

Safety Data Sheet



GT4A3N, Gold-iron gold thickness plating system 4 g/l.

Safety Data Sheet dated 1/19/2023 version 2

Compliant with regulation (CE) n. 1907/2006 REACH, Annex II, and subsequent amendments introduced by Commission Regulation (EU) no. 2015/830

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

1.1. Product identifier

Mixture identification:

Trade name: GT4A3N, Gold-iron gold thickness plating system 4 g/l.

Trade code: GT4A3N

Product type and use: SL

Registration Number N/A

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

Recommended use: For electroplating industry

Uses advised against: N.A.

1.3. Details of the supplier of the safety data sheet

Company: LEGOR GROUP S.p.A.

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1.4. Emergency telephone number

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SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

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

Acute Tox. 4 Harmful if swallowed.
Eye Irrit. 2 Causes serious eye irritation.
Aquatic Chronic 3 Harmful 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):

Hazard pictograms and Signal Word



Warning

Hazard statements

H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P264 Wash ... Thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
P337+P313 If eye irritation persists: Get medical advice/attention.
P501 Dispose of contents/container in accordance with applicable regulations.

Contains

Potassium dicyanoaurate (I)
Potassium dicyanoaurate (I) May produce an allergic reaction.

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

None.

2.3. Other hazards

No PBT Ingredients are present

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: GT4A3N, Gold-iron gold thickness plating system 4 g/l.

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

| Qty | Name | Ident. Numb. | Classification | Registration Number |
|--------|-----------------------------|---|---|-----------------------|
| 5-10 % | Citric acid | CAS:77-92-9 EC:201-069-1 | Eye Irrit. 2, H319; STOT SE 3, H335 | |
| < 5% | formic acid | CAS:64-18-6 EC:200-579-1 Index:607-001-00-0 | Skin Corr. 1A, H314 Specific Concentration Limits: 90% ≤ C < 100%: Skin Corr. 1A H314 10% ≤ C < 90%: Skin Corr. 1B H314 2% ≤ C < 10%: Skin Irrit. 2 H315 2% ≤ C < 10%: Eye Irrit. 2 H319 | |
| < 5% | Potassium dicyanoaurate (I) | CAS:13967-50-5 EC:237-748-4 | Met. Corr. 1, H290; Eye Dam. 1, H318; Skin Irrit. 2, H315; Aquatic Chronic 1, H410; Acute Tox. 2, H300; Acute Tox. 2, H330; Skin Sens. 1, H317; Aquatic Acute 1, H400, M-Acute:1, M-Chronic:1, EUH032 | 01-2120130777-52-0005 |

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:

Give nothing to eat or drink.

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).

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.

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

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

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Community Occupational Exposure Limits (OEL)

| | OEL Type | Ceiling | Long Term mg/m3 | Long Term ppm | Short Term mg/m3 | Short Term ppm | Notes |
|---|----------|---------|-----------------|---------------|------------------|----------------|---------------------------|
| formic acid CAS: 64-18-6 | EU | | 9 | 5 | | | |
| | ACGIH | | | 5 | | 10 | URT, eye, and skin irr |
| Potassium dicyanoaurate (I) CAS: 13967-50-5 | IOELV | C | | | 5.000000 | | EU (Dir 2017/164) for HCN |
| | IOELV | | | 9.000 | | 4.500 | EU (Dir 2017/164) for HCN |

Predicted No Effect Concentration (PNEC) values

| | PNEC Limit | Exposure Route | Exposure Frequency | Remark |
|--|-------------------|-------------------------------------|---------------------------|---------------|
| Potassium dicyanoaurate (I) CAS: 13967-50-5 | 0.0002 mg/l | Fresh Water | | |
| | 0.002 mg/l | Intermittent releases (fresh water) | | |
| | 0.00002 mg/l | Marine water | | |
| | 6 mg/l | STP | | |
| | 0.33 mg/kg | Freshwater sediments | | |
| | 0.033 mg/kg | Marine water sediments | | |
| | 0.067 mg/kg | Terrestrial compartment | | |

Derived No Effect Level (DNEL) values

| | Worker Industrial | Worker Professional | Consumer | Exposure Route | Exposure Frequency | Remark |
|--|--------------------------|----------------------------|-----------------|-----------------------|-----------------------------|---------------|
| Potassium dicyanoaurate (I) CAS: 13967-50-5 | | 0.071 mg/m3 | | Human Inhalation | Long Term, systemic effects | |
| | | 100 µg/kg bw/day | | Human Dermal | Long Term, systemic effects | |

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.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical State: N.A.

Appearance and colour: Yellow liquid

Odour: Odourless

Odour threshold: N.A.

pH: 3,70

Melting point / freezing point: N.A.

