

## Safety Data Sheet



### **AG-ECO1 - 100% CYANIDE FREE SILVER PLATING BATH 25G/L (KIT 1L A + 1L B)**

Safety Data Sheet dated 9/29/2023 version 2

Compliant with regulation (CE) n. 1907/2006 REACH, Annex II, and subsequent amendments introduced by Commission Regulation (EU) no. 2020/878

## **SECTION 1: Identification of the substance/mixture and of the company/undertaking**

### **1.1. Product identifier**

Mixture identification:

Trade name: AG-ECO1 - 100% CYANIDE FREE SILVER PLATING BATH 25G/L (KIT 1L A + 1L B)

Trade code: AG-ECO1

Product type and use: Cyanide free silver

Registration Number N/A

### **1.2. Relevant identified uses of the substance or mixture and uses advised against**

Recommended use: N.A.

Uses advised against: N.A.

### **1.3. Details of the supplier of the safety data sheet**

Company: LEGOR GROUP S.p.A.

Via del Lavoro, 1

36050 Bressanvido (VI)

Italy

Tel.: +39.0444.467911

Fax.: +39.0444. 660677

Competent person responsible for the safety data sheet: info@legor.com

### **1.4. Emergency telephone number**

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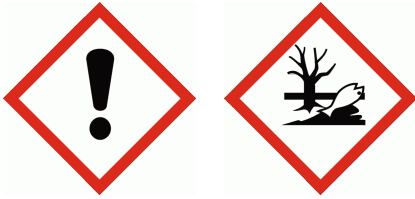
CENTRO ANTIVELENI - ISTITUTO DI ANESTESIOLOGIA E RIANIMAZIONE UNIVERSITÀ DEGLI STUDI DI ROMA LA SAPIENZA  
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## SECTION 2: Hazards identification



### 2.1. Classification of the substance or mixture

#### Regulation (EC) n. 1272/2008 (CLP)

Eye Irrit. 2 Causes serious eye irritation.  
Aquatic Chronic 2 Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:  
No other hazards

### 2.2. Label elements

#### Regulation (EC) No 1272/2008 (CLP):

#### Pictograms and Signal Words



Warning

#### Hazard statements

H319 Causes serious eye irritation.  
H411 Toxic to aquatic life with long lasting effects.

#### Precautionary statements

P264 Wash hands thoroughly after handling.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P391 Collect spillage.  
P501 Dispose of contents/container in accordance with applicable regulations.

#### Special provisions according to Annex XVII of REACH and subsequent amendments:

None.

### 2.3. Other hazards

No PBT, vPvB or endocrine disruptor substances present in concentration  $\geq 0.1\%$   
Other Hazards: No other hazards

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## SECTION 3: Composition/information on ingredients

### 3.1. Substances

N.A.

### 3.2. Mixtures

**Hazardous components within the meaning of the CLP regulation and related classification:**

Qty	Name	Ident. Numb.	Classification	Registration Number
< 5%	Silver oxide	CAS:20667-12-3 Index:2439571	Ox. Sol. 1, H271; Eye Dam. 1, H318; Aquatic Acute 1, H400; Aquatic Chronic 1, H410	
< 5%	Sulfamic acid	CAS:5329-14-6 EC:226-218-8 Index:016-026-00-0	Eye Irrit. 2, H319; Skin Irrit. 2, H315; Aquatic Chronic 3, H412	01-2119488633-28

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**SECTION 4: First aid measures**

**4.1. Description of first aid measures**

In case of skin contact:

Immediately take off all contaminated clothing.

Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.

Wash thoroughly the body (shower or bath).

Remove contaminated clothing immediately and dispose off safely.

After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Do not induce vomiting, get medical attention showing the SDS and label hazardous.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

**4.2. Most important symptoms and effects, both acute and delayed**

Eye irritation

Eye damages

**4.3. Indication of any immediate medical attention and special treatment needed**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

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**SECTION 5: Firefighting measures**

**5.1. Extinguishing media**

Suitable extinguishing media:

Water.

Carbon dioxide (CO2).

Extinguishing media which must not be used for safety reasons:

None in particular.

**5.2. Special hazards arising from the substance or mixture**

Do not inhale explosion and combustion gases.

Burning produces heavy smoke.

**5.3. Advice for firefighters**

Use suitable breathing apparatus .

Collect contaminated fire extinguishing water separately. This must not be discharged into drains.

Move undamaged containers from immediate hazard area if it can be done safely.

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**SECTION 6: Accidental release measures**

**6.1. Personal precautions, protective equipment and emergency procedures**

Wear personal protection equipment.

