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# AUROMEX<sup>®</sup>

TECHNICAL

INSTRUCTIONS

DATA SHEETS

## PLATINUM PT500 BRIGHT DECORATIVE PLATINUM PLATING PROCESS

### INTRODUCTION

**AUROMEX PLATINUM PT500** is a newly developed decorative Platinum plating solution. The deposit produced by the solution exhibits a hard, brilliant white, highly reflective surface and uniformity. Therefore, the solution is recommended to surface treatment of high quality decorative accessories, industrial precision parts, electronics parts, optical items and physical-chemical apparatuses, especially to finishing of high quality decorative accessories and fine arts.

### PROCESS CHARACTERISTICS

- \* Uniform, bright deposits.
- \* Tarnish and corrosion resistance.
- \* Hard deposit ideal of decorative
- \* Ease of control within a wide temperature and current density range.
- \* Allow to plate over a wide range of current density and temperature.
- \* Allow vat or Barrel application

### DEPOSIT PROPERTIES

Purity	:	>99.9% Pt
Deposit Density	:	21.4 g/cc
Hardness	:	400 HV
Deposit Colour	:	brilliant white.
Deposition Rate	:	~13mgm/Amp-min
Electrical Resistivity	:	9.8**/cm

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## **EQUIPMENT**

Tanks	Tanks made by heat resist and anti-corrosion materials such as byres glass, PVC, polyethylene or PPHB lined tanks
Anodes	Platinum or Platinised-titanium is recommended.
Filters	Constant filtration is recommended by using filters possessing anti-corrosion and heat resist characteristics.
Agitation	Agitators made by anti-corrosion and heat resist materials by which agitation moderately controlled are desired. Agitation is essential to produce a uniform deposit.
Heating	Temperature regulation is essential, therefore, thermostatically controlled immersion heaters are recommended capable of maintaining the temperature at *2°C.

## **PLATING BATH PREPARATION :**

One litres of AUROMEX PLATINUM PT500 CONCENTRATE plating solution (PLATINUM content 40g/litre) can be both for make-up and replenishment.

Make up Procedures :- (for 10 litres bath)

- 1) Add 1.25litre of PT500 concentrate to 8.5 litres of ionized pure water.
- 2) Adjust pH with sulfuric acid or potassium hydroxide
- 3) Dilute to 10 litre by deionized pure water, the solution is ready to use.

## **OPERATING CONDITION :**

	<b><u>UNIT</u></b>	<b><u>RANGE</u></b>	<b><u>OPTIMUM</u></b>
PT Content	g/l	2-10	5.0
Sulfuric acid content	ml/l	20-50	25
Operating Temperature	°C	25-60	50
Current Density	A/dm <sup>2</sup>	1-2	1.5
Agitation		Weak-Neutral	
Anode to Cathode ratio		2:1-5:1	above 3:1
Cathode efficiently	mgm/Amp-min	12-14	13
Deposition Rate	*m/min at 1.5A/dm <sup>2</sup>	0.09-0.1	0.1

## **MAINTENANCE OF SOLUTION**

Platinum content of the solution must be maintained within 2-6 grams per litre.

For the replenishment, use 19.5 ml (Pt 0.78g) of PT500 concentrate solution for replenishment per ampere hour.

The Platinum metal content of the solution can be controlled either on the basis of weighting electrical deposit or ampere hours passed through the electrolytes. However, a periodical check of the solution by quantitative analysis is recommended as precise control of the content is difficult even by above two methods.

Use ionized pure water or distilled water for the adjustment of solution decreased as a result of heating.