



# RHODUNA®-Alloy 1 Technical Rhodium-Ruthenium-Electrolyte

Meets the new requirements for wearables and mobile phones

Ease of use, attractive design and strong performance have always been the main arguments for buying wearables and mobile phones. But more and more important are the small differences such as a long lifetime and compatibility with fast chargers.

These expectations cannot be fulfilled with gold-plated charging contacts & connectors (USB-C, Pogo Pin, etc.). Gold-plated contacts corrode during the charging process if they have been in contact with salt water, swimming pool water, sweat or beverages, which leads to numerous complaints and the costly replacement of damaged devices.

If the contacts are coated with RHODUNA®-Alloy 1, they are protected against corrosion. This does not affect the ability of the devices to charge quickly. RHODUNA®-Alloy 1 has been used since 2016 for electronic contacts in reel-to-reel equipment as well as in barrel and rack operation in series production.

## Further information

- about [surface technology prize "Die Oberfläche" \(The Surface\)](#)
- about [RHODUNA® Alloy price advantage](#)
- about [RHODUNA® Alloy Black for dark layers](#)

## Electrolyte characteristics

Electrolyte type

Strongly acidic



Metal content	1.6 to 10 g/l Rh 0.1 to 0.5 g/l Ru
Operating temperature	45 (40 - 50) °C
Current density range	2 - 50 A/dm <sup>2</sup>
Plating speed	approx. 0.84 µm/min (6 A/dm <sup>2</sup> ) approx. 1.02 µm/min (10 A/dm <sup>2</sup> ) approx. 1.29 µm/min (20 A/dm <sup>2</sup> )

## Coating characteristics

Coating	Rhodium-ruthenium
Alloy composition	70 - 98 % Rh 2 - 30 % Ru
Colour of deposit	White
Brightness	Bright
Hardness	900 HV
Density of the coating	approx. 12.4 g/cm <sup>3</sup>

## Advantages

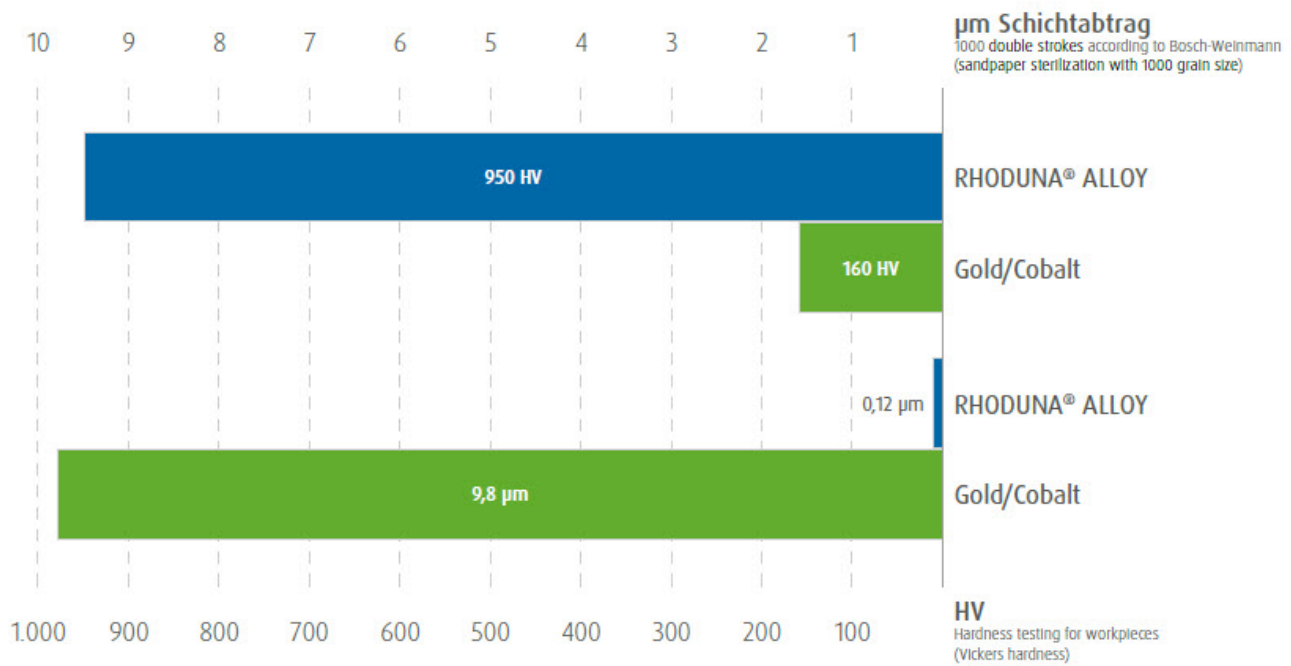
- Very light, white and ultra-bright coatings
- Uniform layer thickness
- Crack-free up to 4 µm
- Wide operating range
- Extremely abrasion-resistant (Hardness of > 900 HV)
- Less expensive than pure rhodium layers
- Protects reliably against corrosion
- No influence on fast charging
- Suitable for reel-to-reel, rack and barrel

