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BRENNTAG

SAFETY DATA SHEET according to Regulation (EC) No. 1907/2006

ZINC SULPHATE MONOHYDRATE

Version 6.0 Print Date 2017/11/17

Revision date / valid from 2017/11/17 **MSDS code: MZZZ927**

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

1.1. Product identifier

Trade name	:	ZINC SULPHATE MONOHYDRATE
Substance name	:	zinc sulphate monohydrate
CAS-No.	:	7446-19-7
EC-No.	:	231-793-3
EU REACH-Reg. No.	:	01-2119474684-27-xxxx

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

Use of the Substance/Mixture	:	Food/ feedstuff additives, Fuels and fuel additives, Laboratory chemicals, Lubricants and lubricant additives, Plating agents and metal surface treating agents, Fertilizers, Pharmaceutical substance
Uses advised against	:	At this moment we have not identified any uses advised against

1.3. Details of the supplier of the safety data sheet

Company	:	Brenntag UK Limited Alpha House, Lawnswood Business Park GB LS16 6QY Leeds
Telephone	:	+44 (0) 113 3879 200
Telefax	:	+44 (0) 113 3879 280
E-mail address	:	msds@brenntag.co.uk

1.4. Emergency telephone number

Emergency telephone number	:	Emergency only telephone number (open 24 hours): +44 (0) 1865 407333 (N.C.E.C. Culham)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

REGULATION (EC) No 1272/2008			
Hazard class	**Hazard category**	**Target Organs**	**Hazard statements**
Acute toxicity (Oral)	Category 4	---	H302

Serious eye damage	Category 1	---	H318
Acute aquatic toxicity	Category 1	---	H400
Chronic aquatic toxicity	Category 1	---	H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

Most important adverse effects

Human Health	:	See section 11 for toxicological information.
Physical and chemical hazards	:	See section 9/10 for physicochemical information.
Potential environmental effects	:	See section 12 for environmental information.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008

Hazard symbols :



Signal word : Danger

Hazard statements :

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention :

P264	Wash skin thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response :

P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
P391	Collect spillage.

Disposal :

P501	Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:

• zinc sulphate monohydrate

2.3. Other hazards

For Results of PBT and vPvB assessment see section 12.5.

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components	Amount [%]	Classification (REGULATION (EC) No 1272/2008)	
		Hazard class / Hazard category	Hazard statements
zinc sulphate monohydrate			
Index-No. : 030-006-00-9 CAS-No. : 7446-19-7 EC-No. : 231-793-3 EU REACH-Reg. No. : 01-2119474684-27-xxxx	> 97	Acute Tox.4 Eye Dam.1 Aquatic Acute1 Aquatic Chronic1	H302 H318 H400 H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice : First aider needs to protect themselves! Remove from exposure, lie down. Take off all contaminated clothing immediately.

If inhaled : Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. Oxygen, if needed. No artificial respiration, mouth-to-mouth or mouth to nose. Use suitable instruments/apparatus. Call a physician immediately.

In case of skin contact : Wash off immediately with plenty of water. Call a physician immediately.

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 10 minutes. Consult an eye specialist immediately. Go to an ophthalmic hospital if possible.

If swallowed : Rinse mouth with water. Never give anything by mouth to an unconscious person. Keep patient warm and at rest. If a person vomits when lying on his back, place him in the recovery position. Call a physician immediately.

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

Symptoms	: See Section 11 for more detailed information on health effects and symptoms.
Effects	: See Section 11 for more detailed information on health effects and symptoms.

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

Treatment	: Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Suitable extinguishing media : foam, powder or CO2. Use a water spray to cool packaging exposed to fire.
Unsuitable extinguishing media	:	High volume water jet

5.2. Special hazards arising from the substance or mixture

Specific hazards during firefighting	:	Heating or fire can release toxic gas.
Hazardous combustion products	:	Carbon monoxide, Carbon dioxide (CO2), Sulphur oxides

5.3. Advice for firefighters

Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus.Wear appropriate body protection (full protective suit)
Specific extinguishing methods	:	Control smoke with water spray.
Further advice	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains.Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions	:	Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with the skin and the eyes. Do not breathe vapours or spray mist. Wear respiratory protection.

6.2. Environmental precautions

Environmental	:	Do not flush into surface water or sanitary sewer system.

precautions	Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such cases.

