

Safety Data Sheet

according to UK REACH Regulation

Zinc electrolyte

Revision date: 30.06.2022

Product code: 0106

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

Zinc electrolyte

UFI: 8PJF-49AD-J001-8Q27

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

Galvanization - galvanic zinc-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,
Mo-Do 9:00 - 16:00 Uhr; Fr 9:00 - 14:00 Uhr

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****GB CLP Regulation**

Eye Dam. 1; H318
Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements**GB CLP Regulation****Hazard components for labelling**

Zinc sulfate Heptahydrate

Signal word: Danger**Pictograms:****Hazard statements**

H318 Causes serious eye damage.
H411 Toxic 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.
P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.

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P391 Collect spillage.
P501 Dispose of contents/container to according to local/national waste disposal regulations.

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)			
7446-20-0	Zinculfate Heptahydrate			5 - < 10 %
	Acute Tox. 4, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H302 H318 H400 H410			
12125-02-9	ammonium chloride			5 - < 10 %
	235-186-4		01-2119487950-27	
	Acute Tox. 4, Eye Irrit. 2; H302 H319			
10043-35-3	boric acid			1 - < 1.9 %
	233-139-2		01-2119486683-25	
	Repr. 1B; H360FD			
34590-94-8	(2-methoxymethylethoxy)propanol			< 1 %
	252-104-2		01-2119450011-60	

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	
7446-20-0		Zinculfate Heptahydrate	5 - < 10 %
		oral: ATE = 500 mg/kg	
12125-02-9	235-186-4	ammonium chloride	5 - < 10 %
		dermal: LD50 = >2000 mg/kg; oral: LD50 = 1410 mg/kg	
10043-35-3	233-139-2	boric acid	1 - < 1.9 %
		Repr. 1B; H360FD: >= 5,5 - 100	

SECTION 4: First aid measures
4.1. Description of first aid measures
General information

First aider: Pay attention to self-protection! Be careful with contaminated clothes and shoes of the victim - they could still contain the product.

After inhalation

Provide fresh air. In case of breathing difficulties administer oxygen. Immediately call a doctor.

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Remove contact lenses, if present and easy to do.

After ingestion

Rinse mouth immediately and drink plenty of water.
Seek medical advice immediately.

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

No information available.

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.

Unsuitable extinguishing media

For this substance/mixture, there are no limitations of extinguishing agents.

5.2. Special hazards arising from the substance or mixture

Upon heating and in case of fire, the following may be released:

Oxocarbons (CO, CO₂), zinc oxide, sulfur oxides (SO_x), nitrogen oxides (NO_x).

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. Wear protective gloves and eye/face protection.

6.2. Environmental precautions

Keep away from drains or surface- and ground water. In case of release of larger quantities, inform the responsible authorities.

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

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

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 or

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drink.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Store in a place accessible by authorized persons only. Provide adequate ventilation as well as local exhaust at critical locations.

Hints on joint storage

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

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
34590-94-8	(2-methoxymethylethoxy) propanol	50	308		TWA (8 h)	WEL
12125-02-9	Ammonium chloride, fume	-	10		TWA (8 h)	WEL
		-	20		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
7446-20-0	Zinc sulfate Heptahydrate			
	Worker DNEL, long-term	inhalation	systemic	1 mg/m ³
	Worker DNEL, long-term	dermal	systemic	8,3 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	systemic	1,25 mg/m ³
	Consumer DNEL, long-term	dermal	systemic	8,3 mg/kg bw/day
	Consumer DNEL, long-term	oral	systemic	0,83 mg/kg bw/day
12125-02-9	ammonium chloride			
	Consumer DNEL, long-term	oral	systemic	55,2 mg/kg bw/day
	Worker DNEL, long-term	dermal	systemic	128,9 mg/kg bw/day
	Consumer DNEL, long-term	dermal	systemic	55,2 mg/kg bw/day
	Worker DNEL, long-term	inhalation	systemic	43,97 mg/m ³
	Consumer DNEL, long-term	inhalation	systemic	9,4 mg/m ³
10043-35-3	boric acid			
	Consumer DNEL, long-term	oral	systemic	0,98 mg/kg bw/day
	Consumer DNEL, long-term	dermal	systemic	196 mg/kg bw/day
	Worker DNEL, long-term	dermal	systemic	392 mg/kg bw/day
	Consumer DNEL, long-term	inhalation	systemic	4,15 mg/m ³
	Worker DNEL, long-term	inhalation	systemic	8,3 mg/m ³