Remove persons to safety.

See protective measures under point 7 and 8.

**For emergency responders:**

Wear personal protection equipment.

**6.2. Environmental precautions**

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.

Retain contaminated washing water and dispose it.

In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.

Suitable material for taking up: absorbing material, organic, sand

### 6.3. Methods and material for containment and cleaning up

Suitable material for taking up: absorbing material, organic, sand

Wash with plenty of water.

### 6.4. Reference to other sections

See also section 8 and 13

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## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.

Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.

Contaminated clothing should be changed before entering eating areas.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

### 7.2. Conditions for safe storage, including any incompatibilities

Incompatible materials:

None in particular.

Instructions as regards storage premises:

Adequately ventilated premises.

### 7.3. Specific end use(s)

Recommendation(s)

None in particular

Industrial sector specific solutions:

None in particular

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## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Predicted No Effect Concentration (PNEC) values

Sulfamic acid                      Exposure Route: Fresh Water; PNEC Limit: 300 ug/l  
CAS: 5329-14-6

Exposure Route: Freshwater sediments; PNEC Limit: 0.3 mg/kg

Exposure Route: Marine water sediments; PNEC Limit: 0.03 mg/kg

Exposure Route: Local treatment plants; PNEC Limit: 2 mg/l

Exposure Route: Marine water; PNEC Limit: 30 ug/l

Exposure Route: STP; PNEC Limit: 200 mg/l

Exposure Route: Soil; PNEC Limit: 3 mg/kg

#### Derived No Effect Level (DNEL) values

Sulfamic acid                      Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects  
CAS: 5329-14-6                      Worker Professional: 10 mg/kg; Consumer: 5 mg/kg

Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects  
Consumer: 1.06 mg/kg/d

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Consumer: 1.8 mg/m3

Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects  
Worker Professional: 7.5 mg/m3

### 8.2. Exposure controls

Eye protection:

Use close fitting safety goggles, don't use eye lens.

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC or viton.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber.

Respiratory protection:

N.A.

Thermal Hazards:

N.A.

Environmental exposure controls:

N.A.

Hygienic and Technical measures

N.A.

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## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

**Physical State:** Liquid

**Color:** N.A.

**Odour:** Odourless

**Odour threshold:** N.A.

**pH:** 10,00

**Kinematic viscosity:** N.A.

**Melting point / freezing point:** N.A.

**Initial boiling point and boiling range:** N.A.

**Flash point:** > 93°C

**Upper/lower flammability or explosive limits:** N.A.

**Vapour density:** N.A.

**Vapour pressure:** N.A.

**Relative density:** N.A.

**Solubility in water:** N.A.

**Solubility in oil:** N.A.

**Partition coefficient (n-octanol/water):** N.A.

**Nanoforms dispersion stability:** N.A.

**Auto-ignition temperature:** N.A.

**Decomposition temperature:** N.A.

**Flammability:** N.A.

### Particle characteristics:

**Particle size:** N.A.

### 9.2. Other information

**VOC:** N.A.

**Miscibility:** N.A.

**Conductivity:** N.A.

**Explosive properties:** Not explosive product

**Evaporation rate:** N.A.

**No other relevant information**

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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Stable under normal conditions

### 10.2. Chemical stability

Data not available.

### 10.3. Possibility of hazardous reactions

None.

### 10.4. Conditions to avoid

Stable under normal conditions.

### 10.5. Incompatible materials

None in particular.

### 10.6. Hazardous decomposition products

None.

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## SECTION 11: Toxicological information

### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

#### Toxicological Information of the Preparation

- |                                  |  |
|----------------------------------|--|
| a) acute toxicity                | Not classified<br>Based on available data, the classification criteria are not met |
| b) skin corrosion/irritation     | Not classified<br>Based on available data, the classification criteria are not met |
| c) serious eye damage/irritation | The product is classified: Eye Irrit. 2(H319)                                      |

d) respiratory or skin sensitisation	Not classified	Based on available data, the classification criteria are not met
e) germ cell mutagenicity	Not classified	Based on available data, the classification criteria are not met
f) carcinogenicity	Not classified	Based on available data, the classification criteria are not met
g) reproductive toxicity	Not classified	Based on available data, the classification criteria are not met
h) STOT-single exposure	Not classified	Based on available data, the classification criteria are not met
i) STOT-repeated exposure	Not classified	Based on available data, the classification criteria are not met
j) aspiration hazard	Not classified	Based on available data, the classification criteria are not met

**Toxicological information on main components of the mixture:**

Sulfamic acid	a) acute toxicity	LD50 Oral Rat = 1450 mg/kg LD50 Skin Rat > 2000 mg/kg
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**11.2. Information on other hazards**

**Endocrine disrupting properties:**

No endocrine disruptor substances present in concentration  $\geq 0.1\%$

**SECTION 12: Ecological information**

**12.1. Toxicity**

Adopt good working practices, so that the product is not released into the environment.

