

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Gold electrolyte - Midas

Revision date: 29.03.2021

Product code: 0123

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Gold electrolyte - Midas

UFI: Q6NY-FA50-E002-J4E0

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

Electroplating

1.3. Details of the supplier of the safety data sheet

Company name:	MARAWE GmbH & Co. KG	
Street:	Donaustauer Str. 378 - Gebäude 64	
Place:	D-93055 Regensburg	
Telephone:	0941 / 29020439	Telefax: 0941 / 29020593
e-mail:	info@marawe.de	
Contact person:	Dr. Peter Raster, Dr. Stefan Weiss, Dr. Jonas Mark	
e-mail:	info@marawe.de	
Internet:	www.marawe.de	

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

Hazard categories:

Acute toxicity: Acute Tox. 4

Hazardous to the aquatic environment: Aquatic Chronic 3

Hazard Statements:

Harmful if swallowed.

Harmful to aquatic life with long lasting effects.

2.2. Label elements**Regulation (EC) No. 1272/2008****Hazard components for labelling**

Potassium cyanide

Signal word: Warning**Pictograms:****Hazard statements**

H302 Harmful if swallowed.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.
P264	Wash Hände thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.
P330	Rinse mouth.

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P501 Dispose of contents/container to sachgerechter Entsorgung.

Special labelling of certain mixtures

EUH032 Contact with acids liberates very toxic gas.
 EUH208 Contains Gold (I) chloride. May produce an allergic reaction.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components

CAS No	Chemical name	Quantity
	EC No	
	Index No	
	REACH No	
	GHS Classification	
77-92-9	Citric acid	5 - < 10 %
	201-069-1	
	Eye Irrit. 2; H319	
584-08-7	Potassiumcarbonat	1.9 - < 5 %
	231-665-7	
	Skin Irrit. 2, Eye Irrit. 2, STOT SE 3; H315 H319 H335	
10294-29-8	Gold (I) chloride	< 1 %
	233-655-8	
	Met. Corr. 1, Skin Corr. 1B, Skin Sens. 1; H290 H314 H317	
151-50-8	Potassium cyanide	< 1 %
	205-792-3	
	Acute Tox. 1, Acute Tox. 2, Acute Tox. 2, Aquatic Acute 1, Aquatic Chronic 1; H310 H330 H300 H400 H410 EUH032	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
77-92-9	201-069-1	Citric acid	5 - < 10 %
		oral: LD50 = 3000 mg/kg	
151-50-8	205-792-3	Potassium cyanide	< 1 %
		inhalation: ATE = 0,5 mg/l (vapours); inhalation: ATE = 0,05 mg/l (dusts or mists); dermal: LD50 = 14,3 mg/kg; oral: LD50 = 7,5 mg/kg	

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means. The substance contains cyanide. 4-Dimethylaminophenole or thiosulfate can be used as antidot.

After inhalation

Provide fresh air. If breathing is irregular or stopped, administer artificial respiration. No mouth-to-mouth or mouth-to-nose resuscitation. Use Ambu bag or ventilator. Call a physician immediately.

After contact with skin

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

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After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an ophthalmologist.

After ingestion

Rinse mouth immediately and drink plenty of water. Induce vomiting when the affected person is not unconscious. Medical treatment necessary.

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

shortage of breath.

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

Treat symptomatically. The substance contains cyanide. 4-Dimethylaminophenole or thiosulfate can be used as antidot.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Co-ordinate fire-fighting measures to the fire surroundings.

5.2. Special hazards arising from the substance or mixture

Non-flammable. Hydrocyanic acid can be released.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. The substance contains cyanide. 4-Dimethylaminophenole or thiosulfate can be used as antidot.

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

Other information

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. The electrolyte can release HCN if it has contact with acids. Therefore it may not be put in contact with acids. For appropriate disposal it may not be given to acidic waste.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

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7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Provide adequate ventilation.

Hints on joint storage

Do not store together with: Acid. Store separately from acids.

7.3. Specific end use(s)

Metal surface treatment products

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
-	Cobalt and cobalt compounds (as Co)	-	0.1		TWA (8 h)	WEL
151-50-8	Potassium cyanide (as cyanide)	-	1		TWA (8 h)	WEL
		-	5		STEL (15 min)	WEL

8.2. Exposure controls

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme.

Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

Eye/face protection

Wear eye protection/face protection.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Skin protection

Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Liquid

Colour: violet

pH-Value (at 25 °C): 3,5-4

Changes in the physical state

Melting point: not determined

Boiling point or initial boiling point and boiling range: not determined

Flash point: not determined

Flash point: not determined

Flammability

Solid/liquid: not applicable

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Gas:	not applicable
Lower explosion limits:	not determined
Upper explosion limits:	not determined
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Decomposition temperature:	not determined
Oxidizing properties	
Not oxidising.	
Vapour pressure:	not determined
Density:	not determined
Water solubility:	easily soluble
Solubility in other solvents	
not determined	
Partition coefficient n-octanol/water:	not determined
Relative vapour density:	not determined
Evaporation rate:	not determined
<u>9.2. Other information</u>	
Solid content:	not determined

SECTION 10: Stability and reactivity**10.1. Reactivity**

Decomposition with: Acid.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

The electrolyte can release HCN if it has contact with acids. Therefore it may not be put in contact with acids.
For appropriate disposal it may not be given to acidic waste.

10.4. Conditions to avoid

heat.

10.5. Incompatible materials

Do not mix with acids.

10.6. Hazardous decomposition products

Contact with acids liberates toxic gas. Hydrocyanic acid can be released.

SECTION 11: Toxicological information**11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute toxicity**

Harmful if swallowed.

ATEmix calculated

ATE (oral) 1415,1 mg/kg

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
77-92-9	Citric acid				
	oral	LD50 3000 mg/kg	Ratte	Toxnet	
151-50-8	Potassium cyanide				
	oral	LD50 7,5 mg/kg	Rat	Merck	
	dermal	LD50 14,3 mg/kg	Rabbit	Merck	
	inhalation vapour	ATE 0,5 mg/l			
	inhalation aerosol	ATE 0,05 mg/l			

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Contains Gold (I) chloride. May produce an allergic reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information

12.1. Toxicity

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
77-92-9	Citric acid					
	Acute fish toxicity	LC50 440-760 mg/l	96 h	Leuciscus idus (Goldorfe)	IUCLID	
	Acute crustacea toxicity	EC50 120 mg/l	48 h	Daphnia magna (Großer Wasserfloh)	IUCLID	
	Acute bacteria toxicity	(10000 mg/l mg/l)				
151-50-8	Potassium cyanide					
	Acute fish toxicity	LC50 0,099 mg/l	96 h			
	Acute algae toxicity	ErC50 0,03 mg/l	96 h			
	Acute crustacea toxicity	EC50 0,11 mg/l	48 h			

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

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12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The product has not been tested.

12.7. Other adverse effects

No information available.

Further information

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

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation.

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information**Land transport (ADR/RID)**

<u>14.1. UN number:</u>	UN 3082
<u>14.2. UN proper shipping name:</u>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
<u>14.3. Transport hazard class(es):</u>	9
<u>14.4. Packing group:</u>	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	90
Tunnel restriction code:	E

Inland waterways transport (ADN)

<u>14.1. UN number:</u>	UN 3082
<u>14.2. UN proper shipping name:</u>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
<u>14.3. Transport hazard class(es):</u>	9
<u>14.4. Packing group:</u>	III
Hazard label:	9
Classification code:	M6
Special Provisions:	274 335 375 601
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

<u>14.1. UN number:</u>	UN 3082
<u>14.2. UN proper shipping name:</u>	UMWELTGEFÄHRDENDER STOFF, FLÜSSIG, N.A.G.
<u>14.3. Transport hazard class(es):</u>	9
<u>14.4. Packing group:</u>	III
Hazard label:	9

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Special Provisions:	274, 335, 969
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-F

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number:	UN 1935
14.2. UN proper shipping name:	CYANIDE SOLUTION, N.O.S.
14.3. Transport hazard class(es):	6.1
14.4. Packing group:	II
Hazard label:	6.1
Special Provisions:	A3
Limited quantity Passenger:	1 L
Passenger LQ:	Y641
Excepted quantity:	E4
IATA-packing instructions - Passenger:	654
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	661
IATA-max. quantity - Cargo:	60 L

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):
Entry 3, Entry 28

National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).
Water hazard class (D):	2 - obviously hazardous to water
Skin resorption/Sensitization:	Causes allergic hypersensitivity reactions.

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information**Abbreviations and acronyms**

ADR: Accord européen sur le transport des marchandises dangereuses par Route
(European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%

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Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure
Acute Tox. 4; H302	Calculation method
Aquatic Chronic 3; H412	Calculation method

Relevant H and EUH statements (number and full text)

H290	May be corrosive to metals.
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
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.
EUH032	Contact with acids liberates very toxic gas.
EUH208	Contains Gold (I) chloride. May produce an allergic reaction.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)