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PNEC values

CAS No	Substance	Value
Environmental compartment		
7446-20-0	Zinc sulfate Heptahydrate	
Freshwater		0,0206 mg/l
Marine water		0,0061 mg/l
Freshwater sediment		117,8 mg/kg
Marine sediment		56,5 mg/kg
Micro-organisms in sewage treatment plants (STP)		0,1 mg/l
Soil		35,6 mg/kg
12125-02-9	ammonium chloride	
Freshwater		0,25 mg/l
Marine water		0,025 mg/l
Freshwater sediment		0,9 mg/kg
Marine sediment		0,09 mg/kg
Micro-organisms in sewage treatment plants (STP)		13,1 mg/l
Soil		50,7 mg/kg
10043-35-3	boric acid	
Freshwater		2,02 mg/l
Marine water		2,02 mg/l
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		5,4 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

If there can be contact with skin, wear protective clothes impermeable by this solution.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

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

Physical state:	Liquid
Colour:	colourless
Odour:	neutral

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
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 25 °C):	4,0
Water solubility:	easily soluble

Solubility in other solvents

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

9.2. Other information**Information with regard to physical hazard classes**

Oxidizing properties
Not oxidising.

Other safety characteristics

Solid content:	not determined
Evaporation rate:	not determined

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

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

No information available.

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10.4. Conditions to avoid

Heat

10.5. Incompatible materials

 Materials to avoid:
 strong base
 Oxidising agent, strong

10.6. Hazardous decomposition products

Thermal decomposition >250 °C Formation of: boron trioxide (B2O3)

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
7446-20-0	Zinc sulfate Heptahydrate				
	oral	ATE mg/kg	500		
12125-02-9	ammonium chloride				
	oral	LD50 mg/kg	1410	Rat	Manufacturer
	dermal	LD50 mg/kg	>2000	Rabbit	Manufacturer

Irritation and corrosivity

 Causes serious eye damage.
 Skin corrosion/irritation: 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

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

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

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
7446-20-0	Zinc sulfate Heptahydrate					
	Acute fish toxicity	LC50 mg/l	0,3-0,8	96 h	Pimephales promelas (fathead minnow)	Manufacturer
	Acute crustacea toxicity	EC50 mg/l	0,1-1,0	48 h	Daphnia magna (Big water flea)	Manufacturer
12125-02-9	ammonium chloride					
	Acute fish toxicity	LC50 mg/l	42,91	96 h	Oncorhynchus mykiss (Rainbow trout)	Manufacturer
	Acute crustacea toxicity	EC50 mg/l	136,6	48 h	Daphnia magna (Big water flea)	Manufacturer
10043-35-3	boric acid					
	Acute fish toxicity	LC50	456 mg/l	96 h	Pimephales promelas (fathead minnow)	Manufacturer
	Acute crustacea toxicity	EC50 mg/l	133-760	48 h	Daphnia magna (Big water flea)	Manufacturer

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
10043-35-3	boric acid	-0,757

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

060313 WASTES FROM INORGANIC CHEMICAL PROCESSES; wastes from the MFSU of salts and their solutions and metallic oxides; solid salts and solutions containing heavy metals; hazardous waste

List of Wastes Code - used product

060313 WASTES FROM INORGANIC CHEMICAL PROCESSES; wastes from the MFSU of salts and their solutions and metallic oxides; solid salts and solutions containing heavy metals; hazardous waste

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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 1719
14.2. UN proper shipping name: CAUSTIC ALKALI LIQUID, N.O.S.
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8



Classification code: C5
Special Provisions: 274
Limited quantity: 1 L
Excepted quantity: E2
Transport category: 2
Hazard No: 80
Tunnel restriction code: E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1719
14.2. UN proper shipping name: CAUSTIC ALKALI LIQUID, N.O.S.
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8



Classification code: C5
Special Provisions: 274
Limited quantity: 1 L
Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 1719
14.2. UN proper shipping name: CAUSTIC ALKALI LIQUID, N.O.S.
14.3. Transport hazard class(es): 8
14.4. Packing group: II
Hazard label: 8



Special Provisions: 274
Limited quantity: 1 L
Excepted quantity: E2
EmS: F-A, S-B
Segregation group: 18 - alkalis

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: UN 1719

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14.2. UN proper shipping name: CAUSTIC ALKALI LIQUID, N.O.S.
14.3. Transport hazard class(es): 8
14.4. Packing group: II
 Hazard label: 8



Special Provisions: A3 A803
 Limited quantity Passenger: 0.5 L
 Passenger LQ: Y840
 Excepted quantity: E2
 IATA-packing instructions - Passenger: 851
 IATA-max. quantity - Passenger: 1 L
 IATA-packing instructions - Cargo: 855
 IATA-max. quantity - Cargo: 30 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

Authorisations (REACH, annex XIV):

Substances of very high concern, SVHC (REACH, article 59):
 boric acid

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 30

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): 3 - highly 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%

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

Classification	Classification procedure
Eye Dam. 1; H318	Calculation method
Aquatic Chronic 2; H411	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H360FD	May damage fertility. May damage 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.)