

AGELESS

READY TO USE CYANIDE FREE SILVER PLATING SOLUTION

DESCRIZIONE PRODOTTO

- Silver plating solution suitable for both decorative and technical application
- 100% CYANIDE-FREE
- Achievable thicknesses ranging from 0.02 to 20 micron
- Bright and white deposits by one application step only



AGELESS is an innovative silver-plating electrolyte for bath plating ready for use which provides for a new and completely cyanide-free approach to silver electroplating. When comparing to traditional silver-plating methods, which can contain up to 200 grams of potassium cyanide per liter, this plating solution provides a perfect resolution to common cyanide restrictions immersing from place to place throughout in the international community. Moreover, the complete absence of cyanide provides healthier working conditions for plating operators as well as reduces environmental concerns in the form of waste water and waste water treatment.

The pure silver deposit conferred on the treated items surfaces with this electrolyte, despite not 100% matching those of the traditional decorative cyanide-based solution, is white and bright even for higher thicknesses and, most of all, it does not need any further treatment with the reduced application time. AGELESS is a liquid electrolyte that can be used for both decorative and technical applications.

DEPOSIT DATA

Purity (%)	99.9
Hardness [HV 0.01]	80
Density (g/cm³)	10.5
Thickness from - to (µm)	0.02 - 20
Aspect	Shiny
Color	Silver

PRODUCT FORM

Metal concentration	25 g/l Ag
Product pH	Alkaline
Format	Ready to use liquid
Color of the product	Colorless
Storage time	1 year

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UTILIZZO DEL PRODOTTO

In order to use properly the cyanide free electrolyte AGELESS the following technical parameters must be followed:

PARAMETR	OPTIMAL	RANGE
Temperature (°C)	55	50 - 60
Current density (A/dm ²)	0.5	0,3 – 0,7
Cathodic efficiency (mg/Amin)	66 a 0,5 A/dm ²	
Deposition speed	1 micron in 3,5 min working at 0,5 A/dm ²	
Solution movement	Moderata mediante pompa filtro	
Solution density (°Bè)	17	16 – 20
pH	9.7	9.5 – 10.5
Anodes	Pure silver 99.9%	
Filtration	Continue	

METAL CONCENTRATION

METAL	RANGE (g/l)	OPTIMAL (g/l)
Silver (Ag)	20 - 30	25

GUIDA D'USO

READY TO USE PREPARATION

AGELESS is a ready-to-use electrolyte solution for silver plating. No preparation is then required.

ANODES

For this type of plating solution use pure silver 99.9% anodes.

WORKING TANK MATERIALS

For small volume amount solutions use Pyrex glass becker; while for higher volumes use PP/PVC/HDPE tanks equipped with an efficient exhaust fume/suction or aspiration system.

DC POWER RECTIFIER

Use a current DC rectifier having an alternate current residue – ripple – less than 5% and having an output amperage enough to obtain a proper electroplating process. This rectifier should be equipped with:

- Amperemeter,
- Voltmeter,
- Ampereminutemeter (for bigger installations only).

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.

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HEATING SYSTEM

The admitted materials for heaters are: Pyrex, quartz or PTFE coupled with a thermostat system.

FILTRATION AND MOVEMENT

For bigger plating installations (>5 liters) it is advisable to keep the plating solution continuously filtered and in movement through a magnetic driven filter pump with 5-15 µm cartridges in PP that must have been previously conditioned by boiling them for at least 3 hours and then washed with DI water in order to prevent any possible organic contamination.

PLATING SOLUTION MAINTENANCE

As AGELESS has been thought for small sizes /volumes bath only (up to 5 liters), use it until the silver plating solution is completely exhausted without adding any concentrate replenisher. Remember that silver plating solution will automatically be restored in silver by anode dissolution but in any case, since the anodic efficiency will be less than cathodic, the plating solution will arrive at a certain point that the silver solution will be lower than optimum conditions: this will be the moment in which it will be advisable to replace completely the working solution.

PRETREATMENTS

To maximize the **AGELESS** silver plating process, we strongly recommend that the pieces, especially nickel plated, should be pre treated with a pre-silver process or pre-palladiated. In case of pre-silver-plated pieces which show tarnish on the surface, we recommend to dip them in the cleaning antioxidant liquid STEP1 prior to application of the silver. AGELESS can be deposited directly onto Silver, Palladium, Gold, Nickel and its alloys. An intermediate deposit or precious metal plating strike (Ag, Au or Pd) is necessary before depositing onto Tin, Lead, Zinc, Cadmium, Aluminum and Iron. Generally, we suggest to start with an 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.

POST TREATMENTS

After the silver-plating treatment any electrolyte residue staying on items' surfaces must be removed as quickly as possible. For this reason, treat the items by dipping them into a recovery tank and then continue by dipping into a current DI water tank for the final wash prior to drying them. Eventually, driving a very final rinse in HOT DI water before the final drying step, will help in getting even whiter and brighter items. It will be then very useful to treat the so obtained silver plated items through passivating the same with OXIFEND by electrolytic way (see related technical data sheets and subsequent paragraph).

HOW TO MAXIMIZE AGELESS PERFORMANCE

In order to get the brightest and the maximum tarinshing resistance possible of our silver cyanide-free plating solution, **we strongly suggest to couple the application of AGELESS with our OXIFEND by electrolytic way.**

To get optimum results please follow these following steps.

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TREATMENT OF JUST SILVER-PLATED ITEMS WITH AGELESS PLATING SOLUTION:

- 1) rinse and wash in D.I. water;
- 2) immersion in OXIFEND solution added with T-SALT conducting salts (previously dissolved in) for 5 -6 minutes (with moderate agitation) at 4.5V;
- 3) Rinse with D.I. water;
- 4) Rinse in hot water (60 - 70° C);
- 5) dry with warm air (dry in oven is the best choice).

TEMPERATURE

Low working temperatures (45-50°C) are optimal for applications requiring low current densities. For applications requiring higher current densities it is recommended to work at higher temperatures (55-60°C).

WATER PURITY

To prevent contamination of the plating solution during any replenishing operations, use demineralized water with a conductivity of less than 3 µS/cm (containing no traces of organic compounds, Chlorine, Silicon or Boron). To achieve maximum deposit quality we suggest to use our high-grade purity WATER.

STORAGE

As silver present in **AGELESS** electrolyte results photosensible, it is thus advisable to store the same solution, when not used and working, far from light exposure in order to maximize its quality and its performance before expiry. For the same reason, as packaging, the bottle come inside a black protective bag which preserve the product from direct light exposure.

INFORMAZIONI SULLA SICUREZZA

The classification and designation of the process and its products are indicated in the safety data sheets supplied together with the products in accordance with the European legislation currently in force. The safety and environmental protection instructions must be respected to avoid danger to people and the surrounding environment. Before each use of the products, consult the safety data sheets of each bathroom component in detail. Please read them carefully to protect people and the surrounding environment from possible dangers.

DISCLAIMER

All recommendations and suggestions in this bulletin concerning the use of our products are based upon tests and data believed to be reliable. Since the actual use by others is beyond our control, no guarantee expressed or implied, is made by Legor Group, its subsidiaries or distributors, as to the effects of such use or results to be obtained, nor is any information to be construed as a recommendation to infringe any patent.

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