

# RHODUNA® SL-C

## Operating Instructions

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### Brilliant-white rhodium for decorative applications and rack operation

- Ultra-bright coatings with previously unattained lightness
- Low rhodium content
- Good covering speed
- Excellent throwing power

### Bath Characteristics

RHODUNA® SL-C deposits brilliant-white, ultra-bright coatings up to a thickness of approx. 0.2 µm. It is additionally characterized by high covering speed and excellent throwing power.

RHODUNA® SL-C can be directly deposited on silver, gold, copper and copper alloys, nickel and nickel alloys. When plating tin, lead, zinc, cadmium, aluminium and iron, intermediate nickel coatings of some µm thickness are absolutely essential. Strike nickel plating is advantageous with all substrates.

Rhodium content:	1 g/l	(0.1 - 1 g/l)
pH-value:	< 1	
Temperature:	25 °C	(RT - 50 °C)
Current density:	3 - 5 A/dm <sup>2</sup>	(0.5 - 10 A/dm <sup>2</sup> )
Voltage:	2 - 4 volts	
Deposition speed:	1.45 mg rhodium/Amin at 4 A/dm <sup>2</sup> ,	0.1 µm in approx. 2 minutes (at 25 °C)

### Coating Characteristics

Coating:	Rhodium
Colour:	Brilliant white
Hardness:	Approx. 800 - 900 HV
Density of coating:	Approx. 12 g/cm <sup>3</sup>
Max. coating thickness:	Approx. 0.2 µm

### Form of Supply

Bath makeup:	a) RHODUNA® SL-C Concentrate (1 g Rh/50 ml) (containing acid) 50 ml packages with 1 g rhodium content 50 ml for 1 litre of bath containing 1 g/l Rh. Storage stability: min. 2 years
Bath replenishment:	b) The electrolyte is not intended for replenishment!

### Bath Makeup

Makeup sequence: For 1 litre of RHODUNA® SL-C bath containing 1 g/l Rh:

Slowly stir 50 ml of RHODUNA® SL-C Concentrate into 950 ml of deionized water.

### Bath Replenishment

The electrolyte is not intended for replenishment. After plating out the rhodium content, the bath is discarded and a new bath has to be made up.

### Bath Monitoring and Correction

Keep the bath clean. Cover when not in use and remove the platinized titanium anodes from the bath. Store in a closed bottle when not in use for a longer period of time. Filter turbid baths.

Avoid all **metallic contaminants** (silver, copper and zinc in particular) and drag-in of cyanide!

### Special Process Hints

Pre-treatment:	Etch, grind, polish etc. the base metal to achieve the desired initial surface condition. Pre-degrease the parts e.g. in an alkaline cleaning solution or an ultrasonic bath. Rinse, then degrease electrolytically, rinse under running water, and finally with deionized water.
Strike nickel plating	RHODUNA® SL-C can be directly deposited on silver, gold, copper and copper alloys, nickel and nickel alloys. When plating tin, lead, zinc, cadmium, aluminium and iron, intermediate nickel coatings of a few micrometres thickness are absolutely essential.  After strike nickel plating, rinse thoroughly. Each rinsing step before rhodium plating should consist of rinsing under running water followed by rinsing with deionized water.

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**Acid dip:** After degreasing or strike nickel plating, dip the workpieces in 5 vol.% sulphuric acid (chemically pure) at room temperature before hanging them into the rhodium bath to ensure that no alkalis are dragged into the rhodium bath.

If particularly great difficulties are encountered in wetting after strike nickel plating, repeat the electrolytic degreasing and acid dip treatments. The last step before rhodium plating should always be an acid dip treatment.

**Rhodium plating:** After the acid dip, drain the workpieces quickly, **connect to current** and hang into the rhodium bath without intermediate rinsing. Any adhering hydrogen bubbles should be continually removed.

**Post-treatment:** Allow the bath fluid to drain off thoroughly. Rinse in deionized water, then in running water and - if possible - in hot water as well. Dry immediately. Use the first recovery rinse water for topping up the rhodium bath.

## Equipment

**Bath tanks:** Tanks of acid-proof materials, preferably made of polypropylene or glass.

**Accessories:** All plastic parts coming into contact with the bath, e.g. bath tanks, rack insulation, barrels, pumps and hoses, prior to use must be acidified in 5 - 10 % cold sulphuric acid for approx. 24 hours.

**Product agitation:** Optional. Mechanical tapping to dislodge adhering hydrogen bubbles is recommended.

**Anodes:** Platinized titanium. We recommend PLATINODE® coated with 2.5 µm of platinum.  
We recommend removing the anodes from the bath during non-plating periods (during the night).

Ratio of anode area to parts area at least 1 : 1.

**Current source:** Infinitely variable, with current display; residual ripple < 5 %.

**Exhaust system:** Required for large baths (strongly acidic bath mists entrained by evolution of hydrogen).

## Note

Our information relating to the storage stability refers to storage in closed original storage containers under the conditions stated on the label.

## Precautionary Measures/Safety Hints

For information on safety, please see the corresponding Material Safety Data Sheets!  
The valid accident prevention regulations and safety information must be observed.

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