



CIRGOLD C90

Gold Plating Process

INTRODUCTION

Cirgold C90 is a high speed acid gold plating process specially formulated for use in reel-to-reel plating machines or automatic high speed plating of printed circuit board edge contacts. It is also suitable for use in rack and barrel plating for connectors. The deposits contain 0.3 – 0.4% cobalt, have good wear characteristics, low contact resistance and are eminently suitable for electronic contacts.

SOLUTION MAKE-UP

Cirgold C90 – Base Solution is supplied ready-for-use at the gold concentration recommended for the application – see notes page 2.

CAUTION: Cirgold C90 plating solution contains cyanide and therefore correct precautions should be taken during make-up and operation.

Prior to using a new tank it should be leached with a 10 g/l solution of citric acid at 50 – 60°C overnight.

OPERATING CONDITIONS

Gold	1 – 15g/L depending on application
Cobalt	0.5 – 1.0g/L
Temperature	30 - 65°C
pH	4.2 – 4.6
Cathode Current Density	Barre/Rack plating 0.1 – 2A/dm ² . Reel to reel up to 100A/dm ² depending on equipment and gold concentration.
Specific Gravity	1.090 minimum

EQUIPMENT

Tanks	Moulded polythene, natural polypropylene or welded PVC.
Anodes	Platinised titanium.
Agitation	Vigorous solution movement.
Filtration	Glandless all plastic construction capable of at least 3 – 4 turn-overs/hour through a 5 micron polypropylene cartridge guaranteed free of winding lubricant.



MAINTENANCE

The solution should be regularly analysed for gold and cobalt and maintained within 5% of the optimum concentrations.

Gold	Will vary depending on application.
Cobalt	0.75 g/L

The gold and cobalt concentrations will be approximately maintained by the following addition every ampere hour:

3g of gold as potassium gold cyanide (PGC or GPC)
3ml Cirgold C90 Replenisher.

These materials are supplied in units of Cirgold C90 replenishment, each unit consisting of: 100gm gold as PGC + a Cirgold 100ml "R" Unit.

The specific gravity should be maintained at 1.090 minimum by the following addition for every 0.01 S.G. low:

10g/L Cirgold C90 Buffer Salts.
5g/L Cirgold C90 Conductivity Salts.

Solution pH will rise gradually with use and should be reduced by adding 5 ml/L of Cirgold C90 Acid Adjuster for every 0.1pH unit reduction required. If it is necessary to increase the pH, an addition of 35 ml/L Cirgold C90 Alkaline Adjuster will give a 0.1pH unit increase.

NOTES

Gold Concentration: This is determined by the plating rate required and the type of agitation available. The gold can vary between 1 and 15 g/L.

Deposition Rate: This will depend on the current density achievable which, in turn is related to the gold concentration and the type of equipment employed eg.

Tab plating machine:

5 g/L gold at 8A/dm^2 = 1 micron in 1 minute
15g/L gold at 15A/dm^2 = 1 micron in 20 seconds

Reel-to-reel/Jet agitation:

5 g/L gold at 40A/dm^2 = 1 micron in 12 seconds
15 g/L gold at 100A/dm^2 = 1 micron in 3 seconds

Rack and barrel plating

2g/L gold at 0.6A/dm^2 = 1 micron in 11 minutes

The deposition rate is also affected by the temperature and pH with the maximum current density being possible at the upper end of the temperature range and the maximum cathode efficiencies being achieved at higher pHs. Example: for maximum speed operate at 65°C and pH 4.6



DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Cirgold C90 Base Solution	037004
Cirgold C90 100ml "R" Unit	047019
Cirgold C90 Buffer Salts	060006
Cirgold C90 Conductivity Salts	060005
Cirgold C90 Acid Adjuster	067004
Cirgold C90 Alkaline Adjuster	065003
Gold as PGC – 100 Gram Unit	029003

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