

PMD CIRGOLD PG90

GOLD PLATING PROCESS

INTRODUCTION

PMD Cirgold PG90 is a pure gold plating process specially formulated to produce deposits with optimum bonding, heat resistant and corrosion resistant properties. Cirgold PG90 deposits are ideal for transistor headers, lead frames and hybrid circuit package pins.

The process can be used for rack and barrel plating. Deposits produced are fine-grained and matte yellow.

EQUIPMENT

Tanks	Moulded polythene 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.

SOLUTION MAKE-UP

Cirgold PG90 - Base Solution is supplied ready-for-use at the gold concentration recommended for the application - see Notes, Page 2.

CAUTION: Cirgold PG90 plating solution contains cyanide and therefore the correct precautions should be taken during make-up and operation.

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

CGPG90-05/02
ISSUE 4

OPERATING CONDITIONS

Temperature	60 - 70 Deg C
pH	7.0 - 8.0 (see notes)
Cathode Current Density	0.1 - 0.5 A/dm ² (rack) 0.05 - 0.3 A/dm ² (barrel)
Specific Gravity	1.090 minimum.
Deposition Rate	0.5 A/dm ² will deposit 1 micron in 4 minutes.

MAINTENANCE

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

Gold	Will vary depending on application.
Buffer Salts	160 g/l

The gold and additive concentrations will be approximately maintained by the following addition every 1 ampere hour:

7 gm of gold as potassium cyanide (PGC or GPC).
7 ml Cirgold PG90 Replenisher.

These materials are supplied in units of Cirgold PG90 replenishment, each unit consisting of:

100 gm gold as PGC + a Cirgold PG90 100 ml "R" unit.

Also available on request is a smaller unit as follows:

50 gm gold as PGC + a Cirgold PG90 50 ml "R" unit.

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

10 g/l Cirgold PG90 Buffer Salts.

Solution pH will increase very slowly with use and should be adjusted by the addition of Cirgold PG90 Acid Adjuster - a 5 ml/l addition will reduce the pH by 0.1. If it is necessary to increase the pH, a 7 ml/l addition of Cirgold PG90 Alkaline Adjuster will raise the pH by 0.1.

CGPG90-05/02
ISSUE 4

NOTES

Gold Concentration: this is determined by the plating rate required and the type of agitation available. For normal rack and barrel plating the following concentrations are recommended:-

Rack	6 - 8 g/l gold
Barrel	3 - 5 g/l gold

The use of higher gold concentrations will allow the use of higher current densities.

Temperature: generally, the higher the temperature the greater the current density range.

PH: the normal operating pH is 7.0 - 8.0 and when plating the pins of hybrid circuit packages, no immersion gold deposit will be obtained on the can provided the can is plated with electroless nickel. However, if the can is plated with electrolytic nickel it may be necessary to raise the pH to 9.0 - 9.5 to prevent immersion gold deposition.

Free Cyanide: if the Cirgold PG90 process is to be used for plating the pins of packages, it may be necessary to add potassium cyanide (0.3 - 0.5 g/l) at the start of each working day, to assist in preventing immersion gold deposition on the nickel plated can.

DISPOSAL

Dispose of in accordance with local authority requirements.

PRODUCT FAMILIES

The following products or families of products are referred to in this data sheet:-

<u>Product Name</u>	<u>Product Number</u>
The Cirgold PG90 System	
Cirgold PG90 Base Solution	037014
Cirgold PG90 100 ml "R" Unit	047025
Cirgold PG90 50 ml "R" Unit	047024
Cirgold PG90 Buffer Salts	060008
Cirgold PG90 Acid Adjuster	067006
Cirgold PG90 Alkaline Adjuster	065005
Gold as PGC - 100 Gram Unit	029003
Gold as PGC - 50 Gram Unit	029004

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