

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Issue date: 9/25/2024 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form : Substance

Substance name : COPPER SULPHATE HYDRATED

Chemical name : copper sulphate CAS-No. : 7758-98-7

Product code : AEB1022, AEB1114 Formula : Cu . H2 O4 S

1.2. Recommended use and restrictions on use

Use of the substance/mixture : Laboratory chemicals

1.3. Supplier

Alpha Resources LLC 3090 Johnson Rd.

Stevensville, Michigan 49127

USA

T (269)465-5559

info@alpharesources.com - www.alpharesources.com

1.4. Emergency telephone number

Emergency number : CHEMTREC Emergency Phone Number: (800) 424-9300

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Acute toxicity (inhalation:dust,mist) Category 4	H332	Harmful if inhaled

Skin corrosion/irritation Category 1 H314 Causes severe skin burns and eye damage

Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US)





Signal word (GHS US) : Danger

Hazard statements (GHS US) : H302+H332 - Harmful if swallowed or if inhaled

H314 - Causes severe skin burns and eye damage H318 - Causes serious eye damage

Precautionary statements (GHS US) : P260 - Do not breathe dust/fume/gas/mist/vapors/spray.

P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.

P264 - Wash hands, forearms and face thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear protective gloves/protective clothing/eye protection/face protection. P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.

P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.

P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with

water/shower.

P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses,

if present and easy to do. Continue rinsing.

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P310 - Immediately call a poison center or doctor.

P312 - Call a poison center or doctor if you feel unwell.

P321 - Specific treatment (see supplemental first aid instruction on this label).

P330 - Rinse mouth.

P363 - Wash contaminated clothing before reuse.

P405 - Store locked up.

P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with

local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

No additional information available

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name : COPPER SULPHATE HYDRATED

CAS-No. : 7758-98-7

Name	Product identifier	%	GHS US classification
COPPER SULPHATE	CAS-No.: 7758-98-7	100	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1, H314 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor/physician if

you feel unwell.

First-aid measures after skin contact : Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Call a physician

immediately.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : Burns.

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : Burns.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : Toxic fumes may be released.

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5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapors/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to

section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Do not breathe

dust/fume/gas/mist/vapors/spray. Wear personal protective equipment.

Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always

wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

COPPER SULPHATE HYDRATED (7758-98-7)

No additional information available

COPPER SULPHATE (7758-98-7)

No additional information available

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:

Protective gloves

Eye protection:

Safety glasses

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Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):







SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

: Solid Physical state : Blue Color Odor odorless Odor threshold No data available 0 Source: GESTIS Melting point 560 °C Source: ECHA : Not applicable Freezing point Boiling point : No data available : Not applicable Flash point Relative evaporation rate (butyl acetate=1) No data available Flammability (solid, gas) Non flammable. No data available Vapor pressure Relative vapor density at 20°C No data available.

Molecular mass : 159.6 g/mol Source: ChemIDPlus

3.6 Source: ECHA

Solubility : Water: 22 g/100ml
Partition coefficient n-octanol/water (Log Pow) : -0.17 Source: EPISUITE
Auto-ignition temperature : No data available.
Decomposition temperature : 650 °C

 Decomposition temperature
 : 650 °C

 Viscosity, kinematic
 : Not applicable

 Viscosity, dynamic
 : No data available

 Explosion limits
 : Not applicable

 Explosive properties
 : No data available

 Oxidizing properties
 : No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Relative density

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

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10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Harmful if inhaled.

