

RH2BX

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

DESCRIPTION

RH2BX is a ready-to-use extra 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 blueish undertones which makes the black color appear deeper. This solution works at rather low temperature thus making it ideal for two-tone designs as high temperature plating processes typically destroy traditional plating masks. RH2BX 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. ATTENTION: The solution may present dust in the bottom of the bottle, but this will not affect the quality of the product. In any case it is advisable to shake the bottle before using.

DEPOSIT DATA

Hardness	700
Density [g/cm ³]	11,2
Thickness from-to [µm]	0,02 - 0,4
Aspect	Shiny
Color	Black

PRODUCT FORM

Metal concentration	2g/l (Rh)
Product pH	Acid
Format	Ready to use liquid
Color	Dark red
Storage time	2 years
Volume	1L

PRODUCT USAGE	RANGE	OPTIMAL
Voltage [V]	2.4-3.0	2.7
Current density [A/dm ²]	2.0-2.5	2.0
Working temperature [°C]	25.0 -35.0	30.0
Treatment time [min]	60 - 180	120
Cathodic efficiency [mg/Amin]	6.0 - 8.0	7.0
Anode/cathode ratio	1:1-4:1	2:1
Anode type	Titanio platinato	Platonized titanium
Stirring	Moderato	Moderate

METAL CONCENTRATION

METAL (g/l)	RANGE	OPTIMAL
Rh	0.4 – 2.0	2g/l (Rh)

COLOR COORDINATES

L *	55.0
a*	-0.1
b*	0.0
c*	0.2

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**

RH2BX 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 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

RH2BX is thought for small volumes (until 5 liters). As consequence, it can be used until the rhodium solution is completely exhausted without adding any rhodium concentrate replenisher solution.

PRETREATMENTS

The ready to use solution RH2BX 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 RH2BX. 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.

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 can not 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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