## Applications

- Smartwatches
- Headphones (In-Ears)
- Mobile phones
- Fitness tracker
- Plug contacts

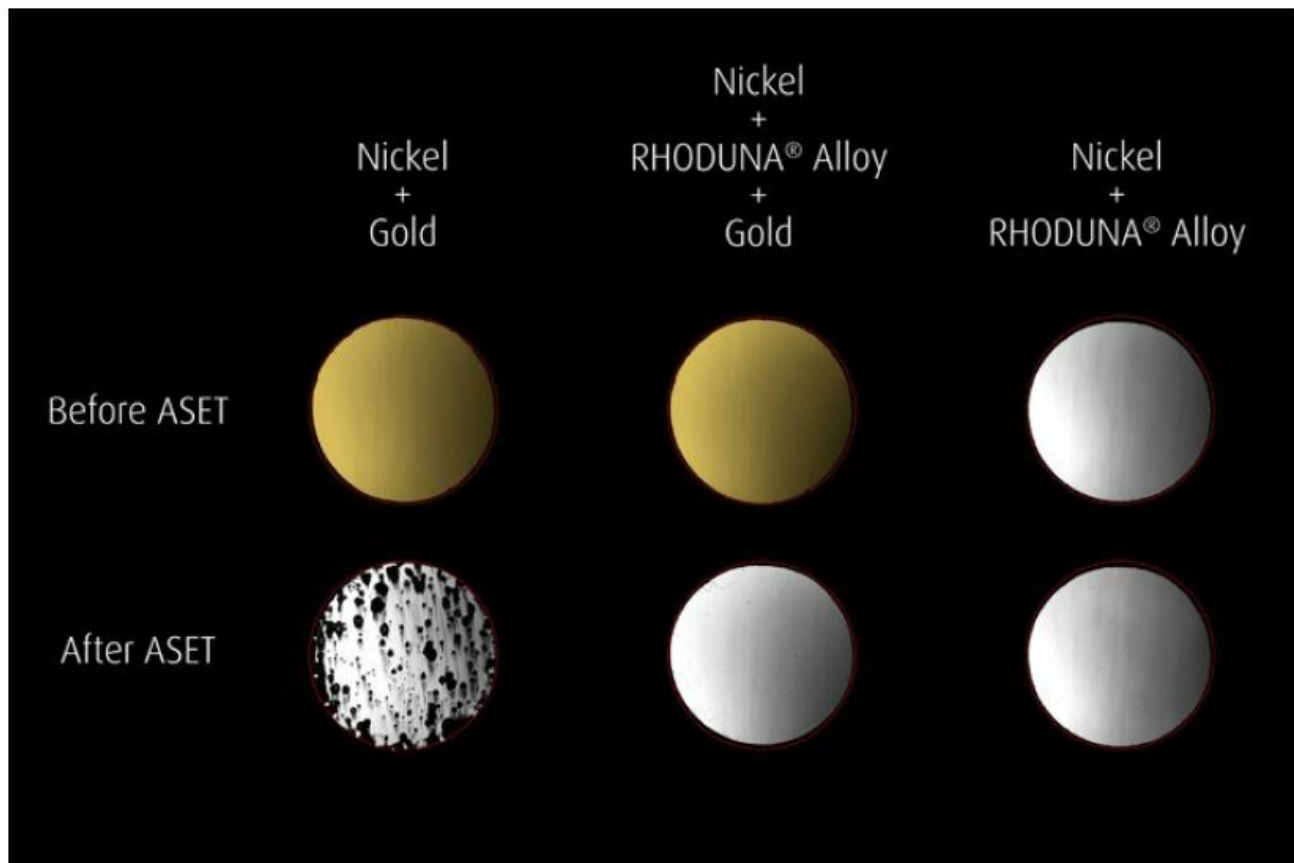
## RHODUNA®-Alloy in comparison

The hardness is almost five times higher than the previous gold standard, resulting in more than 80 times better abrasion behaviour



## Corrosion resistance of gold and RHODUNA®-Alloy in comparison

In the electrochemical ASET (Artificial Sweat Electrolysis Test), the corrosion resistance of RHODUNA®-Alloy is shown compared to the previous standard gold. After just over 2 minutes the gold layer is dissolved and the nickel layer is corroded. The rhodium/ruthenium alloy on the other hand remains stable.



## Your contact person



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