RH2W

Technical chart

Last revision
12/10/2012

RHODIUM READY TO USE PLATING BATH 2g/l WHITE COLOR

Colour **White** [L: 88,6 a: 0,6 b: 2,1 c: 2,2 YI: 6,0]

Product description

RH2W is a rhodium plating bath with uncomparable characteristics. The properties of the deposit and its degree of whiteness make this plating bath a point of reference for all goldsmiths in search of unparalleled finishing excellence for their jewellery items.
The main features of this electrolyte are as follows:

- ***Flash and thickness rhodium-plating***
- ***Exceptionally brilliant white deposits***
- ***Can be used at room temperature***
- ***Excellent penetrating power***
- ***Exceptional coating***

Recommended applications

RH2W can be used for both flash plating and thickness plating. It is particularly suitable in applications where an extremely white colour is required for use as a base for the setting of brilliant-cut diamonds. RH2W can be deposited directly on Silver, Palladium, Gold, Copper, Nickel and its alloys; an intermediate deposit of Nickel and Gold is necessary before it can be used to plate Tin, Lead, Zinc, Cadmium, Aluminium and Iron. RH2W stands out for its excellent deposition efficiency, even at room temperature, which leads to a reduction in treatment times, working temperature and materials and a consequent increase in productivity.

Deposit data

Purity [%]	99.9
Density [g/cm^3]	12.4
Hardness [HV 0.01]	800-900
Thickness [µm]	0.02-0.20
Appearance	Shiny

Operating data

	Range	Optimum
Optimal working concentration [Rhodium, g/l]	1.6-2.4	2
Sulphuric acid concentration [ml/l]		
Time of exposure [s]	20-60	40
Operating temperature [°C]	20-60	40-50
Current density [A/dm²]	0.5-10	3
Voltage [V]	2-6	3
Cathode efficiency [mg/Amin'']	4-8	6
Anodes	---	Pt or Ti/Pt
Agitation	Null-moderate	Moderate
Anode/Catode surface ratio	1:1-4:1	2:1

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Additional informations

Packaging
The product comes in a high-density polyethylene bottle.
I**MPORTANT: when you receive the product make sure that the cap is intact.**

Equipment
It is more practical to use glass containers for quantities up to 5 litres, whereas for larger quantities it is best to install PTFE or polypropylene plants equipped with:
- a current rectifier with an ampmeter and voltmeter, with low residual AC <5%).
- amp/min counter.
- platinum-coated titanium anodes, coated with 2.5 µ of platinum.
- magnetic drive filter pumps with 5-15 µ cartridge.

N.B. Before use boiling and washing of the cartridges with demineralized water is recommended to prevent organic contamination.

Preparation of the galvanic bath
The product coded RH2W is a ready-to-use galvanic bath at the concentration of 2 g/l. This bath can be also obtained by adding 900 ml of demineralised water to 100 ml of RH2FW initial concentrate. The use of the initial concentrate will allow the preparation of galvanic baths having rhodium concentrations different from the standard version RH2W.

Choosing the concentration
A concentration of 2 g/l is recommended for thicknesses up to 0.2 µm. In the instance of greater thicknesses to speed up the electrolyte it is best to use a concentration of 4 g/l.

Demineralized water
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 µS/cm (containing no traces of any organic compounds, Silicon or Boron). To achieve maximum deposit quality we recommend using our high-grade purity WATER.

Agitation of the solution and/or pieces
For maximum performance, particularly in terms of colour, do not use excessively vigorous agitation. Gentle agitation will suffice to remove the hydrogen from the pieces. So, for processing tanks containing considerably large volumes agitation of the solution using a magnetic drive filter pump of not too high a capacity is recommended, while for containers of modest size moderate agitation of the pieces is adequate.

Temperature
"Ultrabright Rhodium" gives excellent performance at 40-60°C.

Additives
The additives responsible for the colour and brightness of the deposit are contained and correctly batched in the "Ultrabright Rhodium" product line, so standard strengthening additives will be enough to maintain optimum levels.

Analytical checks
The process in question is particularly easy to perform and does not require frequent analytical checks. However, our Technical Assistance Service is at hand to offer suggestions, advice and periodic analytical checks on all bath components.

Galvanic Bath Maintenance
Small-sized rhodium baths (up to 2-3 litres) can be used until the rhodium solution is completely exhausted without adding any rhodium concentrate. For larger-sized baths add RH5RW replenisher rhodium concentrate to restore the optimal rhodium concentration. For perfect galvanic bath performance it is advisable to maintain the rhodium concentration at a minimum of 80% of the initial concentration; for example, with a bath operating at a concentration of 2 g/l, additions should be made after a maximum consumption of 0.4 g/l of rhodium. When introducing the additives bear in mind that in optimum working conditions a bath working at 2 g/l normally deposits about 4 mg of rhodium per Ampere/minute. Given the high cost of rhodium and to precisely assess consumption it is advisable to perform periodic analytical checks.

Safety Information
Being an acidic solution, the ready-to-use Ultrabright Rhodium RH2 galvanic rhodium bath 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. For further information please refer to the relative safety sheet.

Ultrabrigh Rhodium W bath plating solutions	***Code***
"Ultrabright Rhodium™" W, ready-to-use plating bath (2 g/l package)	**RH2W**
"Ultrabright Rhodium™" W, initial concentrate for plating bath (0.5g/25 ml package)	**RH2FW-25ML**
"Ultrabright Rhodium™" W, initial concentrate for plating bath (2g/100 ml package)	**RH2FW**
"Ultrabright Rhodium™" W, replenisher for plating bath (5g/100 ml package)	**RH5RW**

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