Safety Data Sheet

GP1-2N - READY TO USE GOLD PEN PLATING SOLUTION 1G/100ML GOLD 2N COLOR

Safety Data Sheet dated 12/16/2024 version 4

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: GP1-2N - READY TO USE GOLD PEN PLATING SOLUTION 1G/100ML GOLD 2N COLOR

Trade code: GP1-2N

Product type and use: Gold plating solution for pen application

Registration Number N/A

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

Recommended use: For electroplating industry; For jewelry industry; For metallic surface treatment

Uses advised against: All other uses not intended for the electroplating and jewellery industry are not recommended.

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 ANTIVELENO: "Ospedale Pediatrico Bambino Gesù" – Roma
Tel. (+39) 06.6859.3726

CENTRO ANTIVELENO: "Azienda Ospedaliera Università di Foggia" – Foggia
Tel. 800.183.459

CENTRO ANTIVELENO: "Azienda Ospedaliera A. Cardarelli" – Napoli
Tel. (+39) 081.545.3333

CENTRO ANTIVELENO: Policlinico "Umberto I" – Roma
Tel. (+39) 06.4997.8000

CENTRO ANTIVELENO: Policlinico "A. Gemelli" – Roma
Tel. (+39) 06.305.4343

CENTRO ANTIVELENO: Azienda Ospedaliera "Careggi" U.O. Tossicologia Medica – Firenze
Tel. (+39) 055.794.7819

CENTRO ANTIVELENO: Centro Nazionale di Informazione Tossicologica – Pavia
Tel. (+39) 0382.24.444

CENTRO ANTIVELENO: Ospedale Niguarda – Milano
Tel. (+39) 02.66.1010.29

CENTRO ANTIVELENO: Azienda Ospedaliera Papa Giovanni XXIII – Bergamo
Tel. 800.88.33.00

CENTRO ANTIVELENO Centro Antiveleni Veneto – Verona
Tel. 800.011.858

SECTION 2: Hazards identification


2.1. Classification of the substance or mixture

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

Acute Tox. 3	Toxic if swallowed.
Acute Tox. 4	Harmful if inhaled.
Eye Irrit. 2	Causes serious eye irritation.
Aquatic Chronic 2	Toxic to aquatic life with long lasting effects.
Skin Sens. 1	May cause an allergic skin reaction.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

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

Pictograms and Signal Words

Danger

Hazard statements

H301	Toxic if swallowed.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statements

P261	Avoid breathing dust/fume/gas/mist/vapours/spray.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER.
P391	Collect spillage.

Special Provisions:

EUH032	Contact with acids liberates very toxic gas.

Contains

Potassium dicyanoaurate (I)

Potassium cyanide

EDTA bisodic salt

Copper (I) cyanide

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 >= 0.1%

Other Hazards: No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Mixture identification: GP1-2N - READY TO USE GOLD PEN PLATING SOLUTION 1G/100ML GOLD 2N COLOR

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

Qty	Name	Ident. Numb.	Classification	Registration Number
≥1 - <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-xxxx
≥1 - <5 %	EDTA bisodic salt	CAS:139-33-3 EC:205-358-3	Acute Tox. 4, H332; STOT RE 2, H373	01-2119486775-20-xxxx
≥0.1 - <1 %	Potassium cyanide	CAS:151-50-8 EC:205-792-3 Index:006-007-00-5	Met. Corr. 1, H290; Acute Tox. 1, H310; Acute Tox. 1, H330; Acute Tox. 1, H300; STOT RE 1, H372; Aquatic Acute 1, H400; Aquatic Chronic 1, H410, M-Chronic:1, M-Acute:10, EUH032	01-2119486407-99-xxxx
≥0.1 - <1 %	Copper (I) cyanide	CAS:544-92-3 EC:208-883-6 Index:006-007-00-5	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330; STOT RE 2, H373, M-Chronic:10, M-Acute:10, EUH032	01-2120801734-60-xxxx
≥0.1 - <1 %	Potassium silver cyanide	CAS:506-61-6 EC:208-047-0 Index:006-007-00-5	Aquatic Acute 1, H400; Aquatic Chronic 1, H410; Acute Tox. 2, H300; Acute Tox. 1, H310; Acute Tox. 2, H330, EUH032	01-2120753799-33-xxxx

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 immediatley 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 opthalmologist immediately.

Protect uninjured eye.

In case of Ingestion:

Give nothing to eat or drink.

In case of Inhalation:

If breathing is irregular or stopped, administer artificial respiration.

In case of inhalation, consult a doctor immediately and show him packing or label.

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:

Alkali powder quenching agent.

