Platinum plating bath PT 10

Instructions for use

Edition 11/2018

Product description

Platinum plating bath PT 10 deposits brilliant, white, rhodium-like layers with high corrosion resistance and hardness. Platinum is highly suitable for decorative purposes. High levels of hardness, abrasion and corrosion resistance and low contact resistance also enable it to be used in the electronics industry as final layer. *Platinum plating bath PT* 10 is suitable for application in a jig plating process as well as a barrel plating process.

Layer properties

Coating:	platinum
Platinum content:	99.9 %
Colour:	white
Max. layer thickness:	1 µm
Hardness:	ca. 500 HV
Density:	21 g/cm³

Table of articles

Platinum plating bath PT 10	(2 g Pt/l)	**Art. No.** 81010880
Platinum concentrate PT 10	(20 g Pt/l)	**Art. No.** 81011017
Platinum concentrate PT 10, 100 ml	(2 g Pt/ 100 ml)	**Art. No.** 81011016
Regeneration solution PT 10 R	(20 g Pt/l)	**Art. No.** 81011014
Regeneration solution PT 10 R, 100 ml	(2 g Pt/ 100 ml)	**Art. No.** 81011015

Equipment

Anode material:	platinised titanium
Anode/cathode ratio:	2:1 (anode/cathode surface size)
Heating:	heating element made of quartz glass or PTFE
Tank material:	PPH
Bath filtration:	required (**no** permanent filtration with activated carbon)
Movement of cathode rod:	required
Exhauster:	recommended

Attention! Never use PVC as material for tanks or pumps.

Bath make-up

Make-up chemicals

Bath chemicals for 1 l *Platinum plating bath PT 10*:

- 100 ml *Platinum concentrate PT 10*
- 60 ml Sulphuric acid 96 %, chemically pure
- 840 ml Deionised water (< 10 µS)

Procedure

Into a thoroughly cleaned tank 80 % of the quantity of deionised water which is required for the desired bath volume is filled. Afterwards the appropriate quantities of *Platinum concentrate PT 10* and sulphuric acid 96 % are **slowly** put into the water. The solution must be stirred until all bath chemicals have fully mingled with each other. Then the solution is filled up to the desired bath volume with deionised water.

Process overview

Prerequisite for a strongly adhesive platinum plating is an intensive pre-treatment of the surface. This should be carried out using an ultrasonic cleaning bath made-up with *Ultrasonic cleaning concentrate ULTRA CLEAN*, *Electrolytic degreasing bath Type A* and finally an acid dip treatment in *Acid dip bath S* or 10% sulphuric acid solution. Multistate rinsing is required after operation of each of the respective process baths. The last rinsing step before platinum plating should be performed in deionised water. Before immersing the jig with the goods fixed to it into the bath the jig should be contacted so that it is being immersed in a current-carrying condition.

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Process parameters

Bath temperature:	30–40 °C
Voltage:	1.5–2.5 V (suitable voltage for nominal current density depending on surface size to be plated, lower voltage for smaller surfaces, higher voltage for larger surfaces)
Current density:	1.5 A/dm²
Deposition weight:	ca. 10–12 mg/min
Deposition rate:	ca. 0.08 µm/min (at 1.5 A/dm²)

The last rinsing after galvanic coating with *Platinum plating bath PT 10* should be carried out in 60–80 °C hot deionised water for 10–20 s. This intensifies the colour of the deposition.

Bath control and regeneration

The bath control includes keeping the platinum content at a constant level. In case of regular replenishments, not more than 0.5 g/l of platinum should have been plated out of the bath prior to regeneration.

Per 1 g of deposited platinum the bath must receive for regeneration:

- 50 ml *Regeneration solution PT 10 R*

Regeneration solution PT 10 R should be stored in a cool and dark environment.

Bath parameters

Platinum content:	2 g/l
pH-value:	< 1

On request we conduct regular analyses in our application technology laboratory and issue individual regeneration advices. For a standard analysis we require 100 ml of the electrolyte. In case of malfunctions or problems we require 1 l as probe.

Hazard information, storage, disposal

The plating bath contains sulphuric acid and must **not** come into contact with cyanides or cyanide-based solutions.
The occupational safety measures and regulations specified in the material safety data sheet must be observed.
The bath chemicals must be stored sealed and separately from food in suitable and labelled containers.
Spent plating bath solutions and drag-out rinse waters must **not** be discharged into the waste water without first being treated. The spent plating bath solutions and drag-out rinse waters contain precious metals that we would be happy to recycle for you. Recovering such solutions can be profitable from 20 l.

The information on our product and the method are based on intensive research and technical experience of this application.
We provide these results to the best of our knowledge and reserve the right to make technical changes in the course of product development.
However, this does not relieve the user of their responsibility to check our specifications for their own use before application.
If you have any questions or would like a consultation, please contact our application technology service department at any time.
We would also be happy to discuss our further electroplating product range.