Eco-Toxicological Information:

Toxic to aquatic life with long lasting effects.

**List of Eco-Toxicological properties of the product**

The product is classified: Aquatic Chronic 2(H411)

**List of Eco-Toxicological properties of the components**

Component	Ident. Numb.	Ecotox Data
Sulfamic acid	CAS: 5329-14-6 - EINECS: 226-218-8 - INDEX: 016-026-00-0	a) Aquatic acute toxicity : EC50 Algae = 48 mg/l 72 a) Aquatic acute toxicity : LC50 Daphnia magna = 71.6 mg/l 24h a) Aquatic acute toxicity : LC50 Fish = 70.3 mg/l

**12.2. Persistence and degradability**

N.A.

**12.3. Bioaccumulative potential**

N.A.

**12.4. Mobility in soil**

N.A.

**12.5. Results of PBT and vPvB assessment**

No PBT Ingredients are present

**12.6. Endocrine disrupting properties**

No endocrine disruptor substances present in concentration  $\geq 0.1\%$

**12.7. Other adverse effects**

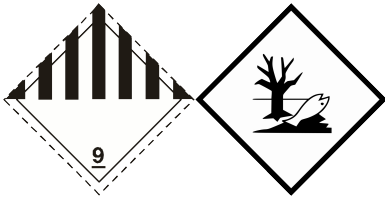
N.A.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Recover if possible. In so doing, comply with the local and national regulations currently in force.

## SECTION 14: Transport information



### 14.1. UN number or ID number

3082

### 14.2. UN proper shipping name

ADR-Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sulfamic acid - Silver oxide)

IATA-Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sulfamic acid,; Silver oxide )

IMDG-Technical name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Sulfamic acid,; Silver oxide )

### 14.3. Transport hazard class(es)

ADR-Class: 9

IATA-Class: 9

IMDG-Class: 9

### 14.4. Packing group

ADR-Packing Group: III

IATA-Packing group: III

IMDG-Packing group: III

### 14.5. Environmental hazards

Toxic ingredients quantity: 0,00

Very toxic ingredients quantity: 0,00

Yes

Environmental Pollutant: Yes

### 14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR exempt: No

ADR-Label: 9

ADR - Hazard identification number: 90

ADR-Special Provisions: 274 335 375 601

ADR-Transport category (Tunnel restriction code): 3 (-)

Air (IATA):

IATA-Passenger Aircraft: 964

IATA-Cargo Aircraft: 964

IATA-Label: 9

IATA-Subsidiary hazards: -

IATA-Erg: 9L

IATA-Special Provisions: A97 A158 A197 A215

Sea (IMDG):

IMDG-Stowage Code: Category A

IMDG-Stowage Note: -

IMDG-Subsidiary hazards: -

IMDG-Special Provisions: 274 335 969

IMDG-EMS: F-A, S-F

IMDG-MFAG: N/A

### 14.7. Maritime transport in bulk according to IMO instruments

N.A.

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Dir. 98/24/EC (Risks related to chemical agents at work)

Dir. 2000/39/EC (Occupational exposure limit values)

Regulation (EC) n. 1907/2006 (REACH)

Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013

Regulation (EU) n. 2020/878

Regulation (EU) n. 286/2011 (ATP 2 CLP)

Regulation (EU) n. 618/2012 (ATP 3 CLP)

Regulation (EU) n. 487/2013 (ATP 4 CLP)  
 Regulation (EU) n. 944/2013 (ATP 5 CLP)  
 Regulation (EU) n. 605/2014 (ATP 6 CLP)  
 Regulation (EU) n. 2015/1221 (ATP 7 CLP)  
 Regulation (EU) n. 2016/918 (ATP 8 CLP)  
 Regulation (EU) n. 2016/1179 (ATP 9 CLP)  
 Regulation (EU) n. 2017/776 (ATP 10 CLP)  
 Regulation (EU) n. 2018/669 (ATP 11 CLP)  
 Regulation (EU) n. 2018/1480 (ATP 13 CLP)  
 Regulation (EU) n. 2019/521 (ATP 12 CLP)  
 Regulation (EU) n. 2020/217 (ATP 14 CLP)  
 Regulation (EU) n. 2020/1182 (ATP 15 CLP)  
 Regulation (EU) n. 2021/643 (ATP 16 CLP)  
 Regulation (EU) n. 2021/849 (ATP 17 CLP)  
 Regulation (EU) n. 2022/692 (ATP 18 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

Restrictions related to the product: 3

Restrictions related to the substances contained: 75

Provisions related to directive EU 2012/18 (Seveso III):

N.A.

