

Safety Data Sheet



GT4A1N - Micron thick gold plating 1N 14 carat

Safety Data Sheet dated 6/20/2022 version 5

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: GT4A1N - Micron thick gold plating 1N 14 carat

Trade code: GT4A1N

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.

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

CENTRO ANTIVELENI OSPEDALE NIGUARDA CA' GRANDA

P.ZZA OSPEDALE MAGGIORE, 3 MILANO

Tel 02 66101029 Fax 02 64442768

AZIENDA OSPEDALIERA PAPA GIOVANNI XXIII PIAZZA OMS, 1 24127 BERGAMO

Tel 800 883300

CENTRO ANTIVELENI AZIENDA OSPEDALIERA S.G.BATTISTA - MOLINETTE DI TORINO

CORSO A.M. DOGLIOTTI, 14 TORINO

Tel 011 6637637 Fax 011 6672149

CEN.NAZ.INFORM.TOSSIC.FOND. S.MAUGERI CLINICA DEL LAVORO E DELLA RIABILITAZIONE

VIA A.FERRATA, 8 PAVIA

Tel A 0382 24444 Fax 02 64442769

SERV. ANTIV. - CEN.INTERDIPARTIMENTALE DI RICERCA SULLE INTOSSICAZIONI ACUTE DIP.DI FARMAC. E.MENEGHETTI UNIVERSITÀ DEGLI STUDI DI PADOVA

LARGO E.MENEGHETTI, 2 PADOVA

Tel 049 8275078 Fax 049 8270593

SERVIZIO ANTIVELENI SERV.PR.SOCC., ACCETT. E OSS. ISTITUTO SCIENTIFICO G. GASLINI

LARGO G. GASLINI, 5 GENOVA

Tel 010 5636245 Fax 010 3760873

CENTRO ANTIVELENI - U.O. TOSSICOLOGIA MEDICA AZIENZA OSPEDALIERA CAREGGI

VIALE G.B. MORGAGNI, 65 FIRENZE
Tel 055 4277238 Fax 055 4277925

CENTRO ANTIVELENI POLICLINICO A.GEMELLI - UNIVERSITA' CATTOLICA DEL SACRO CUORE
LARGO F.VITO, 1 ROMA
Tel 06 3054343 Fax 06 3051343

CENTRO ANTIVELENI - ISTITUTO DI ANESTESIOLOGIA E RIANIMAZIONE UNIVERSITÀ DEGLI STUDI DI ROMA LA SAPIENZA
VIALE DEL POLICLINICO, 155 ROMA
Tel 06 49970698 Fax 06 4461967

AZ. OSP. UNIV. FOGGIA
V.LE LUIGI PINTO, 1 71122 FOGGIA
Tel 0881 732326

CENTRO ANTIVELENI AZIENDA OSPEDALIERA A. CARDARELLI
VIA CARDARELLI, 9 NAPOLI
Tel 081 7472870 Fax 081 7472880

SECTION 2: Hazards identification



2.1. Classification of the substance or mixture

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

| | |
|-------------------|--|
| Acute Tox. 4 | Harmful if swallowed. |
| Resp. Sens. 1 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Skin Sens. 1 | May cause an allergic skin reaction. |
| Muta. 2 | Suspected of causing genetic defects. |
| Carc. 1A | May cause cancer by inhalation. |
| Repr. 1B | May damage the unborn child. |
| STOT RE 1 | Causes damage to organs through prolonged or repeated exposure. |
| 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



Danger

Hazard statements

| | |
|-------|--|
| H302 | Harmful if swallowed. |
| H317 | May cause an allergic skin reaction. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H341 | Suspected of causing genetic defects. |
| H350i | May cause cancer by inhalation. |
| H360D | May damage the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H412 | Harmful to aquatic life with long lasting effects. |

Precautionary statements

| | |
|------|---|
| P201 | Obtain special instructions before use. |
| P202 | Do not handle until all safety precautions have been read and understood. |

| | |
|-----------|--|
| P261 | Avoid breathing dust/fume/gas/mist/vapours/spray. |
| P280 | Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/... |
| P304+P340 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. |
| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
| P342+P311 | If experiencing respiratory symptoms: Call a POISON CENTER/doctor/... |

Contains

Nickel Sulfate Hexahydrate

Potassium dicyanoaurate (I)

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: GT4A1N - Micron thick gold plating 1N 14 carat

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

| Qty | Name | Ident. Numb. | Classification | Registration Number |
|------|-----------------------------|--|--|-----------------------|
| < 5% | Nickel Sulfate Hexahydrate | CAS:10101-97-0 EC:232-104-9 Index:028-009-00-5 | Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Muta. 2, H341; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Resp. Sens. 1, H334; Skin Sens. 1, H317; Carc. 1A, H350i; Repr. 1B, H360D, M-Chronic:1, M-Acute:1 | 01-2119439361-44-000 |
| < 5% | Indium Sulfate | CAS:13464-82-9 Index:236-689-1 | Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335 | |
| < 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:

Wash immediately with water.

