

Safety Data Sheet

according to UK REACH Regulation

Silver Star Silvering bath

Revision date: 20.03.2023

Product code: 0201

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

Silver Star Silvering bath

UFI: P0PX-3J30-C00X-YA7D

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

Currentless silver-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:	Donaustauer 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

Full text of hazard statements: see SECTION 16.

2.2. Label elements**GB CLP Regulation****Signal word:** Warning**Hazard statements**

H290 May be corrosive to metals.

Precautionary statements

P102	Keep out of reach of children.
P234	Keep only in original packaging.
P390	Absorb spillage to prevent material damage.

SECTION 3: Composition/information on ingredients**3.2. Mixtures**

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
62-56-6	thiourea; thiocarbamide			< 1 %
	200-543-5			
	Carc. 2, Repr. 2, Acute Tox. 4, Aquatic Chronic 2; H351 H361fd H302 H411			
7664-93-9	sulphuric acid			< 1 %
	231-639-5	016-020-00-8	01-2119458838-20	
	Met. Corr. 1, Skin Corr. 1A, Eye Dam. 1; H290 H314 H318			
7761-88-8	Silver nitrate			< 1 %
	231-853-9		01-2119513705-43	
	Ox. Sol. 2, Met. Corr. 1, Skin Corr. 1B, Aquatic Acute 1, Aquatic Chronic 1; H272 H290 H314 H400 H410			

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	
62-56-6	200-543-5	thiourea; thiocarbamide	< 1 %
		dermal: LD50 = 2800 mg/kg; oral: LD50 = 1750 mg/kg	
7664-93-9	231-639-5	sulphuric acid	< 1 %
		oral: LD50 = 2140 mg/kg Skin Corr. 1A; H314: >= 15 - 100 Skin Irrit. 2; H315: >= 5 - < 15 Eye Irrit. 2; H319: >= 5 - < 15	
7761-88-8	231-853-9	Silver nitrate	< 1 %
		oral: LD50 = >2000 mg/kg	

SECTION 4: First aid measures
4.1. Description of first aid measures
After inhalation

Provide fresh air.

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. If eye irritation persists: Get medical advice/attention.

After ingestion

Rinse mouth immediately and drink 1 glass of of water. Do NOT induce vomiting. In all cases of doubt, or when symptoms persist, seek medical advice.

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

Depending on the type and duration of contact, irritation of the skin, eyes and mucous membranes is possible.

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

Treat symptomatically.

SECTION 5: Firefighting measures
5.1. Extinguishing media
Suitable extinguishing media

The product itself does not burn. Co-ordinate fire-fighting measures to the fire surroundings.

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Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

May cause strong formation of hydrogen by contact with amphoteric metals (e.g. alumina, lead, zinc) - danger of explosion.

Do not breathe explosive- and combustion gases. Exposure to decomposition products can be harmful to health. Upon heating and in case of fire, the following may be released: Carbon monoxide (CO), Carbon dioxide (CO₂), nitrogen oxides (NO_x), metal oxide vapours.

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 advice**

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment.

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 cleaning up**

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Collect in a suitable, labelled and closable waste container. 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**

Avoid formation of aerosols.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

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.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

Keep container tightly closed. Unsuitable container/equipment material: Metal.

Hints on joint storage

No special measures are necessary.

7.3. Specific end use(s)

Currentless silver-plating

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SECTION 8: Exposure controls/personal protection
8.1. Control parameters
Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
7664-93-9	Sulphuric acid (mist)	-	0.05		TWA (8 h)	WEL

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
62-56-6	thiourea; thiocarbamide			
	Consumer DNEL, long-term	oral	systemic	0,1 mg/kg bw/day
	Worker DNEL, long-term	dermal	systemic	3,4 mg/kg bw/day
	Consumer DNEL, long-term	dermal	systemic	1,7 mg/kg bw/day
	Worker DNEL, long-term	inhalation	systemic	1 mg/m ³
	Consumer DNEL, long-term	inhalation	systemic	0,2 mg/m ³
7664-93-9	sulphuric acid			
	Worker DNEL, acute	inhalation	local	0,1 mg/m ³
	Worker DNEL, long-term	inhalation	local	0,05 mg/m ³

PNEC values

CAS No	Substance	Environmental compartment	Value
62-56-6	thiourea; thiocarbamide		
	Freshwater		0,01 mg/l
	Marine water		0,001 mg/l
	Freshwater sediment		0,0725 mg/kg
	Marine sediment		0,00725 mg/kg
	Micro-organisms in sewage treatment plants (STP)		0,38 mg/l
	Soil		2,725 mg/kg
7664-93-9	sulphuric acid		
	Freshwater		0,0025 mg/l
	Marine water		0,25 mg/l
	Freshwater sediment		0,002 mg/kg
	Marine sediment		0,25 mg/l
	Micro-organisms in sewage treatment plants (STP)		8,8 mg/l
7761-88-8	Silver nitrate		
	Freshwater		0,00004 mg/l
	Marine water		0,00086 mg/l
	Freshwater sediment		438 mg/kg
	Marine sediment		438 mg/kg
	Micro-organisms in sewage treatment plants (STP)		0,025 mg/l
	Soil		0,794 mg/kg

8.2. Exposure controls

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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

Guarantee good ventilation / air extraction for storage- and workspace.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	colourless
Odour:	odourless

Changes in the physical state

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

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

Self-ignition temperature

Solid:	not applicable
Gas:	not applicable

Decomposition temperature: not determined

pH-Value (at 20 °C): 1,0 - 1,5

Water solubility: easily soluble

Solubility in other solvents

not determined

Partition coefficient n-octanol/water: not determined

Vapour pressure: not determined

Density (at 20 °C): 1,0 - 1,1 g/cm³

Relative vapour density: not determined

9.2. Other information

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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.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Exothermic reaction with: Base, Peroxides, Oxidizing agent.

