DECORFIN W600

DECORATIVE GOLD PLATING PROCESS

INTRODUCTION

DECORFIN W600 is an acid gilding process developed for low priced costume jewelry and similar decorative wear. The formulation produces fully bright, ductile high corrosion resistance and relatively hard deposits up to 2 microns thickness. Finishes are uniform in distribution and thickness and is particularly useful as a decorative coating for bright nickel plated pieces. DECORFIN W600 is a extremely economic process to operate and produces a uniform Hamilton gold color over a wide range of operating conductions and the process is ideal for both still vat and barrel plating.

PROCESS FEATURES

- Economic, easy to operate.
- Uniform distribution, thickness.
- High resistance to tarnishing and scratching.
- Wide operating conditions, stable color.
- Less drag out loss.

DEPOSIT CHARACTERISTICS

Appearance	Mirror bright, lustrous deposit
Karat	22 – 22.5 Karats
Hardness	200 – 240 $mHv_{20}g$
Specific gravity	16.5 – 17.5

AUROMEX ® *CHEMICALS CORPORATION*
UNIT NO. 2, 4/F., INTERNATIONAL PLAZA, 20 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.
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EQUIPMENT REQUIRED

Tank	Polypropylene or PVC glass fiber reinforced tank are suitable.
Heaters	Heating is required and temperature regulation is essential. Therefore, thermostatically controlled immersion heater are recommended.
Rectifier	A standard DC 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.

PREPARATION OF SOLUTION

The following instructions are for the preparation of 10 liters of Electrolytes.

Materials required :

Potassium Gold Cyanide (68.3%)	29.3 grams
DECORFIN W600 make up salt (Code 20605)	2 kgs.
DECORFIN W600 make up Brightener (Code 20615)	500 mls.
DECORFIN Acid (Code 2090)	
Potassium Hydroxide	

Make up procedures :

1. Pour 6 liters of demineralised or distilled water into the clean plating tank.
2. Add in the 2 kgs. Make Up Salt (Code 20605), stir until completely dissolved and then add the 500 mls. Make Up Brightener (Code 20615) and stir.
3. Check and adjust pH to 3.8 with 10% potassium hydroxide 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 3.8 if necessary with **DECORFIN** Acid or potassium hydroxide.
6. Dilute the solution to 10 liters with demineralised or distilled water. The solution is then ready to use.

OPERATING CONDITIONS :

	UNIT	RANGE	OPTIMUM
Metallic gold content	g/l	1.0-2.0	2.0
pH electrometric		3.5-4.5	3.8
Temperature	℃	25-50	35
Cathode current density	A/d㎡		
still vat plating		0.5-1.2	1.0
barrel plating		0.2-0.4	0.2
Density	°Be	8-20	12
Anode : cathode ratio, vat		3:1-5:1	4:1
Barrel		2:1-3:1	2:1
Agitation			vigorous
Plating rate	mgm/Amp-min	12-18	15
Time to deposit 1u at 1 A/d㎡	min	10-14	12

BATH MAINTENANCE

Gold metal content of the solution should be maintained at the recommended concentration (1.0-2.0g/l) by periodic additions of gold potassium cyanide 68.3%. Replenishing 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 W600** process deposit metal at the following rates.

Amp-min	Gold consumed
7250	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 (100 mls.) **DECORFIN W600** Replenishing Brightener (Code 20655).

CONDUCTIVITY **:** Specific gravity of the solution should be maintained between 8-20 Brume. If for any reason excessive drag out occurs, and the specific gravity of the solution drops below 10 °Be ,conducting salts (Code 20955) should be added to the solution. For every 16 g/l addition of this conduction salt will increase 1°Be at 45℃.

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 10% w/v potassium hydroxide.

CONTROL OF IMPURITIES

In general, any metallic impurities could interface with the operation of the DECORFIN gold bath. Introduction of metallic impurities into the bath should be prevented by proper rinsing of the parts to be plated and a DECORMEX S-100 gold strike prior to gold plating.

PACKING

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

DECORFIN W600 Make Up Salt (Code 20605)	2 kgs/unit
DECORFIN W600 Make Up Brightener (Code 20615)	500 mls/unit
DECORFIN W600 Replenishment Brightener (Code 20655)	100 mls/unit
DECORFIN W600 Conducting Salt (Code 20955)	1,2,5 kgs/pack
DECORFIN W600 Acid (Code 2090)	1,2,5 kgs/pack