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

N.A.

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.

Exercise the greatest care when handling or opening the container.

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/m ³ | Long Term ppm | Short Term mg/m ³ | Short Term ppm | Notes |
|----------------|----------|---------|-----------------------------|---------------|------------------------------|----------------|-------|
| Nickel Sulfate | ACGIH | | 0.100000 | | | | |

Hexahydrate
CAS: 10101-97-0

Indium Sulfate ACGIH 0.100000
CAS: 13464-82-9

Potassium dicyanoaurate IOELV C 5.000000 EU (Dir 2017/164) for HCN
(I)
CAS: 13967-50-5

IOELV 9.000 4.500 EU (Dir 2017/164) for HCN

Predicted No Effect Concentration (PNEC) values

| | PNEC Limit | Exposure Route | Exposure Frequency | Remark |
|--|-------------------|-------------------------------------|---------------------------|--------------------|
| Nickel Sulfate Hexahydrate CAS: 10101-97-0 | 0.0071 | Fresh Water | | |
| | 0.0086 | Marine water | | |
| | 29.9 | Terrestrial | | |
| | 0.33 | STP | | |
| | 136 | Freshwater | | |
| | 109 | Marine water | | |
| | 120 | Secondary poisoning | | food for predators |
| Potassium dicyanoaurate (I) CAS: 13967-50-5 | 0.0002 | Fresh Water | | |
| | 0.002 | Intermittent releases (fresh water) | | |
| | 0.00002 | Marine water | | |
| | 6 | STP | | |
| | 0.33 | Freshwater | | |
| | 0.033 | Marine water | | |
| | 0.067 | Terrestrial | | |

Derived No Effect Level (DNEL) values

| | Worker Industrial | Worker Professional | Consumer | Exposure Route | Exposure Frequency | Remark |
|---|--------------------------|----------------------------|-----------------|-----------------------|------------------------------|---------------|
| Nickel Sulfate Hexahydrate CAS: 10101-97-0 | 0.05 | 0.00006 | 0.00006 | Human Inhalation | Long Term, systemic effects | |
| | 104 | 8.8 | 8.8 | Human Inhalation | Short Term, systemic effects | |
| | 0.05 | 0.00006 | 0.00006 | Human Inhalation | Long Term, local effects | |
| | 1.6 | 0.1 | 0.1 | Human Inhalation | Short Term, local effects | |

| | | | |
|---|------------------------|---------------------|---------------------------------|
| | 0.00044 mg/cm2 | Human Dermal | Long Term, local effects |
| | 11 µg/kg bw/day | Human Oral | Long Term, systemic effects |
| | 370 µg/kg bw/day | Human Oral | Short Term, systemic effects |
| 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:

Use adequate protective respiratory equipment.

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: Liquid

Appearance and colour: Green Liquid

Odour: Typical

Odour threshold: N.A.

pH: 3,50

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: N.A.

Solubility in water: N.A.

Solubility in oil: N.A.

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

Auto-ignition temperature: N.A.

Decomposition temperature: N.A.

Viscosity: N.A.

Explosive properties: Not explosive

Oxidizing properties: N.A.

Solid/gas flammability: Not flammable

9.2. Other information

VOC N.A.

Substance Groups relevant properties N.A.

Miscibility: N.A.

Conductivity: N.A.

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.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological Information of the Preparation

| | |
|--------------------------------------|--|
| a) acute toxicity | The product is classified: Acute Tox. 4(H302) |
| b) skin corrosion/irritation | Not classified Based on available data, the classification criteria are not met |
| c) serious eye damage/irritation | Not classified Based on available data, the classification criteria are not met |
| d) respiratory or skin sensitisation | The product is classified: Resp. Sens. 1(H334), Skin Sens. 1(H317) |
| e) germ cell mutagenicity | The product is classified: Muta. 2(H341) |
| f) carcinogenicity | The product is classified: Carc. 1A(H350) |
| g) reproductive toxicity | The product is classified: Repr. 1B(H360) |
| h) STOT-single exposure | Not classified Based on available data, the classification criteria are not met |
| i) STOT-repeated exposure | The product is classified: STOT RE 1(H372) |
| j) aspiration hazard | Not classified Based on available data, the classification criteria are not met |

