salt	(Code B1400)	0.8 Kgs/unit.
DECORFIN B14K Make Up Brightener	(Code B1401)	500 mls/unit.
DECORFIN B14K Replenisher Brightener	(Code B1410)	300 mls/unit.
DECORFIN B14K Conducting Salt	(Code B1415)	25 kgs/pack
DECORFIN B14K Special blackening additive	(Code B1405)	1 litre/bot.
DECORFIN B14K Acid	(Code B1490)	1 litre/bot.
DECORFIN B14K Akaline	(Code B1495)	1 litre/bot.

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