6.3. Methods and materials for containment and cleaning up

Methods and materials for containment and cleaning up	:	Use mechanical handling equipment. Keep in suitable, closed containers for disposal.
Further information	:	Treat recovered material as described in the section "Disposal considerations".

6.4. Reference to other sections

See Section 1 for emergency contact information.
See Section 8 for information on personal protective equipment.
See Section 13 for waste treatment information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling	:	Keep container tightly closed. Use personal protective equipment. Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Avoid contact with skin, eyes and clothing. Do not breathe vapours or spray mist. Use respirator with appropriate filter if vapours or aerosol are released. Emergency eye wash fountains and emergency showers should be available in the immediate vicinity.
Hygiene measures	:	Keep away from food, drink and animal feedingstuffs. Smoking, eating and drinking should be prohibited in the application area. Wash hands before breaks and at the end of workday. Take off all contaminated clothing immediately. Keep working clothes separately.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers	:	Store in original container. Keep locked up or in an area accessible only to qualified or authorised persons.
Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Further information on storage conditions	:	Keep tightly closed in a dry and cool place. Keep in a well-ventilated place.
Advice on common storage	:	Keep away from food, drink and animal feedingstuffs.

7.3. Specific end use(s)

Specific use(s)	:	Industrial

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Other Occupational Exposure Limit Values		
(Additional) Information	:	Contains no substances with occupational exposure limit values.

Component:	zinc sulphate monohydrate	CAS-No. 7446-19-7

Derived No Effect Level (DNEL)/Derived Minimal Effect Level (DMEL)

DNEL Workers, Ingestion Related to, Zn soluble	:	0.83 mg/kg bw/day
DNEL Workers, Ingestion Related to, Zn insoluble	:	0.83 mg/kg bw/day
DNEL Workers, Skin contact Related to, Zn soluble	:	8.3 mg/kg bw/day
DNEL Workers, Skin contact Related to, Zn insoluble	:	83 mg/kg bw/day
DNEL Workers, Inhalation Related to, Zn soluble	:	1 mg/m3
DNEL Workers, Inhalation Related to, Zn insoluble	:	5 mg/m3
DNEL Consumers, Ingestion Related to, Zn soluble	:	0.83 mg/kg bw/day
DNEL Consumers, Ingestion Related to, Zn insoluble	:	0.83 mg/kg bw/day
DNEL Consumers, Skin contact Related to, Zn soluble	:	8.3 mg/kg bw/day

DNEL		
Consumers, Skin contact Related to, Zn insoluble	:	83 mg/kg bw/day
DNEL		
Consumers, Inhalation Related to, Zn soluble	:	1.3 mg/m3
DNEL		
Consumers, Inhalation Related to, Zn insoluble	:	2.5 mg/m3

Predicted No Effect Concentration (PNEC)		
Fresh water Related to, as Zn	:	20.6 µg/l
Marine water Related to, as Zn	:	6.1 µg/l
Fresh water sediment Related to, as Zn	:	235.6 mg/kg dry weight (d.w.)
Marine sediment Related to, as Zn	:	113 mg/kg dry weight (d.w.)
Soil Related to, as Zn	:	106.8 mg/kg dry weight (d.w.)
Sewage treatment plant (STP) Related to, as Zn	:	52 µg/l

8.2. Exposure controls

Appropriate engineering controls

Refer to protective measures listed in sections 7 and 8.

Provide for appropriate exhaust ventilation and dust collection at machinery.

Personal protective equipment

Respiratory protection

Advice	:	If ventilation is insufficient, suitable respiratory protection must be provided Required if dust is released Recommended Filter type: Particle filter:P2 Particle filter:P3

Hand protection

Advice	:	Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Protective gloves complying with EN 374. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Protective gloves should be replaced at first signs of wear.
Material	:	polychloroprene
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Nitrile rubber
Break through time	:	>= 8 h
Glove thickness	:	0.35 mm
Material	:	butyl-rubber
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm
Material	:	Fluorinated rubber
Break through time	:	>= 8 h
Glove thickness	:	0.4 mm
Material	:	Polyvinylchloride
Break through time	:	>= 8 h
Glove thickness	:	0.5 mm

Eye protection

Advice	:	Tightly fitting safety goggles Ensure that eyewash stations and safety showers are close to the workstation location.