Initial boiling point and boiling range: N.A.

Flash point: > 93°C

Evaporation rate: N.A.

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

Vapour density: N.A.

Vapour pressure: N.A.

Relative density: 1,09 kg/l

Solubility in water: N.A.

Solubility in oil: N.A.

SECTION 12: Ecological information

12.1. Toxicity

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

Eco-Toxicological Information:

Harmful to aquatic life with long lasting effects.

List of Eco-Toxicological properties of the product

The product is classified: Aquatic Chronic 3(H412)

List of Eco-Toxicological properties of the components

| Component | Ident. Numb. | Ecotox Data |
|-----------------------------|--|--|
| formic acid | CAS: 64-18-6 - EINECS: 200- 579-1 - INDEX: 607-001-00-0 | a) Aquatic acute toxicity : LC50 Fish Brachydanio rerio/poisson zèbre = 130 mg/l 96h |
| | | a) Aquatic acute toxicity : EC50 Algae Selenastrumcapricornutum = 1240 mg/l 17h |
| | | a) Aquatic acute toxicity : EC50 Daphnia magna Daphnia magna = 32.19 mg/l 48h |
| | | c) Bacteria toxicity : EC10 Bacteria Boues activées = 72 mg/l 13d |
| | | a) Aquatic acute toxicity : NOEC Daphnia magna Daphnia magna = 102 mg/l 21d |
| Potassium dicyanoaurate (I) | CAS: 13967-50- 5 - EINECS: 237-748-4 | a) Aquatic acute toxicity : LC50 Fish = 5.7 mg/l 96h |
| | | a) Aquatic acute toxicity : EC50 Shellfish Daphnia Magna > 0.2 mg/l 48h |
| | | a) Aquatic acute toxicity : EC50 Algae = 30 mg/l 72h |
| | | a) Aquatic acute toxicity : EC10 Algae = 6.4 mg/l 72h |

12.2. Persistence and degradability

| Component | Persistence/Degradability: | Value | Notes: |
|-----------------------------|----------------------------|---------------------|--------|
| Potassium dicyanoaurate (I) | Solubility in water | 143000. mg/l 000 | |

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. 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

Not classified as dangerous in the meaning of transport regulations.

14.1. UN number

N.A.

14.2. UN proper shipping name

N.A.

14.3. Transport hazard class(es)

N.A.

14.4. Packing group

N.A.

14.5. Environmental hazards

N.A.

14.6. Special precautions for user

N.A.

Road and Rail (ADR-RID):

N.A.

Air (IATA):

Sea (IMDG):

N.A.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

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. 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) 2015/830

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 |
|--------|--|
| EUH032 | Contact with acids liberates very toxic gas. |
| H290 | May be corrosive to metals. |
| H300 | Fatal if swallowed. |
| H302 | Harmful if swallowed. |
| H314 | Causes severe skin burns and eye damage. |

| | |
|------|---|
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H330 | Fatal if inhaled. |
| H335 | May cause respiratory irritation. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H412 | Harmful to aquatic life with long lasting effects. |

| Code | Hazard class and hazard category | Description |
|-------------|---|--|
| 2.16/1 | Met. Corr. 1 | Substance or mixture corrosive to metals, Category 1 |
| 3.1/2/Inhal | Acute Tox. 2 | Acute toxicity (inhalation), Category 2 |
| 3.1/2/Oral | Acute Tox. 2 | Acute toxicity (oral), Category 2 |
| 3.1/4/Oral | Acute Tox. 4 | Acute toxicity (oral), Category 4 |
| 3.2/1A | Skin Corr. 1A | Skin corrosion, Category 1A |
| 3.2/1B | Skin Corr. 1B | Skin corrosion, Category 1B |
| 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 |
| 3.4.2/1 | Skin Sens. 1 | Skin Sensitisation, Category 1 |
| 3.8/3 | STOT SE 3 | Specific target organ toxicity — single exposure, Category 3 |
| 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/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

| | |
|------------|--------------------|
| 3.1/4/Oral | Calculation method |
| 3.3/2 | Calculation method |
| 4.1/C3 | 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.

Paragraphs modified from the previous revision:

- Safety Data Sheet
- 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
- 2. HAZARDS IDENTIFICATION
- 3. COMPOSITION/INFORMATION ON INGREDIENTS
- 4. FIRST AID MEASURES
- 6. ACCIDENTAL RELEASE MEASURES
- 7. HANDLING AND STORAGE
- 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
- 9. PHYSICAL AND CHEMICAL PROPERTIES
- 11. TOXICOLOGICAL INFORMATION
- 12. ECOLOGICAL INFORMATION
- 14. TRANSPORT INFORMATION
- 15. REGULATORY INFORMATION
- 16. OTHER INFORMATION