Extinguishing media which must not be used for safety reasons:

Carbon dioxide (CO2), High volume water jet, acidic quenching agents.

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

For non emergency personnel:

Wear personal protection equipment.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Provide adequate ventilation.

Use appropriate respiratory protection.

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.

Use localized ventilation system.

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.

Contamined 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:

Keep away from acids.

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	Country	Occupational Exposure Limit
Potassium dicyanoaurate (I) CAS: 13967-50-5	EU		Long Term: 1 mg/m3 - 0.9 ppm; Short Term: 5 mg/m3 - 4.5 ppm Skin, related to cyanide in HCN - EU (Dir 2017/164)
Potassium cyanide CAS: 151-50-8	EU		Long Term: 1 mg/m3; Short Term: 5 mg/m3 Skin
	ACGIH		Ceiling - Short Term: 5 mg/m3 Skin - URT irr, headache, nausea, thyroid eff
	TLV	ITALY	Long Term: 1 mg/m3; Short Term: 5 mg/m3
Copper (I) cyanide CAS: 544-92-3	ACGIH		Ceiling - Short Term: 5 mg/m3 Related to cyanide

Predicted No Effect Concentration (PNEC) values

Potassium dicyanoaurate (I) CAS: 13967-50-5	Exposure Route: Fresh Water; PNEC Limit: 0.0002 mg/l
	Exposure Route: Intermittent releases (fresh water); PNEC Limit: 0.002 mg/l
	Exposure Route: Marine water; PNEC Limit: 0.00002 mg/l
	Exposure Route: STP; PNEC Limit: 6 mg/l
	Exposure Route: Freshwater sediments; PNEC Limit: 0.33 mg/kg
	Exposure Route: Marine water sediments; PNEC Limit: 0.033 mg/kg
	Exposure Route: Terrestrial compartment; PNEC Limit: 0.067 mg/kg
EDTA bisodic salt CAS: 139-33-3	Exposure Route: Fresh Water; PNEC Limit: 2.2 mg/l
	Exposure Route: Marine water; PNEC Limit: 0.22 mg/l
	Exposure Route: Intermittent release; PNEC Limit: 1.2 mg/l
	Exposure Route: Soil; PNEC Limit: 0.72 mg/kg
	Exposure Route: Local treatment plants; PNEC Limit: 43 mg/kg
Potassium cyanide CAS: 151-50-8	Exposure Route: Fresh Water; PNEC Limit: 0.001 mg/l
	Exposure Route: Marine water; PNEC Limit: 0.001 mg/l
	Exposure Route: Intermittent release; PNEC Limit: 0.005 mg/l
	Exposure Route: Microorganisms in sewage treatments; PNEC Limit: 0.05 mg/l
	Exposure Route: Freshwater sediments; PNEC Limit: 0.004 mg/kg Remark: (dry weight)
	Exposure Route: Marine water sediments; PNEC Limit: 0.004 mg/kg Remark: (dry weight)
	Exposure Route: Soil; PNEC Limit: 0.007 mg/kg Remark: (dry weight)
Copper (I) cyanide CAS: 544-92-3	Exposure Route: Fresh Water; PNEC Limit: 220 ng/l
	Exposure Route: Marine water; PNEC Limit: 22 ng/l
	Exposure Route: STP; PNEC Limit: 360 ug/l
	Exposure Route: Freshwater sediments; PNEC Limit: 12.7 mg/kg sediment dw
	Exposure Route: Marine water sediments; PNEC Limit: 1.27 mg/kg sediment dw

Derived No Effect Level (DNEL) values

Potassium dicyanoaurate (I) CAS: 13967-50-5	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Professional: 0.071 mg/m3
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Professional: 100 µg/kg bw/day
EDTA bisodic salt CAS: 139-33-3	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, local effects Worker Industry: 1.5 mg/m3; Consumer: 0.6 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Industry: 1.5 mg/m3; Consumer: 0.6 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, local effects Worker Industry: 3 mg/m3; Consumer: 1.2 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Worker Industry: 3 mg/m3; Consumer: 1.2 mg/m3
	Exposure Route: Human Oral; Exposure Frequency: Long Term, systemic effects Consumer: 25 mg/kg
Potassium cyanide CAS: 151-50-8	Exposure Route: Human Dermal; Exposure Frequency: Acute sistemic Worker Industry: 4.03 mg/kg Remark: Acute toxicity
	Exposure Route: Human Inhalation; Exposure Frequency: Acute sistemic Worker Industry: 12.5 mg/m3 Remark: Acute toxicity