Skin and body protection

Advice	:	Dust impervious protective suit

Environmental exposure controls

General advice	:	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration. If the product contaminates rivers and lakes or drains inform respective authorities. If material reaches soil inform authorities responsible for such

cases.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	:	powder
Colour	:	no data available
Odour	:	odourless
Odour Threshold	:	Not applicable
pH	:	Not applicable
Melting point/freezing point	:	> 70 °C zinc sulphate hexahydrate --> zinc sulphate monohydrate > 240 °C zinc sulphate monohydrate --> zinc sulphate
Boiling point/boiling range	:	> 500 °C (1013 hPa)
Flash point	:	Not applicable
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Upper explosion limit	:	no data available
Lower explosion limit	:	no data available
Vapour pressure	:	no data available
Relative vapour density	:	no data available
Relative density	:	no data available
Water solubility	:	211 g/l (20 °C) completely soluble
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available
Thermal decomposition	:	> 680 °C
Viscosity, dynamic	:	no data available
Explosivity	:	no data available

Oxidizing properties	:	no data available

9.2. Other information

Bulk density	:	800 - 1000 kg/m3

SECTION 10: Stability and reactivity

10.1. Reactivity

Advice : No decomposition if stored and applied as directed.

10.2. Chemical stability

Advice : Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions : No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Conditions to avoid : Avoid high temperatures.Protect from humidity
Thermal decomposition : > 680 °C

10.5. Incompatible materials

Materials to avoid : Strong oxidizing agents

10.6. Hazardous decomposition products

Hazardous decomposition products : Fire may cause evolution of: Sulphur oxides, zinc oxide

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Component:	zinc sulphate monohydrate	CAS-No. 7446-19-7
Acute toxicity		
Oral		
LD50 Oral	:	574 - 2949 mg/kg (Rat)
Inhalation		
May cause irritation of respiratory tract.		
Dermal		

LD50 Dermal	:	> 2000 mg/kg (Rat)

Irritation

Skin

Result	:	No skin irritation

Eyes

Result	:	Causes serious eye irritation.

Sensitisation

Result	:	No sensitizing effect known.

CMR effects

CMR Properties

Carcinogenicity	:	It is not considered carcinogenic. Read-across (Analogy)
Mutagenicity	:	It is not considered mutagenic. Read-across (Analogy)
Reproductive toxicity	:	It is not considered toxic for reproduction. Read-across (Analogy)

Specific Target Organ Toxicity

Single exposure

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, single exposure.

Repeated exposure

Remarks	:	The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Other toxic properties

Aspiration hazard

Not applicable,

SECTION 12: Ecological information

12.1. Toxicity

Data for the product

Chronic toxicity		
Chronic aquatic toxicity		
Result	:	Very toxic to aquatic life with long lasting effects.

Component:	**zinc sulphate monohydrate**	**CAS-No. 7446-19-7**
Acute toxicity		
Fish		
	:	no data available
Toxicity to daphnia and other aquatic invertebrates		
EC50	:	1.13 mg/l (Ceriodapnia dubia; 48 h) (US-EPA)
algae		
EC50	:	3.73 mg/l (Selenastrum capricornutum; 72 h) (OECD Test Guideline 201)

12.2. Persistence and degradability

Component:	**zinc sulphate monohydrate**	**CAS-No. 7446-19-7**
Persistence and degradability		
Persistence		
Result	:	no data available
Biodegradability		
Result	:	The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

Component:	**zinc sulphate monohydrate**	**CAS-No. 7446-19-7**
Bioaccumulation		
Result	:	Bioaccumulation is not expected.

12.4. Mobility in soil

Component:	zinc sulphate monohydrate	CAS-No. 7446-19-7
	Mobility	

Water : The product is water soluble.

12.5. Results of PBT and vPvB assessment

Component:	zinc sulphate monohydrate	CAS-No. 7446-19-7
	Results of PBT and vPvB assessment	

Result : The PBT or vPvB criteria of Annex XIII to the REACH Regulation does not apply to inorganic substances.

12.6. Other adverse effects

Component:	zinc sulphate monohydrate	CAS-No. 7446-19-7
	Additional ecological information	

Result : no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : Disposal together with normal waste is not allowed. Special disposal required according to local regulations. Do not let product enter drains. Contact waste disposal services.

Contaminated packaging : Dispose of contaminated packaging in the same way as the product. In accordance with local and national regulations.

