



Version: 30 April 2019

# ARGUNA<sup>®</sup> 630 GAM

## HARD SILVER ELECTROLYTE

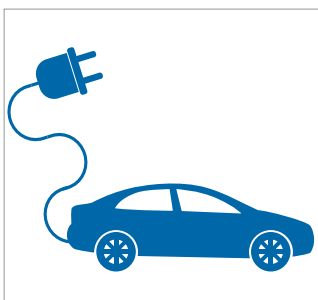


### For the Deposition of Silver Layers with High Hardness

ARGUNA<sup>®</sup> 630 GAM is an alkaline cyanide hard silver electrolyte for (electro) technical applications. The additives increase the wear resistance compared to conventional silver layers significantly: The layers obtain a stable hardness of 120 to 130 HV, even after thermal aging.

In particular, ARGUNA<sup>®</sup> GAM 630 is, suitable for electromechanical components that are exposed to increased mechanical stress. The higher hardness and improved wear resistance allow significantly more mating cycles. Additionally, the reliability and durability of the contact systems increase.

According to the operating parameters, the electrolyte is suitable for reel-to-reel plating, rack and barrel systems.



### Advantages

- Perfect silver layers for highly stressed electro-mechanical components
- High, stable coating hardness between 120 to 130 HV, even after thermal aging
- Low wear, thus significantly more mating cycles
- Suitable for reel-to-reel, rack and barrel plating
- Good electrical properties, even for high voltage

### Applications

- Electromechanical connectors
- High voltage contacts
- Plug-in chargers for electric vehicles

# ARGUNA® 630 GAM

## HARD SILVER ELECTROLYTE

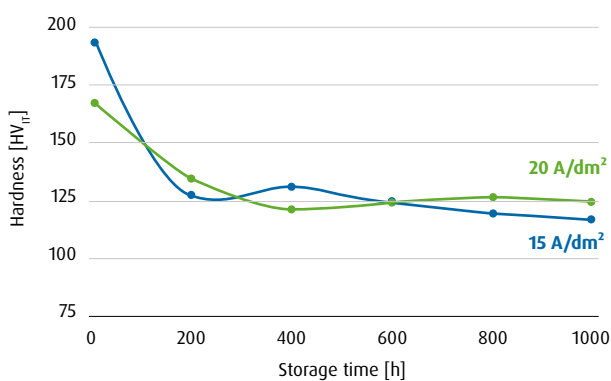


### TECHNICAL SPECIFICATIONS

Electrolyte characteristics	
Electrolyte type	Alkaline-cyanide
Metal content	30 - 60 g/l Ag
KCN content	130 (110 - 140) g/l
pH value	12.5
Operating temperature	25 - 40 °C
Current density range	
Rack operation	0.5 - 5 A/dm <sup>2</sup>
Barrel operation	0.5 - 2 A/dm <sup>2</sup>
Reel-to-reel plating	10 - 40 A/dm <sup>2</sup>
Plating speed	
Rack operation at 1 A/dm <sup>2</sup>	1 µm in 1.5 min
Rack operation at 5 A/dm <sup>2</sup>	1 µm in 0.3 min
Reel-to-reel plating at 20 A/dm <sup>2</sup>	13 µm in 1 min
Anode material (fine silver, as Ag granules in titanium baskets or sheets)	Pt-Ti (type PLATINODE® Pt/Ti)

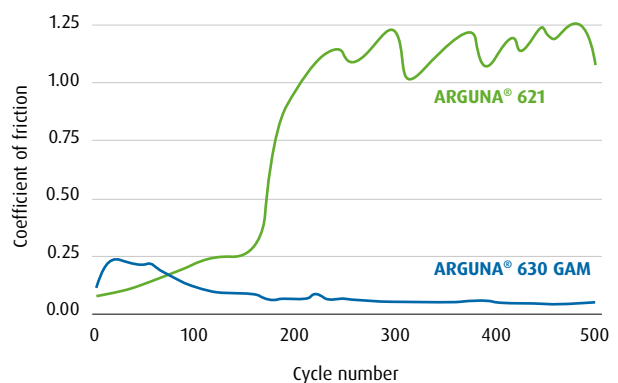
#### Stable Hardness over Heat Treatment Time

Heat treatment 150 °C / oven



Coating characteristics	
Coating	Fine silver
Purity	99.9 wt.% Ag
Colour of deposit	White
Brightness	Bright
Hardness of deposit HV 0.015 (Vickers) approx. values	170 - 190 HV as plated
Max. coating thickness	> 100 µm
Density of the coating	10.5 g/cm <sup>3</sup>

#### Coefficient of Friction over 500 Wear Cycles



#### Test conditions

Test equipment	UNAT (ZWICK/ASMEC)
Test mode:	Cyclic wear trial
Contact force (normal force):	50 mN
Lateral excursion (track length):	2 x 50 µm
Wear frequency:	16 Hz
Wear cycles:	500
Specimen:	Hard gold

### 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.



Markus Legeler  
Manager Sales International

Mail: markus.legeler@eu.umicore.com  
Phone: +49 (0) 7171 607 - 204