Toxicological information on main components of the mixture:

| | | | |
|-----------------------------|--------------------|------------------------------------|---------------------------------------|
| Nickel Sulfate Hexahydrate | a) acute toxicity | LC50 Inhalation Rat = 2.48 mg/l 4h | OECD |
| | | LD50 Oral Rat = 361 mg/kg | OECD-425 |
| | f) carcinogenicity | Carcinogenicity Oral Rat | 2 years treatment: Keratoacanthoma |
| Potassium dicyanoaurate (I) | a) acute toxicity | LD50 Oral Rat = 29.2 | |
| | | LD50 Skin Rat > 2000 | |

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 |
|----------------------------|---------------------------------------|--|
| Nickel Sulfate Hexahydrate | CAS: 10101-97-0 - EINECS: 232-104-9 - | a) Aquatic acute toxicity : LC50 Fish Rainbow trout = 15.3 mg/l 96 |

INDEX: 028-009-00-5

a) Aquatic acute toxicity : EC50 Shellfish Daphnia magna = 6.68 mg/l 48

a) Aquatic acute toxicity : EC50 Algae Pseudokirchneriella subcapitata = 81.5 mg/l 72

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 | Persitence/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. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force.

SECTION 14: Transport information

14.1. UN number

N/A

14.2. UN proper shipping name

ADR-Shipping Name: N/A

IATA-Technical name: N/A

IMDG-Technical name: N/A

14.3. Transport hazard class(es)

ADR-Class: N/A

IATA-Class: N/A

IMDG-Class: N/A

14.4. Packing group

ADR-Packing Group: N/A

IATA-Packing group: N/A

IMDG-Packing group: N/A

14.5. Environmental hazards

Toxic ingredients quantity: 0,00

Very toxic ingredients quantity: 0,00

No

Environmental Pollutant: No

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: N/A

ADR - Hazard identification number: N/A

ADR-Special Provisions: N/A

ADR-Transport category (Tunnel restriction code): N/A

Air (IATA):

IATA-Passenger Aircraft: N/A
IATA-Cargo Aircraft: N/A
IATA-Label: N/A
IATA-Subsidiary hazards: N/A
IATA-Erg: N/A
IATA-Special Provisions: N/A

Sea (IMDG):

IMDG-Stowage Code: N/A
IMDG-Stowage Note: N/A
IMDG-Subsidiary hazards: N/A
IMDG-Special Provisions: N/A
IMDG-Page: N/A
IMDG-Label: N/A
IMDG-EMS: N/A
IMDG-MFAG: 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):

Seveso III category according to Annex 1, part 1

| | Lower-tier threshold (tonnes) | Upper-tier threshold (tonnes) |
|---------------------------------|--------------------------------------|--------------------------------------|
| Product belongs to category: E2 | 200 | 500 |
| Product belongs to category: H2 | 50 | 200 |

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. |
| 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. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H335 | May cause respiratory irritation. |
| H341 | Suspected of causing genetic defects. |
| H350i | May cause cancer by inhalation. |
| H360D | May damage the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| 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/Inhal | Acute Tox. 4 | Acute toxicity (inhalation), Category 4 |
| 3.1/4/Oral | Acute Tox. 4 | Acute toxicity (oral), Category 4 |
| 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 |
| 3.4.1/1 | Resp. Sens. 1 | Respiratory Sensitisation, Category 1 |
| 3.4.2/1 | Skin Sens. 1 | Skin Sensitisation, Category 1 |
| 3.5/2 | Muta. 2 | Germ cell mutagenicity, Category 2 |
| 3.6/1A | Carc. 1A | Carcinogenicity, Category 1A |
| 3.7/1B | Repr. 1B | Reproductive toxicity, Category 1B |
| 3.8/3 | STOT SE 3 | Specific target organ toxicity — single exposure, Category 3 |
| 3.9/1 | STOT RE 1 | Specific target organ toxicity — repeated exposure, Category 1 |
| 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 |
| 3.4.1/1 | Calculation method |
| 3.4.2/1 | Calculation method |
| 3.5/2 | Calculation method |
| 3.6/1A | Calculation method |
| 3.7/1B | Calculation method |
| 3.9/1 | Calculation method |
| 4.1/C3 | Calculation method |

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

Main bibliographic sources:

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
- 16. OTHER INFORMATION