

Technical data sheet and product guideline



RH2FB

Black rhodium for bath plating 2 g/100 ml make-up

Color coordinates



L	57.9
a	0.4
b	1.3
c	1.3

Product form

Metal concentration	2 g/100 ml (Rh)
Form	Liquid
Material color	Black
Storage time	2 years
Format	Concentrated
Volume	100 ml

Operating data

	Range	Optimal
Voltage (V)	1.8 - 3	2.5
Current density (A/dm ²)	1-1.5	1.2
Working temperature (°C)	20-35	25-30
Exposure time (sec)	60-180	120
Cathode efficiency (mg/Amin)	15	15
Anode/cathode ratio	1:1-4:1	2:1
Anode type	Platoned titanium	
Agitation	Moderate	

Metal concentration

Metal	Range (g/l)	Optimal (g/l)
Rhodium	0.6 - 5.0	2.0

Deposit data

Hardness (HV 0,01)	700
Density (g/cm ³)	11.2
Thickness (um)	0.02-0.4
Appearance	Shiny
Color	Black

Preparation

RH2FB is a rhodium electrolytic make-up at the concentration of 2 g/100 ml.
In order to prepare 1 liter of the ready-to-use solution follow the following steps:

- Fill half tank with DI water
- Add all the make-up in the tank
- Wash the bottle of rhodium make-up with DI water
- Add further DI water until reach 1 liter final volume
- Stir all the solution for few seconds

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Equipment

Working vessel: Pyrex glass / PVC / polypropylene.

Power supply: DC current rectifier with low residual AC (<5%).

Heating element.

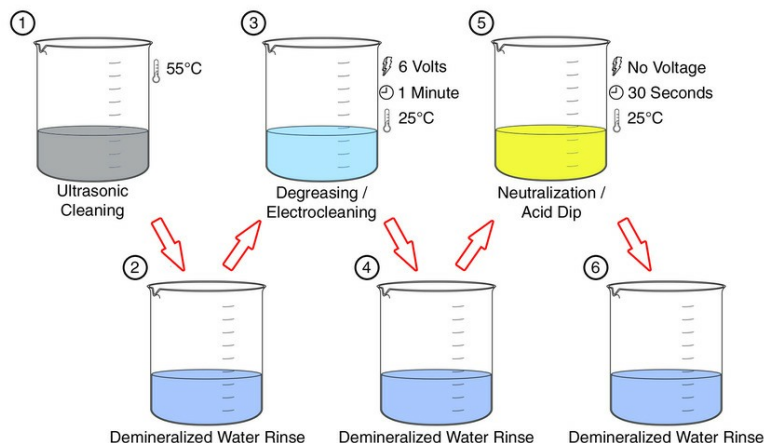
Anode Type Platinized Titanium [1.5-2.5 µm].

For larger bath volumes:

Magnetic driven filter pumps with 5-15 µm cartridge (before use, boil and wash the cartridges with demineralized water for 3 hours to prevent organic contamination).

Amp/min counter.

Pre treatment Cleansing procedure



Bath maintenance

The **RH2B** rhodium bath is produced from **RH2FB** forming solution. For its maintenance use always **RH2RB**, unit replenisher solution containing 2 g of Rh in 100 ml of solution.

Although it is an electrolytic bath which offers stable performance during time, the continued use of this electrolytic solution tends to lead to a build-up of pollutants clearly visible as precipitated black particles which, along with an increase of acidity, leads to a steady decrease in performance with a consequent increase of the plating time in order to get the same results.

In case of too much high acidity keep in mind that 1 ml/l of free sulfuric acid can be neutralized by the addition of 1 ml/l of 50% ammonia solution.

Regarding the life of the electrolytic solution it can be used until complete exhaustion but when the plating solution is of a considerable volume the replenishing unit to maintain it can be taken into account. For further information contact our technical assistance service.

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Post treatment

The electrolyte should be removed from the surface as quick as possible. Wash off the bath residual in a recovery rinse (still rinse). Rinse the parts in circulating deionized water and dry.

Water purity

To prevent contamination of the bath both during its preparation and any subsequent 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).

Safety information

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.

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Supplementary Information

Agitation of the solution and/or pieces

For maximum performance, particularly in terms of color, do not use excessively vigorous agitation. Gentle agitation will be sufficient to remove the hydrogen bubbles from the surfaces to be plated.

For bigger tanks use a magnetic drive filter pump of a not too much high capacity while for small beakers or tanks just a moderate agitation of the pieces will be sufficient.

Temperature

The ultrablack rhodium RH2B gives excellent performance for standard flash treatments at room temperature. If it is necessary to speed up a little bit the plating process deposition a temperature of not higher than 30°C might be applied as the higher will be the temperature, the weaker will be the black degree of the deposit.

Additives

The additives responsible for the color and brightness of the deposit are contained and correctly dosed in the "Ultrabright Black Rhodium" Line so standard replenisher unit will be sufficient to maintain the bath to optimum level of performance.

Analytical checks

The process is particularly easy to perform and does not require frequent analytical checks. However, our technical assistance service is available to give suggestions and to offer periodic analytical checks on all the builders of the plating solution.

Free sulfuric acid concentration has to stay close to 20 g/l.

A rhodium concentration at least of 2.0 g/l is recommended to get thickness up to 0.2 microns.

In the instance of higher thicknesses in order to speed up the electrolyte system it is best advisable to work at 4 g/l of Rh.

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.

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Related products

RH2M	Ready-to-use solution 2 g/l
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Packaging

