



## RHODUNA® 471 Black Rhodium Electrolyte

### Abrasion-resistant and crack-free dark layers

RHODUNA® 471 Black gives jewelry a high-end anthracite to black finish. The level of darkness can be adjusted. The electrolyte is easy to use and the deposits are sure to impress with good color consistency and brightness retention. Thanks to its good corrosion resistance, the electrolyte is ideal for applications where black ruthenium cannot meet abrasion requirements.

The electrolyte produces crack-free surfaces even in thicker layers. On a substrate, it is advisable to pre-coat with either gold or rhodium.

To achieve very dark results and perfect abrasion resistance, it is necessary to post-treat the coated parts with RHODUNA® 471 Black.



### Electrolyte characteristics

Electrolyte type	acidic
Metal content	2 (1.8 - 2.2) g/l Rh
pH value	1.7 (1.0 - 2.0)
Operating temperature	60 (55 - 65) °C
Current density range	0.5 (0.25 - 2) A/dm <sup>2</sup>
Plating speed	0.04 µm/min at 1,0 A/dm <sup>2</sup>
Anode material	Pt-Ti (type PLATINODE® Pt/Ti)

### Coating characteristics

Coating	Rhodium
Colour of deposit	Grey to anthracit (black)
Hardness of deposit	Depending on degress of blackening excellent to

sufficient

Max. coating thickness

approx. 0.7  $\mu\text{m}$

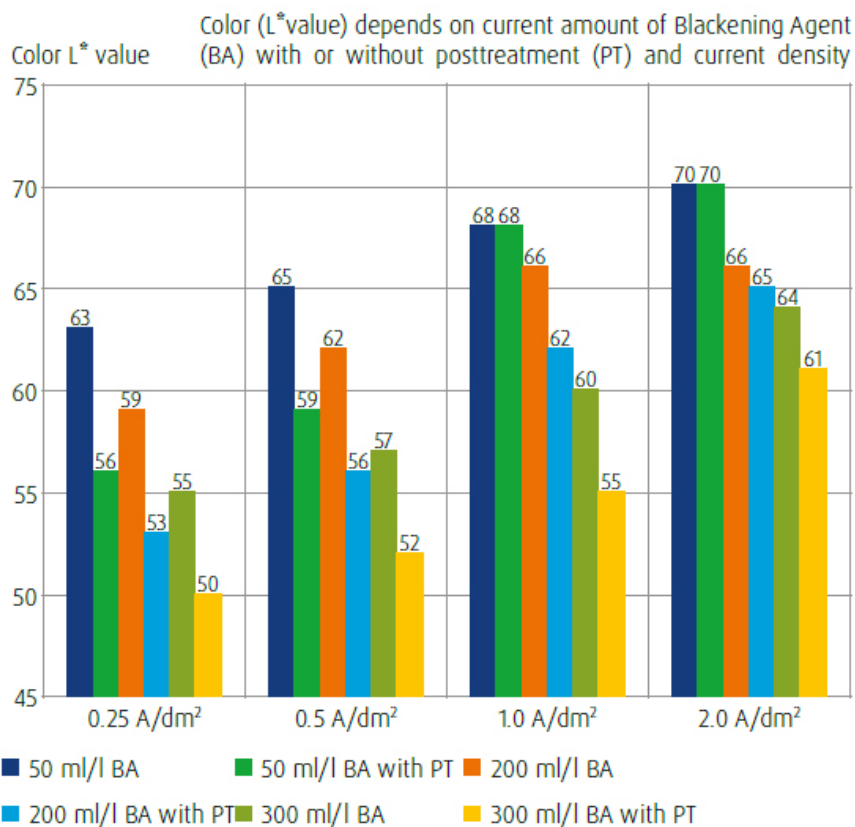
## Advantages

- Perfect electrolyte for dark to black decorative layers
- High abrasion resistance
- Layers up to 0.7  $\mu\text{m}$  possible
- Suitable for rack plating

## Applications

- Jewelry
- Watches
- Spectacle frames
- Writing implements
- Accessories

### Blackening Agent - Effect on the Degree of Blackening ( $L^*$ value)



## Your contact person



**Markus Legeler**

Manager Sales International

T: +49 7171 607 204

F: +49 7171 607 316

[markus.legeler@eu.umicore.co](mailto:markus.legeler@eu.umicore.com)  
[m](mailto:markus.legeler@eu.umicore.com)