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

1.1. Product identifier

Gold electrolyte flash

UFI: 9VJM-DAXG-K000-8Y30

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

Use of the substance/mixture

Galvanic gold-plating

Uses advised against

No further relevant information available.

1.3. Details of the supplier of the safety data sheet

Company name:	MARAWE GmbH & Co. KG	
Street:	Donaustaufer Str. 378 - Gebäude 64	
Place:	D-93055 Regensburg	
Telephone:	+49 941 / 29020439	Telefax: +49 941 / 29020593
e-mail:	info@marawe.de	
Contact person:	Product safety department	
Internet:	www.marawe.de	

1.4. Emergency telephone number:

+49 941 / 29020439,
Mon-Thu 9:00 - 16:00; Fri 9:00 - 14:00

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

Met. Corr. 1; H290
Acute Tox. 4; H302
Acute Tox. 4; H312
Acute Tox. 4; H332
Aquatic Chronic 3; H412

Full text of hazard statements: see SECTION 16.

2.2. Label elements

GB CLP Regulation

Hazard components for labelling

phosphoric acid; orthophosphoric acid
potassium tetracyanoaurate(III)

Signal word: Warning

Pictograms:

Hazard statements

H290	May be corrosive to metals.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
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.

P234	Keep only in original packaging.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P501	Dispose of contents/container to an appropriate recycling or disposal facility according to local/national regulations.

Special labelling of certain mixtures

EUH032	Contact with acids liberates very toxic gas.
EUH208	Contains cobalt(II) propionate. 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	
	Classification (GB CLP Regulation)			
7664-38-2	phosphoric acid; orthophosphoric acid			5 - < 10 %
	231-633-2		01-2119485924-24	
	Met. Corr. 1, Acute Tox. 4, Skin Corr. 1B, Eye Dam. 1; H290 H302 H314 H318			
14263-59-3	potassium tetracyanoaurate(III)			< 1 %
	238-145-9			
	Met. Corr. 1, Acute Tox. 1, Acute Tox. 1, Acute Tox. 2, Skin Irrit. 2, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H290 H330 H310 H300 H315 H318 H400 H410 EUH032			
1560-69-6	cobalt(II) propionate			< 1 %
	216-333-1			
	Repr. 1B, Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2, Skin Sens. 1A, Aquatic Acute 1, Aquatic Chronic 2; H360Fd H332 H302 H319 H317 H400 H411			
79-09-4	propionic acid			< 1 %
	201-176-3			
	Flam. Liq. 3, Skin Corr. 1B, Eye Dam. 1, STOT SE 3; H226 H314 H318 H335			

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		
7664-38-2	231-633-2	phosphoric acid; orthophosphoric acid	5 - < 10 %
	dermal: LD50 = 2740 mg/kg; oral: LD50 = 850 mg/kg Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 10 - < 25 Eye Irrit. 2; H319: >= 10 - < 25		
14263-59-3	238-145-9	potassium tetracyanoaurate(III)	< 1 %
	inhalation: LC50 = 0,005 mg/l (dusts or mists); dermal: LD50 = 5 mg/kg; oral: LD50 = 5 mg/kg		
1560-69-6	216-333-1	cobalt(II) propionate	< 1 %
	inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); oral: ATE = 500 mg/kg		
79-09-4	201-176-3	propionic acid	< 1 %
	inhalation: LC50 = > 20 mg/l (vapours); dermal: LD50 = 3235 mg/kg; oral: LD50 = 3455,1 mg/kg Skin Corr. 1B; H314: >= 25 - 100 Skin Irrit. 2; H315: >= 10 - < 25 Eye Irrit. 2; H319: >= 10 - < 25 STOT SE 3; H335: >= 10 - 100		

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

First aider: Pay attention to self-protection! Remove affected person from the danger area and lay down. Be careful with contaminated clothes and shoes of the victim - they could still contain the product.

After inhalation

Remove person to fresh air and keep comfortable for breathing. 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 plenty of water and soap. Take off immediately all contaminated clothing and wash it before reuse. If irritation symptoms persist, consult a doctor.

After contact with eyes

After eye contact: Rinse immediately carefully and thoroughly with eye-bath or water. Consult an ophthalmologist.

After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink 1 glass of of water. Induce vomiting when the affected person is not unconscious. Call a physician immediately.

