

RHODIENS

PT-RH CONCENTRATE PLATING SOLUTION 1G/250ML WHITE COLOR

DESCRIPTION

RHODIENS is an electrolytic system which permits to obtain shiny deposit of a Platinum - Rhodium alloy. Thanks to its aesthetic and chemical-physical characteristics, the platinum - rhodium alloy obtained with the RHODIENS process is an alternative to a classical pure rhodium electrodeposition (or to pure platinum) as a final layer for white finishing.

DEPOSIT DATA

Hardness [HV 0.01]	Approximately 600
Thickness from-to [μm]	Flash
Aspect	Shiny
Color	White
Density [g/cm^3]	19.5

PRODUCT FORM

Metal concentration	1 g of total metal/250 ml
Format	Concentrate liquid
Product pH	Acidic
Color of the product	Yellow
Storage time	1 year
Volume	250 ml

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PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	2.0 - 3.0	2.5
Current density [A/dm ²]	2.0 - 5.0	3.0
Working temperature [°C]	40 - 50	45
Treatment time [min]	1 - 4	1.5
pH	< 1	
Cathodic efficiency [mg/Amin]	3 - 5	3.5
Anode/cathode ratio	1:1 - 4:1	2:1
Anode type	Ti/Pt	
Stirring	Moderate	

COLOR COORDINATES

L *	89.3
a*	0.5
b*	3.2

Note: Color coordinates here reported have been measured on a white underlayer and they are to be intended as PURELYINDICATIVE being strongly dependent on underlayer color, on thickness of the deposit and on specific design(shape)of the surface.

USER GUIDE**READY TO USE SOLUTION PREPARATION**

RHODIENS is a rhodium and platinum based electrolytic make-up at a total metal concentration of 1 g/250 ml, suitable for the preparation of 1 liter ready-to-use solution by following the steps described here below:

- Fill half tank with DI water
- Add ALL the RHODIENS make-up into the tank
- Wash the bottle of product with DI water and pour it into the tank
- Add further DI water until reach the final liter ready-to-use solution
- Stir all the solution for few seconds

Once the ready-to-use solution has been prepared, heat it to the optimum working temperature and start to plate.

ANODES

Use Titanium Platinized anodes with a layer in platinum not lower than 1.5 µm.

WORKING TANK MATERIALS

For small volume amount solutions - in beaker scale - use Pyrex glass; vice versa use PP /PVC/HDPE tanks for larger volumes and equipped with an efficient exhaust fume/suction or aspiration system (generation of mists diffused by gaseous hydrogen development can also be irritant if inhaled or with allergenic effects).

DC POWER - RECTIFIER

Use a current DC rectifier having an alternate current residue –ripple– less than 5% and having an output amperage enough to obtain a proper electroplating process. The rectifier should be equipped with:

- Amperemeter
- Voltmeter
- Ampere/minutes counter (for bigger installations only).

HEATING SYSTEM

The admitted materials for heaters are Pyrex, quartz, or PTFE.

PLATING SOLUTION MAINTENANCE

This solution has been thought for small - sized installations (until 5 liters) and to be used until exhaustion without making any replenishment until exhaustion.

ABOUT CONTAMINANTS

If the plating solution results contaminated by organic pollutants it is advisable to run an active carbon treatment. Add 2 g/l of carbon into the plating solution to be purified, stir for 2 hours at a working temperature and filter.

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PRETREATMENTS

The ready to use solution of RHODIENS can be directly deposited on Gold, Silver, Palladium, and palladium alloys. For all the other metals (i.e. Copper and its alloys) it is necessary to make an intermediate deposit (strike) of precious metal especially to prevent any contamination for the plating solution from other metallic species like i.e. copper and zinc. All base metals that can suffer passivation over time must be reactivated before the application of the ready to use solution RHODIENS. As pre-treatment it is suggested to run a preliminary degreasing through a cycle of ultrasonic degreasing treatment - solution followed by a wash step into running water. Then proceed with the electrolytic degreasing step by using the alkaline degreasing solution SGR1. Once the items has been washed again in demineralized water, then proceed in activate and neutralize the surface of the same by dipping them into the slightly acidic solution NEUT1 for 3 -4 times subsequently at room temperature, in order to be sure that no any alkaline residues coming from the degreasing previous steps are dragged into the rhodium solution together with the same items to be treated (which would lead to a reduction of its life). After the neutralization, wash in demineralized running water and immerse the pieces in the Rh plating solution for the plating treatment.

POST TREATMENTS

The electrolyte should be removed from the surface as quick as possible. Wash off the bath residues in a recovery rinse (static rinse). Rinse the parts in circulating deionized water and dry. A possible last rinse in hot static water before dry can help in gain more brightness and luminosity.

WATER PURITY

To prevent contamination of the plating solution during any replenishing operations, use demineralized water with a conductivity of less than 3 $\mu\text{S}/\text{cm}$ (containing no traces of organic compounds, Chlorine, Silicon, or Boron). To achieve maximum deposit quality, we suggest to use our high- grade purity WATER.

ITEMS AND PLATING SOLUTION MOVEMENT

Being RHODIENS a strong acidic solution, hydrogen bubbles will adhere to the items and must be removed by agitating the solution, by moving the rack or by tapping or knocking on the rack. Otherwise, darker stains on the parts may occur. In any case bath agitation by air is not suitable. The movement of the rack can be provided by a cathodic bar movement system at a speed of 5-10 cm/s.

ABOUT pH

pH is < 1 and no control is required for RHODIENS plating solution.

ABOUT THE APPLIED VOLTAGE

Stay inside the range reported on the Operating Condition Table if possible. If the surface of the items and thus the required current cannot be calculated, work with a bath voltage applied which is just sufficient for the minimal evolution of hydrogen gaseous bubbles.

SAFETY INFORMATION

AVOID ANY DRAG IN OF CYANIDES IN PLATING SOLUTION TO AVOID THE DEVELOPMENT OF HIGHLY TOXIC FUMES!
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.

DISCLAIMER

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