

PLATUNA® N1

Operating Instructions

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Strongly acid platinum bath for white and ultra-bright platinum coatings

- Crack-free up to 1 µm
- Wide operating range
- Suitable for rack and barrel

Bath Characteristics

The acid platinum bath PLATUNA® N1 is used for depositing smooth and brilliant platinum coatings of a light colour up to a coating thickness of 1 µm. The hardness of the coating is approx. 500 HV.

Platinum content: 2 g/l (0.5 - 4 g/l)

pH-value: < 1

Temperature: 30 °C (25 - 40 °C)

Current density: 1.5 A/dm² (0.5 - 5.0 A/dm²)

Deposition speed: Approx. 0.08 µm/min at 1.5 A/dm², 1 µm in 15 min

Coating Characteristics

Coating: Platinum 99.9 %

Colour: White

Hardness: Not measurable, approx. 500 HV

Maximum coating thickness: 1 µm

Operating Conditions

Platinum content: 2 g/l (0.5 - 4 g/l)

Operating temperature: 30 °C (25 - 40 °C)

pH-value: < 1

Bath density: 1.08 g/cm³, increasing

Product agitation: Required, recommended speed 2 - 8 cm/s

Bath agitation: Recommended

Current density: 1.5 A/dm² (0.5 - 5.0 A/dm²)

Voltage: 2.0 volts (1.5 - 2.5 volts)

Deposition rate: Approx. 10 - 12 mg/Amin between 0.5 and 1.5 A/dm²

Deposition speed: Approx. 0.08 µm/min at 1.5 A/dm²
Approx. 1 µm in 15 min

Density of the coating: Approx. 21 g/cm³

Form of Supply

Bath makeup: a) PLATUNA® N1 Initial Concentrate
100 ml with 2 g of platinum for 1 litre of bath
Storage stability: min. 1 year
Store in a cool (≤ 20 °C) and dark place!

Bath replenishment: b) PLATUNA® N1 Replenisher Solution
20 g of platinum per litre
Storage stability: min. 1 year
Store in a cool (≤ 20 °C) and dark place!

Bath Makeup

Makeup sequence: To make up 1 litre of PLATUNA® N1 bath, slowly stir 100 ml of PLATUNA® N1 Initial Concentrate into approx. 8 times the quantity (approx. 800 ml) of deionized water, slowly add 60 ml of concentrated sulphuric acid (96 %) and then fill up to the intended bath volume of 1 litre.

Calculation of Coating Thickness and Plating Time

Coating weight in mg = surface in cm² x 2.1 x coating thickness in µm

Plating time in minutes = $\frac{\text{required coating weight in mg}}{7 \times \text{current in amperes}}$

Bath Replenishment

The platinum content of the bath can be plated out down to a quarter the content without a change in current efficiency.

Normally not more than 10 % of the platinum content should be withdrawn from the bath, then 50 ml of PLATUNA® N1 Replenisher Solution per gram of platinum coating deposited have to be added.

PLATUNA® N1

Bath Monitoring and Correction

Continuous filtration of the bath is recommended.

Analytical monitoring of the platinum concentration.

As base metals readily dissolve in the strongly acid platinum bath PLATUNA® N1, special attention should be paid to avoid metallic impurities.

Always immerse the parts with the current switched on!

Metallic impurities in the bath (e.g. > 1 g/l of Ni) result in poorly adhering, hazy and dark coatings. Interfering contents of foreign metals in the bath can be generally lowered by selective purification. For further information, please contact your supplier.

Special Process Hints

Pretreatment: Degrease the parts, rinse thoroughly, acid dip (in 5 % sulphuric acid), then rinse again, finally in deionized water, and plate with platinum.

PLATUNA® N1 can be directly deposited on palladium-nickel and gold. With all other substrate metals, a nickel undercoat with a thickness of at least 1 to 2 µm is absolutely essential.

Substrate metals with a tendency to passivate have to be activated prior to platinizing.

Equipment

Bath tanks: Plastic tank of polypropylene or an equivalent plastic.

Heating: Immersion heaters sheathed with porcelain, quartz, or Teflon
Equipment for temperature control.

Product agitation: Required, recommended 2 - 8 cm/s

Anodes: Platinum or platinized titanium;
We recommend PLATINODE®
coated with 2.5 µm of platinum.

Surface ratio anodes : parts
approx. 2 : 1

Rectifier: With sufficient capacity, with current display

Exhaust system: Absolutely essential!
(Strongly acid bath vapours carried along by evolution of hydrogen.
Allergenic effect possible!)

Note

Our information relating to the storage stability refers to storage in closed original storage containers under the conditions stated on the label.

Precautionary Measures/Safety Hints

For information on safety, please see the corresponding Material Safety Data Sheets!

The valid accident prevention regulations and safety information must be observed!

Reference to

Trouble-shooting table: Available on request

Analytical methods: Available on request

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