LEGOR JEWELRY PLATING

TECHNICAL SHEET

PT4

PLATINUM SOLUTION FOR BATH PLATING 4G/L READY-TO-USE

GENERAL INFORMATION

PT4 is a platinum plating solution designed for bath plating. This electrolyte deposits a bright grey layer which is 99.97% pure platinum. The chemistry of PT4 is extremely flexible allowing for a wide range of platinum metal concentrations to be used ranging from 2 – 20 grams per liter. The higher the metal concentration used, the higher is the obtainable thickness until reaching a maximum deposit of 20 micron. These features make this platinum electrolyte ideal for technical electroplating applications.

Product form	
Product's pH	Acidic
Metal concentration	4 g/l (Pt)
Solution form	Ready-to-use
Solution form	Liquid
Plating solution color	Dark yellow
Storage time	2 years
Volume	1 liter
Deposit data	
Solution appearance	Glossy
Purity (%)	100.0
Hardness [HV 0.01]	400
Density [g/cm³]	21.4
Plating solution color	White
Thickness range [µm]	0,02 - 0.20

Operating data	**RANGE**	**OPTIMAL**
pH	0.5 - 1.5	1.0
Voltage [V]	2-4	3.0
Current density [A/dm²]	0,5-10	3.0
Working temperature [°C]	25-70	60
Exposure time (sec)	40 - 90	60.0
Cathode efficiency [mg/Amin]	12-19	15.0
Anode-cathode ratio	2:1 - 5:1	3:1
Anode type	Platinized titainium	
Agitation	Moderate	

Metal concentration	**METAL**	**RANGE (g/l)**	**OPTIMAL (g/l)**
	Platinum	2-20	4.0

Color coordinates	
L*	85.3
a*	0.5
b*	3.5
c*	3.6

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LEGOR GROUP S.P.A. - Via del Lavoro, 1 - 36050 (VI) - Italy - Tel. +39 0444 467911 - Fax +39 0444 660677 - info@legor.com - www.legor.com

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PREPARATION

PT4 is a ready-to-use galvanic bath at the concentration of 4 g/l of platinum. No preparation is required.

EQUIPMENT

·Working vessel material: Pyrex glass / PVC / polypropylene
·Power supply: DC current rectifier with low residual AC (<5%).
·Heating element
·Anode type: Platinized titanium (1.5-2.5 µm)
For larger bath volumes:
·Magnetic driven filter pumps with 5-15 µm cartridge
·Amp/min counter

PRE TREATMENT

PT4 can be deposited directly onto silver, gold, copper, nickel and other alloys. An intermediate deposit or precious metal plating strike is necessary before depositing onto tin, lead, zinc, cadmium, aluminum and iron or alloys which contain any substantial amount of the elements listed.

POST TREATMENT

The electrolyte should be removed from the surface as quick as possible. Wash off the bath residual in a recovery rinse (still rinse). Rinse the parts in circulating deionized water and dry.

WATER PURITY

To prevent contamination of the bath both during its preparation and any subsequent replenishing operations, use demineralized water with a conductivity of less than 3 µS/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

BATH MAINTENANCE

Galvanic Bath Maintenance
Small-sized platinum baths (up to 2-3 litres) can be used until the platinum solution is completely exhausted. For larger-sized baths add platinum concentrate solutions given in the table below. For perfect galvanic bath performance it is advisable to maintain the platinum concentration at a minimum of 20% less than the initial concentration; for example, with a bath operating at a concentration of 4 g/l, additions should be made after a maximum consumption of 0.8 g/l of platinum. When introducing the additives, keep in mind that under standard working conditions a bath working at 4 g/l normally deposits about 15 mg of platinum per Ampere/minute. NOTE: 10 ml of PT2.5R or PT25R provide 0,25 g of pure platinum metal.

SUPPLEMENTARY INFORMATION

Concentration choice This bath works in a concentration range between 2 and 20 g/l of platinum. The platinum concentration can be raised easily by adding directly to the bath the PT2.5R or PT25R solution. The concentration choice is made upon the thickness to be deposited. The standard thicknesses may be described as follows:2 g/l of platinum concentration for thicknesses up to 0.25 micron5 g/l of platinum concentration for thicknesses up to 5 micron 10 g/l of platinum concentration for thicknesses up to 20 micron 20 g/l of platinum concentration for thicknesses up to 20 micron Concentration of 2 g/l is to be used exclusively on those applications where a flash deposition is necessary. Our Technical Assistance Service is at hand to suggest the correct concentration on the basis of the application used. In order to have a higher penetrating power, the PT4SC additive (conductive salts) is available from Legor. The maximum concentration of PT4SC should be of 50 g/l; addition is to be performed step by step, adding 10 g/l at a time, until the desired level of penetrating power is obtained.

SAFETY INFORMATION

Being an acidic solution, the electrolyte is corrosive therefore is an irritant to the skin, eyes and mucous membranes. Caution should be exercised when using the product, avoiding contact with the eyes and skin. Use gloves and safety goggles. Keep away from cyanide based chemicals. For further information please refer to the relative MSDS.

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