


GENERAL INFORMATION

RH1FRT is the concentrated version of the white rhodium plating electrolyte able to work at 1 g/L. To prepare the ready-to-use product, simply pour the 100 ml bottle into 900 ml of pure deionized water. This white rhodium plating electrolyte is commonly used in larger rhodium installations due to the minimal components needed for maintenance. As it works at 1 g/L the cathodic efficiency of this rhodium plating solution (and consequently its deposition speed) is slower than the other classic formulations at 2 g/L thus allowing for a better consumption control. This balanced deposit also makes it an ideal choice for large or flat surfaces permitting complete surface coverage in low current density areas. RH1FRT is also efficient at room temperature allowing minimal water evaporation.


Product form

Metal concentration	1 g/100 ml (Rh)
Solution form	Liquid
Plating solution color	Dark red
Storage time	2 years
Volume	100 ml

Deposit data

Solution appearance	Shiny
Purity (%)	99.0
Hardness [HV 0.01]	800-900
Density [g/cm ³]	12.4
Plating solution color	White
Thickness range [μm]	0,02 - 0.1



Operating data	RANGE	OPTIMAL
Voltage [V]	2 - 6	3.0
Current density [A/dm ²]	0.5 - 10	3.0
Working temperature [°C]	20 - 50	20 - 30
Exposure time (sec)	20 - 60	60.0
Cathode efficiency [mg/Amin]	1.5 - 3.0	2.0
Anode-cathode ratio	1:1 - 4:1	2:1
Anode type	Titanium Platinized	
Agitation	Moderate	

Metal concentration	METAL	RANGE (g/l)	OPTIMAL (g/l)
	0.4 - 1.0	1.0	Rhodium

Color coordinates

L*	89.4
a*	0.6
b*	2.1
c*	2.2

**PREPARATION**

RH1FRT is a rhodium electrolytic make-up at the concentration of 1 g/100 ml.

To prepare 1 ready-to-use liter of solution please follow those steps:

- Fill the working tank for half of the final volume with D.I. water.
- Add then all the concentrate solution inside the working tank partially filled with D.I. water as per previous point.
- Wash completely the small bottle containing the concentrate solution.
- Add then further D.I. water until reaching the final 1 liter ready-to-use solution.
- Stir the so prepared solution for a couple of seconds then heat it up until working temperature.

EQUIPMENT

Working vessel: Pyrex glass / PVC / polypropylene.

Power input: DC rectifier with ripple (AC residue) < 5%.

Heaters: in quartz or in Pyrex or in PTFE.

Anodes: in Titanium Platinized [1.5-2.5 µm].

For bigger volumes only:

Magnetic driven pump with filter cartridge in PP with 5-15 µm mesh previously boiled with D.I. water for 3 hours in order to remove completely any possible organic contaminant that can come from the same cartridges.

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PRE TREATMENT

RH1FRT can be deposited directly onto Silver, Palladium, Gold, Nickel and its alloys. An intermediate deposit or precious metal plating strike is necessary before depositing onto Tin, Lead, Zinc, Cadmium, Aluminum and Iron.

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 µS/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

BATH MAINTENANCE

Small-sized RH1FRT (until 5 liters) can be used until the rhodium solution is completely exhausted without adding any rhodium concentrate replenisher solution. For larger volumes add RH10S replenisher solution to restore the optimal rhodium concentration. 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 1 g/l, additions should be done after a consumption of 0.2 g/l of rhodium. Keep in mind that at optimum conditions a bath working at 1 g/l deposits about 1.5-3 mg of Rh per ampere-minute. Given the cost of rhodium and to have a precise evaluation of the metal consumption it is advisable to perform periodic analytical checks.

The important organic components withdrawn from the RH1FRT rhodium electrolyte after an active carbon treatment or even after several drag-out steps can be easily restored by addition of BRIGHTRT concentrate brightener solution (about 10 ml per every gram of Rh to restore).

**SUPPLEMENTARY INFORMATION**

For maximum performances, particularly in terms of color, do not use excessive agitation. Gentle agitation will be sufficient to remove the gaseous hydrogen developed closed to the pieces to be plated. So that, for processes which involve large volumes, agitation of the solution using a magnetic filter pump with not too high capacity is recommended; while for smaller tanks a moderate agitation of the pieces is adequate.

About Temperature

In order to get normal flash deposition, the ready-to-use solution works with optimum performances at room temperature. If there is the need to speed up the deposition it is possible to increase the temperature until 50°C, keeping in mind that the higher is the working temperature with the plating solution, the higher is the deposition speed and the higher is the risk to get at the same time less white and bright color.

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.

DISCLAIMER

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