May cause strong formation of hydrogen by contact with amphoteric metals (e.g. alumina, lead, zinc) - danger of explosion.

10.4. Conditions to avoid

Protect from direct sunlight.

10.5. Incompatible materials

Metal. Keep away from: Base, Oxidizing agent, Peroxides.

10.6. Hazardous decomposition products

No known hazardous decomposition products.

SECTION 11: Toxicological information

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

Acute toxicity

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

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
62-56-6	thiourea; thiocarbamide				
	oral	LD50 mg/kg 1750	Rat	Manufacturer	
	dermal	LD50 mg/kg 2800	Rabbit	Manufacturer	
7664-93-9	sulphuric acid				
	oral	LD50 mg/kg 2140	Rat	GESTIS	OECD 401
7761-88-8	Silver nitrate				
	oral	LD50 mg/kg >2000	Rat	Manufacturer	

Irritation and corrosivity

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

Sensitising effects

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

Carcinogenic/mutagenic/toxic effects for reproduction

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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.

SECTION 12: Ecological information

12.1. Toxicity

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
62-56-6	thiourea; thiocarbamide					
	Acute fish toxicity	LC50 >600 mg/l	96 h	Pimephales promelas (fathead minnow)	Manufacturer	
	Acute algae toxicity	ErC50 6,8 mg/l	96 h	Scenedesmus subspicatus	Manufacturer	
	Acute bacteria toxicity	(EC50 3100 mg/l)	0,5 h	Photobacterium phoshoreum	Manufacturer	
7664-93-9	sulphuric acid					
	Acute fish toxicity	LC50 16 - 28 mg/l	96 h	Lepomis macrochirus (Bluegill)		
	Acute algae toxicity	ErC50 > 100 mg/l	72 h	Desmodesmus subspicatus		OECD 201
	Acute crustacea toxicity	EC50 > 100 mg/l	48 h	Daphnia magna (Big water flea)		OECD 202
7761-88-8	Silver nitrate					
	Fish toxicity	NOEC 0,13 mg/l	28 d	Menidia beryllina (Inland silverside)	Manufacturer	
	Algae toxicity	NOEC 0,0012 mg/l	14 d	Champia parvula	Manufacturer	
	Crustacea toxicity	NOEC 0,001 mg/l	7 d	Ceriodaphnia reticulata	Manufacturer	

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
62-56-6	thiourea; thiocarbamide			
	BSB5	0,013 g/g	5	
	Poorly biodegradable.			

12.3. Bioaccumulative potential

The product has not been tested.

BCF

CAS No	Chemical name	BCF	Species	Source
7761-88-8	Silver nitrate	70	Cyprinus carpio (Common Carp)	

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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

110106 WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY; wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising); acids not otherwise specified; hazardous waste

List of Wastes Code - used product

110106 WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY; wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising); acids not otherwise specified; hazardous waste

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)****14.1. UN number or ID number:**

UN 3264

14.2. UN proper shipping name:

CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS SULFURIC ACID, CITRIC ACID)

14.3. Transport hazard class(es):

8

14.4. Packing group:

III

Hazard label:

8



Classification code:

C1

Special Provisions:

274

Limited quantity:

5 L

Excepted quantity:

E1

Transport category:

3

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 Hazard No: 80
 Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 3264
14.2. UN proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS SULFURIC ACID, CITRIC ACID)
14.3. Transport hazard class(es): 8
14.4. Packing group: III
 Hazard label: 8



Classification code: C1
 Special Provisions: 274
 Limited quantity: 5 L
 Excepted quantity: E1

Marine transport (IMDG)

14.1. UN number or ID number: UN 3264
14.2. UN proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS SULFURIC ACID, CITRIC ACID)
14.3. Transport hazard class(es): 8
14.4. Packing group: III
 Hazard label: 8



Special Provisions: 223, 274
 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 3264
14.2. UN proper shipping name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (CONTAINS SULFURIC ACID, CITRIC ACID)
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

No information available.

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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 75

Information according to 2012/18/EU
(SEVESO III):

Not subject to 2012/18/EU (SEVESO III)

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

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

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 table at <http://abbrev.esdscom.eu>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)

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intérieures)

EmS: Emergency Schedules

MFAG: Medical First Aid Guide

ICAO: International Civil Aviation Organization

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

Classification	Classification procedure
Met. Corr. 1; H290	On basis of test data

Relevant H and EUH statements (number and full text)

H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H351	Suspected of causing cancer.
H361fd	Suspected of damaging 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.

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.)