RH2B

RHODIUM READY TO USE PLATING BATH 2G/L BLACK COLOR

DESCRIPTION

RH2B is a ready-to-use black rhodium for bath plating. This black rhodium electrolyte has been designed specifically for decorative electroplating applications by granting alternative color options for finishes. The final color produced can be considered black with yellow undertones which makes the black color appear deeper. This room temperature procedure makes it ideal for two-tone designs as high temperature plating processes typically destroy traditional plating masks. RH2B can be replenished and maintained by completely restoring the rhodium content and the color with an all-inclusive replenisher. The formulation is 100% arsenic free both in the metal deposited and in the chemical itself and falls within REACH compliance.

- Black rhodium deposits
- Ideal for two-tone designes
- Room temperature process
- 100% arsenic free
- REACH compliant

DEPOSIT DATA

Hardness [HV 0.01]	700
Density [g/cm³]	12.4
Thickness from-to [µm]	0.02 - 0.20
Aspect	Shiny
Color	Black

PRODUCT FORM

Metal concentration	2 g Rh/l
Product pH	Acidic
Format	Ready to use liquid
Color of the product	Reddish
Storage time	2 years
Volume	1 L

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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

JEWELRY PLATING

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PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	1.8 - 3	2.5
Current density [A/dm²]	1.0 -1.5	1.2
Working temperature [°C]	20 - 35	25 - 30
Treatment time [min]	1 - 3	2
Cathodic efficiency [mg/Amin]	14 - 16	15
Anode/cathode ratio	1:1 - 4:1	2:1
Anode type	Ti/Pt	
Stirring	Moderata	Moderate

METAL CONCENTRATION

METAL	RANGE	OPTIMAL
Rh	0.4 - 2.0	2 g Rh/l

COLOR COORDINATES

L *	57.9
a*	0.4
b*	1.3
c*	1.3

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.

RELATED PRODUCTS - MAINTAINING

RH2RB.100ML*	Rhodium replenisher for black plating bath 2 g/100 ml - 100 ml

* Product which is subject to the international regulations concerning transportation of dangerous goods

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USER GUIDE

READY TO USE SOLUTION PREPARATION

RH2B is a ready-to-use plating solution at the concentration of 2 g/l. No preparation is required. Pour it directly into working tank, heat it up to the preset temperature and once reached 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 also can 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.

FILTRATION AND MOVEMENT

For bigger plating installations (> 5 liters) it is advisable to keep the plating solution continuously filtered and in movement through a magnetic driven filter pump with 5-15 µm cartridges in PP that must have been previously conditioned by boiling them for at least 3 hours and then washed with DI water in order to prevent any possible organic contamination. We here recall that this plating solution tends with time to form spontaneously black fine powder that can be conveniently trapped by the filter cartridge during the normal filtration process with the pump. As it is not excluded that this dust is made in part of Rh, it is strongly advisable to treat the exhaust cartridges once they have been replaced with new ones for example by burning them and collecting the ashes to send to refining.

PLATING SOLUTION MAINTENANCE

Small-sized RH2B plating solutions (until 5 liters) can be used until the rhodium solution is completely exhausted without adding any rhodium concentrate replenisher solution. For larger volumes add RH 2RB replenisher solution to restore the optimal rhodium concentration together with its blackening agent. For perfect electrolyte performance it is advisable to maintain the rhodium concentration at values not lower than 80% of the initial concentration: for example, with a bath operating at a concentration of 2 g/l, additions should be done after a consumption of not more than 0.4 g/l of rhodium. Keep in mind that at optimum conditions a bath working at 2 g/l deposits about 10-15 mg of Rh per ampereminute. Given the cost of rhodium and to have a precise evaluation of the metal consumption it is advisable to perform periodic analytical checks.

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PRETREATMENTS

The ready to use solution RH2B 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 RH 2B.
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 µS/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.

ABOUT pH

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

Vice versa is recommended to check periodically the free acid content in ml or g per liter of ready -to-use Rh plating solution by knowing that its value tends to increase with the usage of the plating solution and time (by replenishment).

ABOUT SOLUTION DENSITY

Density raises with the use of the bath (by replenishment).

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 RHODIUM 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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