

Technical data sheet and product guideline

AG-ECO1

ECO SILVER – Cyanide free silver plating solution 1L (ready-to-use)

Color coordinates


L	97.7
a	-1.2
b	2.7
c	2.9

Product form

Metal concentration	25 g/l (Ag)
Form	Liquid
Material color	Transparent
Storage time	2 years
Format	Ready to use
Chemical type	Alkaline
Volume	1 liter

Operating data

	Range	Optimal
Voltage (V)	0.1-1.0	0.5
Current density (A/dm ²)	0.1-2	1.0
Working temperature (°C)	20-30	25
Exposure time (sec)	1-30 mins	1-5 mins
pH	10-11	10.5
Cathode efficiency (mg/Amin)	69	
Solution density		12 Bé
Anode/cathode ratio	2:1	3:1
Anode type	99.98 Silver	
Agitation	Moderate	

Metal concentration

Metal	Range (g/l)	Optimal (g/l)
Silver	20 - 40	25

Deposit data

Purity (%)	99.99
Hardness (HV 0,01)	80
Density (g/cm ³)	10.5
Thickness (um)	1.0 - 20.0
Appearance	Glossy
Color	Silver

Suitable substrates

AG-ECO1 can be deposited directly onto Silver, Palladium, Gold, Nickel and its alloys. An intermediate deposit or precious metal plating strike (Ag or Au) is necessary before depositing onto Tin, Lead, Zinc, Cadmium, Aluminum and Iron.

Preparation

AG-ECO1 is a ready-to-use galvanic bath at the concentration of 25 g/l. No preparation is required.

AG-ECO1 can be deposited directly onto Silver, Palladium, Gold, Nickel and its alloys. An intermediate deposit or precious metal plating strike (Ag or Au) is necessary before depositing onto Tin, Lead, Zinc, Cadmium, Aluminum and Iron.

Technical data sheet and product guideline

AG-ECO1

ECO SILVER – Cyanide free silver plating solution 1L (ready-to-use)



Equipment

Working vessel: Pyrex glass / PVC / polypropylene.

Power supply: DC current rectifier with low residual AC (<5%).

Heating element.

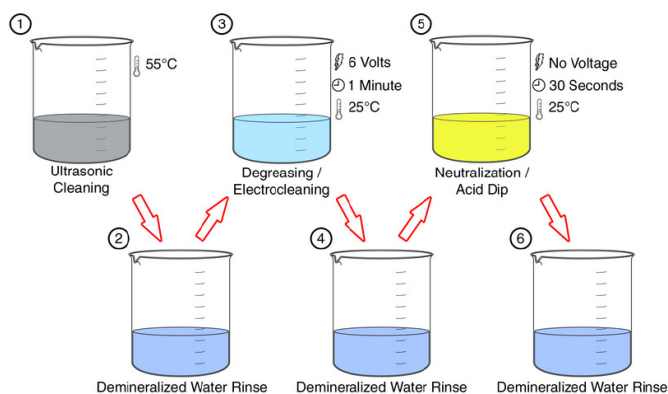
Anode Type Platinized Titanium [1.5-2.5 µm].

For larger bath volumes:

Magnetic driven filter pumps with 5-15 µm cartridge (before use, boil and wash the cartridges with demineralized water for 3 hours to prevent organic contamination).

Amp/min counter.

Pre treatment Cleansing procedure



Bath maintenance

AG-ECO1 ready-to-use solution is set for 1 liter of bath. As consequence, the bath has to be used until its complete consumption.

Furthermore, light exposition may promote silver precipitation in form of dust, that reflects a more darker aspect of the solution itself. This problem is easily resolved by filtering the silver oxide dust from the solution by using a simple funnel and a filter paper system. In any case to limit this problem store the solution in an environment well repaired from light.

Technical data sheet and product guideline

AG-ECO1

ECO SILVER – Cyanide free silver plating solution 1L (ready-to-use)



Post treatment

It is extremely important after the silver plating to follow these steps:

Pieces come out from the silver solution greyish after plating so you must always follow the silver plating process with the mandatory post treatment process by dipping the pieces just silver plated inside the AG-ECO1B solution at 60°C for 30 seconds. THIS SOLUTION WORKS IN ABSENCE OF CURRENT.

FOR THE POST TREATMENT PROCESS WE RECOMMEND the following procedure:

- After the silver plating, wash with current water
- Wash 1-2 times in deionized water at room temperature
- Submerge in AG-ECO1B post plating solution at 60°C leaving the silver plated pieces inside for 30 seconds
- Remove the pieces from the post treatment solution
- Then appearing bright and shiny Double wash again in deionized water
- Passivate worked items with T-PRO. **If this step will not be done, the silver plated surfaces will suffer tarnish in a short time**

Water purity

To prevent contamination of the bath both during its preparation and any subsequent replenishing operations, use demineralized water with a conductivity of less than 3 µS/cm (containing no traces of organic compounds, Chlorine, Silicon, or Boron).

Safety information

AG-ECO1 process is a chemical solution totally cyanide free and for this reason is not particularly dangerous for the operator neither for the external environment. In any case we can not exclude completely possible irritating effects on the skin, eyes and mucous membranes.

Caution must be observed while using the product avoiding direct contact with eyes and skin. For further information please refer to the relative Material Safety Data Sheets.

Technical data sheet and product guideline

AG-ECO1

ECO SILVER – Cyanide free silver plating solution 1L (ready-to-use)



Supplementary Information

As the process works at lower current density values, we recommend the use of a rectifier which permits to set low values of both voltage and amperage with good sensibility.

Packaging

The product is sold in a kit form made of two 1 liter bottles each of them containing ready to use solutions: AG-ECO1A and AG-ECO1B.

- AG-ECO1A is the really cyanide free silver plating solution;
- AG-ECO1B is the post silver solution, essential to maximize the final result of the cyanide free silver plating solution.

IMPORTANT: Avoid the direct exposure of the AG-ECO1A solution to the external light when it is not working in order to prevent silver precipitation as oxide from the solution.

General Notes On Cyanide Free Silver Plating

As the process works at lower current density values, we recommend the use of a rectifier which permits to set low values of both voltage and amperage with good sensibility. The items to be plated have to be prepared according with the normal practice. Generally we suggest to start with a ultrasonic degreasing process followed by rinse and subsequent electrolytic degreasing step (i.e. SGR1) at 5-6 V for 1-2 minutes. Neutralize them by dipping the items in acidic solution 5% sulphuric acid or with something similar (i.e. NEUT1) and then rinse again with pure water.

Packaging

