RH2B is a ready-to-use 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 yellow undertones which makes the black color appear deeper. This room temperature procedure makes it ideal for two-tone designs as high temperature plating processes typically destroy traditional plating masks. RH2B 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.

**Product form**

- Metal concentration: 2g/l (Rh)
- Solution form: Liquid
- Plating solution color: Black
- Storage time: 2 years
- Volume: 1 liter

**Deposit data**

- Solution appearance: Shiny
- Hardness [HV 0.01]: 700
- Density [g/cm²]: 11.2
- Plating solution color: Black
- Thickness range [µm]: 0.02 - 0.4

**Operating data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>RANGE</th>
<th>OPTIMAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage [V]</td>
<td>1.8-3</td>
<td>2.5</td>
</tr>
<tr>
<td>Current density [A/dm²]</td>
<td>1-1.5</td>
<td>1.2</td>
</tr>
<tr>
<td>Working temperature [°C]</td>
<td>20-35</td>
<td>25 - 30</td>
</tr>
<tr>
<td>Exposure time (sec)</td>
<td>60 - 180</td>
<td>120.0</td>
</tr>
<tr>
<td>Cathode efficiency [mg/Amin]</td>
<td>14 - 16</td>
<td>15.0</td>
</tr>
<tr>
<td>Anode-cathode ratio</td>
<td>1:1-4:1</td>
<td>2:1</td>
</tr>
<tr>
<td>Anode type</td>
<td>Platonized titanium</td>
<td></td>
</tr>
<tr>
<td>Agitation</td>
<td>Moderate</td>
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</tr>
</tbody>
</table>

**Color coordinates**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>L*</td>
<td>57.9</td>
</tr>
<tr>
<td>a*</td>
<td>0.4</td>
</tr>
<tr>
<td>b*</td>
<td>1.3</td>
</tr>
<tr>
<td>c*</td>
<td>1.3</td>
</tr>
</tbody>
</table>
PREPARATION

RH2B is a ready-to-use galvanic bath at the concentration of 2 g/l. No preparation is required.

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

RH2B 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 replenishing operations, use demineralized water with a conductivity of less than 3µS/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

BATH MAINTENANCE

Small-sized RH2B (until 5 liters) can be used until the rhodium solution is completely exhausted without adding any rhodium concentrate replenisher solution. For larger volumes add RH2RB 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 2 g/l, additions should be done after a consumption of 0.4 g/l of rhodium. Keep in mind that at optimum conditions a bath working at 2 g/l deposits about 10-15 mg of Rh per ampereminute. Given the cost of rhodium and to have a precise evaluation of the metal consumption it is advisable to perform periodic analytical checks.

SUPPLEMENTARY INFORMATION

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

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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