
AUROMEX®

TECHNICAL

INSTRUCTIONS

DATA SHEETS

PALLMEX PF

PURE PALLADIUM ELECTROPLATING PROCESS

INTRODUCTION

AUROMEX PALLMEX PF is a mildly alkaline bright, pure palladium flash plating process, producing a low stress, high ductility and extreme white and bright finish for both electronic and decorative plating applications. **PALLMEX PF** is particularly suitable for use as substitutes or partial substitutes for several of the other precious metals, most notably gold. A palladium undercoat for gold or rhodium as a substitute for bright nickel improves the corrosion resistance of the coating.

PROCESS CHARACTERISTICS

- * Substitute for gold
- * High hardness
- * Low internal stress
- * High ductility (6-8% elongation)
- * Extreme white and bright finish
- * Extremely economic
- * Excellent deposit distribution
- * Non toxic electrolyte
- * Ease of control

DEPOSIT CHARACTERISTICS

Appearance	: Extreme white, bright (follow substrate)
Purity	: 100% Pd
Density	: 11.5 – 12.0 g / cc
Hardness	: 180 Vickers (160 – 240)

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CHEMICALS CORPORATION

UNIT NO. 2, 4/F., INTERNATIONAL PLAZA, 20 SHEUNG YUET ROAD, KOWLOON BAY, KOWLOON, H.K.

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FAX: 852-2796 7117

EQUIPMENT REQUIRED

Tanks	Polypropylene or PVC glass fibre reinforced tanks are suitable.
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 0.25 A/dm^2 are recommended.

MAKE UP INSTRUCTION

Palladium Complex :

For the preparation and maintenance of the solution, palladium is added in the form of Pallmex 'P' complex (50 or 100 g/l palladium metal)

Preparation of the solution :

Pallmex PF make up is supplied as a ready for use electrolyte, it contains all the necessary agents to make up the bath, but does not contain Palladium.

Material required : For 10 litres of electrolyte

Palladium 'P' complex (100 g/l Pd metal)	0.1 litres
Palladium PF Make Up Electrolytes	10 litres
Palladium PF Additive	as required
Palladium PF Wetting Agent	as required
Ammonium Hydroxide	

OPERATING CONDITIONS

	<u>Unit</u>	<u>Optimum</u>	<u>Range</u>
Metallic Palladium Content	g / l	1	0.5 – 1.5
Temperature	°C	30	25 – 40
Density	°Be	5	4 – 10
pH		8.5	8 – 9
Cathode Current Density	A / dm ²	1 (Vat) 0.4 (barrel)	0.5 – 1.5 (Vat) 0.3 – 0.5 (barrel)
Anode – to – Cathode Ratio		4 : 1	3 – 5
Agitation	m / min	4	3 – 5
Plating Rate	Mgm / Amp - min	12	10 – 12

BATH MAINTENANCE

The Palladium metal content should be maintained at the recommended concentration (0.5 – 1.5 g/l) by periodic additions of Palladium Complex. Both palladium complex and replenisher additive are supplied as a liquid in units of 100 mls. One unit contains all the necessary agents to be added with the appropriate quantity of palladium complex corresponding to 10 grams of palladium metal.

Replenishment should be based on regular analysis but under optimum operating conditions. Pallmex PF process deposit metal at the following rates.

<u>Amp – min</u>	<u>Palladium Consumed</u>	<u>Replenishment</u>
835	10 grams metal	1 unit of Pallmex PF R1 (10 g Pd metal / 100 mls) 1 unit of Pallmex PF R2 (100 mls / unit)

As drag out losses cannot be accounted for accurately, analytical checks should be performed periodically.

PACKING

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

PALLMEX PF Make Up Electrolyte	20 litres / drum
PALLMEX ' P ' Complex (100 g/l Pd metal)	500 mls / bottle
PALLMEX PF Replenisher Pack (R1) (R1 – 10 gms Pd metal / unit)	100 mls / unit / bottle R1
PALLMEX PF Replenisher Pack (R2)	100 mls / unit / bottle R2
PALLMEX PF Additive	1,2 litres / bottle
PALLMEX PF Wetting Agent	1,2 litres / bottle
PALLMEX PF Acid Solution	1,2 litres / bottle
PALLMEX PF Conducting Salt	1,2,5 kgs / bottle