	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Industry: 0.14 mg/kg Remark: Repeated dose toxicity
	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Industry: 0.94 mg/m3 Remark: Repeated dose toxicity
Copper (I) cyanide CAS: 544-92-3	Exposure Route: Human Inhalation; Exposure Frequency: Long Term, systemic effects Worker Industry: 0.47 mg/m3
	Exposure Route: Human Inhalation; Exposure Frequency: Short Term, systemic effects Worker Industry: 2.82 mg/m3
	Exposure Route: Human Dermal; Exposure Frequency: Long Term, systemic effects Worker Industry: 130 mg/kg bw/d

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:

In presence of hydrogen cyanide: Wear self-contained breathing apparatus EN 136. Observe the maximum times of use of respiratory protection. If dust/aerosols are present: respirator with combination filter B-P3 or respirator with combination filter ABEK-P3.

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

Color: Colourless

Odour: Like: cyanides

Odour threshold: N.A.

pH: 8,00

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: 1,05 g/cm3

Solubility in water: Total

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.

Evaporation rate: N.A.

No other relevant information

SECTION 10: Stability and reactivity

10.1. Reactivity

Under the action of acids (as well as carbon dioxide !) hydrocyanic acid is released which is extremely toxic, combustible and may react with air to explosive gas mixtures.

10.2. Chemical stability

Data not available.

10.3. Possibility of hazardous reactions

In contact with acids and carbon dioxide it develops hydrocyanic acid.

10.4. Conditions to avoid

Stable under normal conditions.

10.5. Incompatible materials

Acids

10.6. Hazardous decomposition products

HCN, cyanidric acid

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	The product is classified: Acute Tox. 3(H301), Acute Tox. 4(H332)
	ATE Oral = 300
b) skin corrosion/irritation	Not classified
	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	The product is classified: Skin Sens. 1(H317)
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:

Potassium dicyanoaurate (I)	a) acute toxicity	LD50 Oral Rat = 29.2 mg/kg bw	
		LD50 Skin Rat > 2000 mg/kg bw	
		ATE Inhalation = 51 mg/m3	0,051 mg/l (inhalation of mist/dust)
EDTA bisodic salt	a) acute toxicity	LD50 Oral Rat < 5000 mg/kg	
		LC50 Inhalation Rat < 5 mg/l 6h	
Potassium cyanide	a) acute toxicity	LD50 Oral Rat = 7.49 mg/kg	
		LC50 Inhalation Rat = 63 Ppm 1h	
		LD50 Skin Rabbit = 33 mg/kg	
		LD50 Oral Dog = 1.4 mg/kg	
		LC50 Inhalation = 0.103 mg/l 4h	
		ATE Oral = 0.5 mg/kg	
		ATE Inhalation = 5 mg/m3	0.005 mg/l
	i) STOT-repeated exposure	No Observed Adverse Effect Level Oral Rat = 31.28 mg/kg 13 weeks	drinking-water study

Copper (I) cyanide	a) acute toxicity	LD50 = 2000 mg/kg bw	
		LD50 Oral = 8.35 mg/kg	
		ATE = 5 mg/kg	skin
		ATE Inhalation = 0.051	mg/l

11.2. Information on other hazards

Endocrine disrupting properties:

No endocrine disruptor substances present in concentration >= 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
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
EDTA bisodic salt	CAS: 139-33-3 - EINECS: 205-358-3	a) Aquatic acute toxicity : LC50 Fish Lepomis macrochirus > 100 mg/l 96h - ,,(OPP 72-1 (EPA direttive), statico)
		a) Aquatic acute toxicity : EC50 Daphnia magna > 100 mg/l 48h - ,,(DIN 38412 parte 11, statico)
		e) Plant toxicity : EC50 Algae Scenedesmus subspicatus > 100 mg/l 72h - ,,(Direttiva 88/302/CEE, parte C, p 89, statico)
		b) Aquatic chronic toxicity : NOEC Fish Brachydanio rerio >= 36.9 mg/l 35d - ,,(Linea Guida OECD 210, Flusso.)
		d) Terrestrial toxicity : LC50 Eisenia foetida = 156 mg/kg 13d - ,,(OECD - linea guida 207, suolo artificiale)
Potassium cyanide	CAS: 151-50-8 - EINECS: 205-792-3 - INDEX: 006-007-00-5	a) Aquatic acute toxicity : LC50 Fish = 0.045 mg/l 96h
		a) Aquatic acute toxicity : EC50 Daphnia = 0.083 mg/l 48h
		a) Aquatic acute toxicity : EC10 Algae = 0.158 mg/l 72h
		a) Aquatic acute toxicity : EC50 Algae = 0.331 mg/l 72h
		a) Aquatic acute toxicity : LC0 Fish Oncorhynchus mykiss = 0.042 mg/l 96h
		a) Aquatic acute toxicity : EC50 Daphnia magna = 0.041 mg/l 48h
		a) Aquatic acute toxicity : EC10 Shellfish Moinodaphnia = 0.022 mg/l
		a) Aquatic acute toxicity : NOEC Fish = 0.006 mg/l
Copper (I) cyanide	CAS: 544-92-3 - EINECS: 208-883-6 - INDEX: 006-007-00-5	a) Aquatic acute toxicity : LC50 Fish = 620 ug/l 96h
		a) Aquatic acute toxicity : NOEC Fish = 300 µg/L 96h

