

RH4FBLUE

RHODIUM CONCENTRATE PLATING BATH 4G/250ML BLUE COLOR - KIT

DESCRIPTION

RH4BLUE is a kit in concentrated version of our blue rhodium for bath plating. To prepare the ready -to-use product, simply pour the 250 ml bottle of 4 g Rh and the 40 ml of blue additive into 710 ml of pure deionized water. This blue rhodium electrolyte has been designed specifically for decorative electroplating applications by granting alternative color options for finishes. Blue rhodium is a perfect option to add color to metallic substrates such as jewelry while maintaining the precious aspect of the design. Most commonly used for plating the prong area to enhance the color of blue stones, this room temperature procedure makes it ideal for two-tone designs. Given that it is a bath plating process, the deposition is more stable in terms of color and grants wear resistance. Due to its intrinsic properties and difficulty in drive the process this electrolytic process is mainly thought for small equipments.

- Midnight blue color
- Homogeneous distribution
- Room temeprature process

DEPOSIT DATA

Hardness [HV 0.01]	700
Density [g/cm ³]	12.4
Thickness from-to [µm]	0.02 - 0.20
Aspect	Shiny
Color	Blue

PRODUCT USAGE

RANGE

OPTIMAL

Voltage [V]	2.0 - 2.2	2.1
Working temperature [°C]	22 - 25	23 - 24
Treatment time [sec]	45 - 120	120
Anode/cathode ratio	> 2:1	
Anode type	Ti/Pt	
Stirring	absent	

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METAL CONCENTRATION

METAL	RANGE	OPTIMAL
Rh	3.0 - 4.0	4 g Rh/250 ml

COLOR COORDINATES

L *	29.1
a*	-5.0
b*	-21.9
c*	22.5

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 - INSTALLATION

RH4FBLUE.250ML* Rhodium concentrate plating bath 4g/250 ml blue color - kit

RELATED PRODUCTS - MAINTAINING

BLUEADD.100ML Blue additive for rhodium - 100 ml

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

USER GUIDE**READY TO USE SOLUTION PREPARATION**

RH4FBLUE comes in a kit form which is composed by:

- RH4FBLUEA: concentrated rhodium 4g/250ml solution.
- RH4FBLUEB: blue additives 40ml.

1 liter of ready-to-use solution follow the following steps:

- Fill the working tank half the volume with demineralized water
- Add all the RH4FBLUEA solution to the working tank
- Wash the bottle of RH4FBLUEA with demineralized water
- Add all the RH4FBLUEB solution and wash its bottle
- Fill to 1 liter volume with demineralized water
- Stir the whole solution for a few seconds.

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).
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PLATING SOLUTION MAINTENANCE

RH4FBLUE when diluted at ready-to-use solution has to be used until the rhodium solution is completely exhausted without adding any rhodium concentrate replenisher. It will be possible to restore the initial blue color tone which tends spontaneously to become paler. This happens because the blue color of rhodium is achieved thanks to the presence in this formula of a suitable organic additive which normally degradants during time and while the Rh solution is working. This restoring operation is normally done by the addition of 10 ml/l of BLUEADD once at a time until the initial blue tones is came back and for a maximum of three of those - in sequence additions for a maximum of 30 ml/l in total.

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PRETREATMENTS

ATTENTION! In order to obtain the best performance, in terms of final delivered blue color, it is advisable to pretreat the samples with a yellow gold strike (possibly in the 24 kt yellow color). The ready to use solution of blue rhodium 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 of blue rhodium. 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.

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 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.

ABOUT THE TREATMENT TIME

Blue rhodium deposition appears slowly by passing through a first brownish coloration that gradually switches to violet and then to intense blue which, if the plating time comes too much long, it will be lost because switched to dark grey -black. FOR THIS REASON IT IS ADVISABLE TO CHECK EVERY 15-20 SECONDS, by removing the item from the plating solution, THE UNIFORMITY AND COLOR TONE. keep well in mind that the real treatment time will strongly depend on shape and total surfact to rhodium plate. For example, the higher is the surface to cover with blue rhodium plating solution, the higher will be the treatment time and vice-versa.

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SUPPLEMENTARY INFORMATION

In order to get the best technical performances with the blue rhodium solution obtained by RH 4FBLUE do not use too much vigorous agitation. A moderate agitation will be sufficient just to put far away the hydrogen bubbles that will develop toward the items surface. In case of deposition at too much high current or too much long plating time, the color of deposition will turn dark grey/blackish as well as if worked at too much high temperature. KEEP ALWAYS THE PLATING TEMPERATURE AROUND 22-25°C. ATTENTION! In order to preserve the quality of the product for longer time store always it in a fridge at a temperature range between 4 and 10°C, far away from light and heat. Do not expose the plating solution to direct sunlight.

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

All recommendations and suggestions in this bulletin concerning the use of our products are based upon tests and data believed to be reliable. Since the actual use by others is beyond our control, no guarantee expressed or implied, is made by Legor Group, its subsidiaries or distributors, as to the effects of such use or results to be obtained, nor is any information to be construed as a recommendation to infringe any patent.