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# AURUNA<sup>®</sup> 311

## GOLD COBALT ELECTROLYTE



### For the Adhesive Direct Gold-Plating of Stainless Steel and Nickel

AURUNA<sup>®</sup> 311 is a strongly acidic alloy electrolyte for the adhesive direct gold-plating of stainless steel. It is preferably used for chromium-nickel steels, molybdenum steels and nickelbased alloys difficult to activate. Due to its strong activation effect, the electrolyte can be often successfully used as well for other passive materials difficult to plate.

The gold electrolyte is suitable for both strike gold layers and thick coatings in the decorative field. The coatings are ductile, low in pores and protect against corrosion. The alloy electrolyte can be used for rack and barrel operation as well as in reel-to-reel plating (e.g. spray and dip cells and brush).

AURUNA<sup>®</sup> 311 is also available as a cobalt-free special version.



### Advantages

- Hard gold electrolyte for the direct gold-plating of stainless steel
- Very good activation effect – without halogenides
- Low-pore, ductile and crack-free coatings
- Suitable for strike gold layers as well as for thick coatings
- Good throwing power
- Available as a cobalt-free special version
- The coatings are RoHS compliant
- Suitable for rack, barrel and reel-to-reel plating

### Applications

- Household articles
- Writing implements
- Spectacle frames
- Watches
- Cutlery

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### TECHNICAL SPECIFICATIONS

Electrolyte characteristics		Coating characteristics	
Electrolyte type	Strongly acidic	Coating	Gold-cobalt
Metal content	2 (1.0 - 2.5) resp. 4 (3.5 - 4.5) g/l Au	Alloy composition, approx. values	0.3 weight % Co 99.7 weight % Au
pH value	0.6 (0.1 - 0.8)	Colour of deposit	Deep yellow
Operating temperature	Room temperature up to max. 40 °C	Brightness	Bright
Current density range	2 - 6 A/dm <sup>2</sup>	Hardness of deposit HV 0.015 (Vickers) approx. values	165 HV
Plating speed	0.04 - 0.15 µm/min	Max. coating thickness	Approx. 10 µm
Anode material	Pt-Ti, MMO (type PLATINODE® 177)	Density of the coating	Approx. 17.5 g/cm <sup>3</sup>

### YOUR CONTACT

Do you have a specific question or would you like a no-obligation quote calculation?  
Our specialist will be happy to help you with any technical questions you might have.



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