12.2. Persistence and degradability

Component	Persitence/Degradability:	Value	Notes:
Potassium dicyanoaurate (I)	Solubility in water	143000. mg/l	

000

12.3. Bioaccumulative potential

Component	Bioaccumulation	Test	Duration	Value
EDTA bisodic salt	BCF	BCF - Bioconcentrantion factor	28d	1.800
Potassium cyanide	BCF	BCF - Bioconcentrantion factor		0.300

12.4. Mobility in soil

Component	Mobility in soil
Potassium cyanide	Mobile

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 >= 0.1%

12.7. Other adverse effects

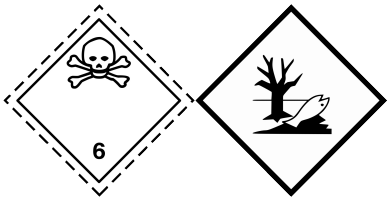
N.A.

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 or ID number

1935

14.2. UN proper shipping name

ADR-Shipping Name: CYANIDE SOLUTION, N.O.S. (Potassium cyanide - Potassium dicyanoaurate (I))
IATA-Technical name: CYANIDE SOLUTION, N.O.S. (Potassium cyanide, Potassium dicyanoaurate (I))
IMDG-Technical name: CYANIDE SOLUTION, N.O.S. (Potassium cyanide, Potassium dicyanoaurate (I))

14.3. Transport hazard class(es)

ADR-Class: 6.1
IATA-Class: 6.1
IMDG-Class: 6.1

14.4. Packing group

ADR-Packing Group: II
IATA-Packing group: II
IMDG-Packing group: II

14.5. Environmental hazards

Yes

Environmental Pollutant: Yes

14.6. Special precautions for user

Road and Rail (ADR-RID):

ADR-Label: 6.1
ADR - Hazard identification number: 60
ADR-Special Provisions: 274 525
ADR-Transport category (Tunnel restriction code): 2 (D/E)

Air (IATA):

IATA-Passenger Aircraft: 654
IATA-Cargo Aircraft: 661
IATA-Label: 6.1

IATA-Subsidiary hazards: -
IATA-Erg: 6L
IATA-Special Provisions: A3

Sea (IMDG):

IMDG-Stowage Code: Category A SW2
IMDG-Stowage Note: SG35 SGG6
IMDG-Subsidiary hazards: -
IMDG-Special Provisions: 274
IMDG-EMS: F-A, S-A
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: None.

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: H2	50	200
Product belongs to category: E2	200	500

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

No substances listed

German Water Hazard Class.

Class 3: extremely hazardous.

SVHC Substances:

No SVHC substances present in concentration >= 0.1%

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.
H301	Toxic if swallowed.
H310	Fatal in contact with skin.
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.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs (Respiratory system) through prolonged or repeated exposure if inhaled.
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.

Code	Hazard class and hazard category	Description
2.16/1	Met. Corr. 1	Substance or mixture corrosive to metals, Category 1
3.1/1/Dermal	Acute Tox. 1	Acute toxicity (dermal), Category 1
3.1/1/Inhal	Acute Tox. 1	Acute toxicity (inhalation), Category 1
3.1/1/Oral	Acute Tox. 1	Acute toxicity (oral), 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
3.1/3/Oral	Acute Tox. 3	Acute toxicity (oral), Category 3
3.1/4/Inhal	Acute Tox. 4	Acute toxicity (inhalation), 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
3.4.2/1	Skin Sens. 1	Skin Sensitisation, Category 1
3.9/1	STOT RE 1	Specific target organ toxicity — repeated exposure, Category 1
3.9/2	STOT RE 2	Specific target organ toxicity — repeated exposure, 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

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
3.1/3/Oral	Calculation method
3.1/4/Inhal	Calculation method
3.3/2	Calculation method
4.1/C2	Calculation method
3.4.2/1	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:

- 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING
- 2. HAZARDS IDENTIFICATION
- 3. COMPOSITION/INFORMATION ON INGREDIENTS
- 4. FIRST AID MEASURES

- 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