Regulation (EU) No 649/2012 (PIC regulation)

No substances listed

German Water Hazard Class.

Class 3: extremely hazardous.

SVHC Substances:

No data available

## 15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for the mixture.

## SECTION 16: Other information

Code	Description
H271	May cause fire or explosion; strong oxidiser.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Code	Hazard class and hazard category	Description
2.14/1	Ox. Sol. 1	Oxidising solid, Category 1
3.2/2	Skin Irrit. 2	Skin irritation, Category 2
3.3/1	Eye Dam. 1	Serious eye damage, Category 1
3.3/2	Eye Irrit. 2	Eye irritation, Category 2
4.1/A1	Aquatic Acute 1	Acute aquatic hazard, category 1
4.1/C1	Aquatic Chronic 1	Chronic (long term) aquatic hazard, category 1
4.1/C2	Aquatic Chronic 2	Chronic (long term) aquatic hazard, category 2
4.1/C3	Aquatic Chronic 3	Chronic (long term) aquatic hazard, category 3

### Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008	Classification procedure
3.3/2	Calculation method
4.1/C2	Calculation method

This document was prepared by a competent person who has received appropriate training.



Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities

SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.

It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.

This MSDS cancels and replaces any preceding release.

Legend to abbreviations and acronyms used in the safety data sheet:

ACGIH: American Conference of Governmental Industrial Hygienists

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

AND: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ATE: Acute Toxicity Estimate

ATEmix: Acute toxicity Estimate (Mixtures)

BCF: Biological Concentration Factor

BEI: Biological Exposure Index

BOD: Biochemical Oxygen Demand

CAS: Chemical Abstracts Service (division of the American Chemical Society).

CAV: Poison Center

CE: European Community

CLP: Classification, Labeling, Packaging.

CMR: Carcinogenic, Mutagenic and Reprotoxic

COD: Chemical Oxygen Demand

COV: Volatile Organic Compound

CSA: Chemical Safety Assessment

CSR: Chemical Safety Report

DMEL: Derived Minimal Effect Level

DNEL: Derived No Effect Level.

DPD: Dangerous Preparations Directive

DSD: Dangerous Substances Directive

EC50: Half Maximal Effective Concentration

ECHA: European Chemicals Agency

EINECS: European Inventory of Existing Commercial Chemical Substances.

ES: Exposure Scenario

GefStoffVO: Ordinance on Hazardous Substances, Germany.

GHS: Globally Harmonized System of Classification and Labeling of Chemicals.

IARC: International Agency for Research on Cancer

IATA: International Air Transport Association.

IATA-DGR: Dangerous Goods Regulation by the "International Air Transport Association" (IATA).

IC50: half maximal inhibitory concentration

ICAO: International Civil Aviation Organization.

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO).

IMDG: International Maritime Code for Dangerous Goods.

INCI: International Nomenclature of Cosmetic Ingredients.

IRCCS: Scientific Institute for Research, Hospitalization and Health Care

KAFH: KAFH

KSt: Explosion coefficient.

LC50: Lethal concentration, for 50 percent of test population.

LD50: Lethal dose, for 50 percent of test population.

LDLo: Leathal Dose Low

N.A.: Not Applicable

N/A: Not Applicable

N/D: Not defined/ Not available

NA: Not available

NIOSH: National Institute for Occupational Safety and Health

NOAEL: No Observed Adverse Effect Level

OSHA: Occupational Safety and Health Administration.

PBT: Persistent, Bioaccumulative and Toxic

PGK: Packaging Instruction

PNEC: Predicted No Effect Concentration.

PSG: Passengers

RID: Regulation Concerning the International Transport of Dangerous Goods by Rail.

STEL: Short Term Exposure limit.

STOT: Specific Target Organ Toxicity.

TLV: Threshold Limiting Value.

TWATLV: Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).

vPvB: Very Persistent, Very Bioaccumulative.

WGK: German Water Hazard Class.

**\* Sheet model entirely changed in compliance to regulatory update.**