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

Dizziness, acceleration of the respiratory rate, feeling of being constricted and suffocated, nausea, Vomiting.

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. Formation of hazardous gases/vapours possible during heating or in case of fire. Hydrocyanic acid (hydrocyanic acid).

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

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 advice

Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Keep unprotected persons away.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Inform the respective authorities if the product enters open water or sewage system.

6.3. Methods and material for containment and cleaning up

For containment

Make sure spills can be contained, e.g. in sump pallets or kerbed areas.

For cleaning up

Absorb with liquid-binding material (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. If local exhaust ventilation is not possible or not sufficient, the entire working area should be ventilated by technical means.

Advice on protection against fire and explosion

Have respiratory protective equipment ready.

Advice on general occupational hygiene

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, drink, smoke, sniff. 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.

Further information on handling

Wear suitable protective clothing and gloves.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep locked up. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaustion at critical locations.
Unsuitable container/equipment material: Metal.

Hints on joint storage

Do not store together with: Acid.

Further information on storage conditions

The regulations of the Ordinance on Hazardous Substances with its respective technical rules (TRGS 510) have to be respected.

7.3. Specific end use(s)

Galvanic gold-plating

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
7664-38-2	Orthophosphoric acid	-	1		TWA (8 h)	WEL
		-	2		STEL (15 min)	WEL
79-09-4	Propionic acid	10	31		TWA (8 h)	WEL
		15	46		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
7664-38-2	phosphoric acid; orthophosphoric acid			
Worker DNEL, acute		inhalation	local	2 mg/m³
Worker DNEL, long-term		inhalation	local	1 mg/m³
Worker DNEL, long-term		inhalation	systemic	10,7 mg/m³
Consumer DNEL, long-term		inhalation	local	0,36 mg/m³
Consumer DNEL, long-term		inhalation	systemic	4,57 mg/m³
Consumer DNEL, long-term		dermal	systemic	0,1 mg/kg bw/day

PNEC values

CAS No	Substance	
Environmental compartment		Value
79-09-4	propionic acid	
Freshwater		0,5 mg/l
Marine water		0,05 mg/l
Freshwater sediment		1,86 mg/kg
Marine sediment		0,186 mg/kg
Micro-organisms in sewage treatment plants (STP)		5 mg/l
Soil		0,1258 mg/kg

8.2. Exposure controls

Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray.

Individual protection measures, such as personal protective equipment

Eye/face protection

Tight sealing protective goggles (DIN EN 166).

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

Use of 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:	light pink
Odour:	characteristic

Changes in the physical state

Melting point/freezing point:	not determined
Boiling point or initial boiling point and boiling range:	> 100 °C
Flash point:	> 55 °C

Flammability

Solid/liquid:	not applicable
Gas:	not applicable

Explosive properties

The product is not: Explosive.

Lower explosion limits:	not determined
Upper explosion limits:	not determined
Auto-ignition temperature:	not determined
Decomposition temperature:	not determined
pH-Value (at 25 °C):	1 - 2
Water solubility:	easily soluble

Solubility in other solvents

not determined

Partition coefficient n-octanol/water:	not determined
Vapour pressure: (at 20 °C)	~ 20 hPa
Density (at 20 °C):	1,0 - 1,1 g/cm³
Relative vapour density:	not determined

9.2. Other information

Information with regard to physical hazard classes

Oxidizing properties

The product is not: oxidising.

Other safety characteristics

Solid content:	not determined
Evaporation rate:	not determined

Further Information

SECTION 10: Stability and reactivity

10.1. Reactivity

Corrosive to metals. Contact with acids liberates very toxic gas.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Can realease hydrogen cyanide in case of strong acidification.

10.4. Conditions to avoid

Heat. Strong acid

10.5. Incompatible materials

Keep away from: Metal.

10.6. Hazardous decomposition products

Hydrocyanic acid (hydrocyanic acid).

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.