European Waste Catalogue Number : No waste code according to the European Waste Catalogue can be assigned for this product, as the intended use dictates the assignment. The waste code is established in consultation with the regional waste disposer.

SECTION 14: Transport information

14.1. UN number

3077



3077

14.2. UN proper shipping name

	ADR	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
‖	**ADR**	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc sulphate monohydrate)
	RID	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
‖	**RID**	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc sulphate monohydrate)
	IMDG	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
‖	**IMDG**	: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (zinc sulphate monohydrate)

14.3. Transport hazard class(es)

	ADR-Class	: 9
	(Labels; Classification Code; Hazard identification No; Tunnel restriction code)	9; M7; 90; (-)
‖	ADR-Class	: 9
‖	(Labels; Classification Code; Hazard identification No; Tunnel restriction code)	9; M7; 90; (-)
	RID-Class	: 9
	(Labels; Classification Code; Hazard identification No)	9; M7; 90
‖	RID-Class	: 9
‖	(Labels; Classification Code; Hazard identification No)	9; M7; 90
	IMDG-Class	: 9
	(Labels; EmS)	9; F-A, S-F
‖	IMDG-Class	: 9
‖	(Labels; EmS)	9; F-A, S-F

14.4. Packaging group

	ADR	: III
‖	ADR	: III
	RID	: III
‖	RID	: III
	IMDG	: III
‖	IMDG	: III

14.5. Environmental hazards

	Environmentally hazardous according to ADR	: yes
‖	Environmentally hazardous according to ADR	: yes
	Environmentally hazardous according to RID	: yes
‖	Environmentally hazardous according to RID	: yes
	Marine Pollutant according to IMDG-Code	: yes
‖	Marine Pollutant according to IMDG-Code	: yes

14.6. Special precautions for user

Not applicable.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

IMDG : Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Component:	**zinc sulphate monohydrate**	**CAS-No. 7446-19-7**

EU. Directive 2012/18/EU (SEVESO III) Annex I	:	Lower-tier requirements: 100 tonnes; Part 1: Categories of dangerous substances; E1: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1 Upper-tier requirements: 200 tonnes; Part 1: Categories of dangerous substances; E1: Hazardous to the Aquatic Environment in Category Acute 1 or Chronic 1
UK. Releases to air and water (UK ISR)	:	Annual reporting level threshold: 100 kg
UK. Releases to air and water (UK ISR)	:	Annual reporting level threshold: 100 kg
UK. Releases to air and water (UK ISR)	:	Annual reporting level threshold: 100 kg
WGK (DE)	:	WGK 3: highly water endangering: 432; Classification source is Annex 3.

15.2. Chemical safety assessment

no data available

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.

H410	Very toxic to aquatic life with long lasting effects.

Abbreviations and Acronyms

BCF	bioconcentration factor
BOD	biochemical oxygen demand
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	carcinogenic, mutagenic or toxic to reproduction
COD	chemical oxygen demand
DNEL	derived no-effect level
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
LC50	median lethal concentration
LOAEC	lowest observed adverse effect concentration
LOAEL	lowest observed adverse effect level
LOEL	lowest observed effect level
NLP	no-longer polymer
NOAEC	no observed adverse effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
OECD	Organisation for Economic Cooperation and Development
OEL	occupational exposure limit
PBT	persistent, bioaccumulative and toxic
PNEC	predicted no-effect concentration
STOT	specific target organ toxicity
SVHC	substance of very high concern
UVCB	substance of unknown or variable composition, complex reaction products or biological materials
vPvB	very persistent and very bioaccumulative

Further information

Key literature references and sources for data	:	Supplier information and data from the "Database of registered substances" of the European Chemicals Agency (ECHA) were used to create this safety data sheet.
Methods used for product classification	:	The classification for human health, physical and chemical hazards and environmental hazards were derived from a combination of calculation methods and if available test data.
Hints for trainings	:	The workers have to be trained regularly on the safe handling of the products based on the information provided in the Safety Data Sheet and the local conditions of the workplace. National regulations for the training of workers in the handling of

hazardous materials must be adhered to.

Other information	:	The information provided in this Safety Data Sheet is correct to our knowledge at the date of its revision. The information given only describes the products with regard to safety arrangements and is not to be considered as a warranty or quality specification and does not constitute a legal relationship. The information contained in this Safety Data Sheet relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

|| Indicates updated section.