ATEmix calculated

ATE (oral) 948,8 mg/kg; ATE (dermal) 1020,4 mg/kg; ATE (inhalation dust/mist) 1,020 mg/l

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
7664-38-2	phosphoric acid; orthophosphoric acid					
	oral	LD50 mg/kg	850	Rat	Manufacturer	
	dermal	LD50 mg/kg	2740	Rabbit	Manufacturer	
14263-59-3	potassium tetracyanoaurate(III)					
	oral	LD50	5 mg/kg		Manufacturer	Acute toxicity estimate (ATE)
	dermal	LD50	5 mg/kg		Manufacturer	Acute toxicity estimate (ATE)
	inhalation (4 h) dust/mist	LC50 mg/l	0,005		Manufacturer	Acute toxicity estimate (ATE)
1560-69-6	cobalt(II) propionate					
	oral	ATE mg/kg	500			
	inhalation vapour	ATE	11 mg/l			
	inhalation dust/mist	ATE	1,5 mg/l			
79-09-4	propionic acid					
	oral	LD50 mg/kg	3455,1	Rat (male & female)	Manufacturer	OECD 401
	dermal	LD50 mg/kg	3235	rat, female	Manufacturer	OECD 402
	inhalation (4 h) vapour	LC50	> 20 mg/l	Rat (male & female)	Manufacturer	OECD 403

Irritation and corrosivity

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

Sensitising effects

Contains cobalt(II) propionate. 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.

Further information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP]. Special hazards arising from the substance or mixture!

SECTION 12: Ecological information

12.1. Toxicity

Harmful to aquatic life with long lasting effects.

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] | [d]	Species	Source	Method
7664-38-2	phosphoric acid; orthophosphoric acid						
	Acute fish toxicity	LC50	3 mg/l	96 h	Lepomis macrochirus (Bluegill)	Manufacturer	
	Acute algae toxicity	ErC50	>100 mg/l	72 h	Desmodesmus subspicatus	Manufacturer	OECD 201
	Acute crustacea toxicity	EC50	>100 mg/l	48 h	Daphnia magna (Big water flea)	Manufacturer	OECD 202
	Acute bacteria toxicity	(EC50	>1000 mg/l)	3 h	Activated sludge	Manufacturer	OECD 209

12.2. Persistence and degradability

The product has not been tested.

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
79-09-4	propionic acid	0,25

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.
The product has not been tested.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

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.

List of Wastes Code - residues/unused products

110301 WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY; sludges and solids from tempering processes; wastes containing cyanide; hazardous waste

List of Wastes Code - used product

110301 WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY; sludges and solids from tempering processes; wastes containing cyanide; hazardous waste

Contaminated packaging

Hazardous waste according to Directive 2008/98/EC (waste framework directive). Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1805
14.2. UN proper shipping name:	PHOSPHORIC ACID, SOLUTION
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Classification code:	C1
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	80
Tunnel restriction code:	E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 1805
14.2. UN proper shipping name:	PHOSPHORIC ACID, SOLUTION
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Classification code:	C1
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 1805
14.2. UN proper shipping name:	PHOSPHORIC ACID SOLUTION
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Special Provisions:	223
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-A, S-B
Segregation group:	1 - acids

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 1805
14.2. UN proper shipping name:	PHOSPHORIC ACID, SOLUTION
14.3. Transport hazard class(es):	8
14.4. Packing group:	III
Hazard label:	8

Special Provisions:	A3 A803
Limited quantity Passenger:	1 L
Passenger LQ:	Y841
Excepted quantity:	E1
IATA-packing instructions - Passenger:	852
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	856
IATA-max. quantity - Cargo:	60 L

14.6. Special precautions for user

Warning: strongly corrosive.

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

National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Water hazard class (D):	2 - obviously hazardous to water
Skin resorption/Sensitization:	Permeates easily through outer skin and causes poisoning. 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%

CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
ICAO: International Civil Aviation Organization
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern
For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

Classification for mixtures and used evaluation method according to GB CLP Regulation

Classification	Classification procedure
Met. Corr. 1; H290	On basis of test data
Acute Tox. 4; H302	Calculation method
Acute Tox. 4; H312	Calculation method
Acute Tox. 4; H332	Calculation method
Aquatic Chronic 3; H412	Calculation method

Relevant H and EUH statements (number and full text)

H226	Flammable liquid and vapour.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H302	Harmful if swallowed.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H310	Fatal in contact with skin.
H312	Harmful in contact with skin.
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.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H360Fd	May damage fertility. Suspected of damaging the unborn child.
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.
EUH032	Contact with acids liberates very toxic gas.
EUH208	Contains cobalt(II) propionate. 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.)