COPPER SULPHATE HYDRATED (7758-98-7)	
LD50 oral rat	481 mg/kg Source: ECHA
LD50 dermal rat	> 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OTS 798.1100 (Acute Dermal Toxicity), Guideline: other:
ATE US (oral)	481 mg/kg body weight
ATE US (dust, mist)	1 mg/l/4h

COPPER SULPHATE (7758-98-7)		
LD50 oral rat	481 mg/kg Source: ECHA	
LD50 dermal rat	> 2000 mg/kg body weight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal)), Guideline: EPA OTS 798.1100 (Acute Dermal Toxicity), Guideline: other:	
LC50 Inhalation - Rat (Dust/Mist)	1 – 5 mg/l Source: OSHRI GLP toxicity test	
ATE US (oral)	481 mg/kg body weight	
ATE US (dust, mist)	1 mg/l/4h	

Skin corrosion/irritation : Causes severe skin burns.
pH: 0 Source: GESTIS

CO	PPE	RSUL	PHAT	E (7	758-9	8-7)

pH 0 Source: GESTIS

Serious eye damage/irritation : Causes serious eye damage.
pH: 0 Source: GESTIS

COPPER SULPHATE (7758-98-7)

pH 0 Source: GESTIS

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity Not classified Not classified Carcinogenicity : Not classified Reproductive toxicity STOT-single exposure : Not classified STOT-repeated exposure Not classified : Not classified Aspiration hazard Viscosity, kinematic : Not applicable Symptoms/effects after skin contact Burns.

Symptoms/effects after eye contact : Serious damage to eyes.

Symptoms/effects after ingestion : Burns.

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SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

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LC50 - Fish [1] 0.193 mg/l Source: ECHA

COPPER SULPHATE (7758-98-7)

(1100)	
LC50 - Fish [1]	0.193 mg/l Source: ECHA
EC50 72h - Algae [1]	> 0.0029 mg/l Source: ECHA

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

COPPER SULPHATE HYDRATED (7758-98-7)

Partition coefficient n-octanol/water (Log Pow) -0.17 Source: EPISUITE

COPPER SULPHATE (7758-98-7)

Partition coefficient n-octanol/water (Log Pow) -0.17 Source: EPISUITE

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

DOT NA No : UN3077 UN-No. (TDG) : UN3077 UN-No. (IMDG) : 3077 UN-No. (IATA) : 3077

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Environmentally hazardous substances, solid, n.o.s.

Proper Shipping Name (TDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Proper Shipping Name (IMDG) : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

Proper Shipping Name (IATA) : Environmentally hazardous substance, solid, n.o.s.

14.3. Transport hazard class(es)

DOT

Transport hazard class(es) (DOT) : 9
Hazard labels (DOT) : 9



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TDG

Transport hazard class(es) (TDG) : 9
Hazard labels (TDG) : 9



IMDG

Transport hazard class(es) (IMDG) : 9
Hazard labels (IMDG) : 9



IATA

Transport hazard class(es) (IATA) : 9

Hazard labels (IATA) : 9



14.4. Packing group

Packing group (DOT) : III
Packing group (TDG) : III
Packing group (IMDG) : III
Packing group (IATA) : III

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Special precautions for user

DOT

UN-No.(DOT) : UN3077

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DOT Special Provisions (49 CFR 172.102)

- : 8 A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.", as appropriate. In addition, for solid materials, special provision B54 applies.
 - 146 This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.
 - 335 Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s," UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.
 - 384 For transportation by motor vehicle, substances meeting the conditions for high viscosity flammable liquids as prescribed in §173.121(b)(1)(i), (b)(1)(ii), and (b)(1)(iv) of this subchapter, may be reassigned to Packing Group III under the following conditions:
 - A112 Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg:
 - a. Metal: 11A, 11B, 11N, 21A, 21B and 21N
 - b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2
 - c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2
 - d. Fiberboard: 11G
 - e. Wooden: 11C, 11D and 11F (with inner liners)
 - f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be sift-proof and water resistant or must be fitted with a sift-proof and water resistant liner).
 - B54 Open-top, sift-proof rail cars are also authorized.
 - B120 The use of flexible bulk containers conforming to the requirements in subpart R and subpart S of part 178 of this subchapter is permitted.
 - IB8 Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
 - IP3 Flexible IBCs must be sift-proof and water-resistant or must be fitted with a sift-proof and water-resistant liner.
 - $\ensuremath{\text{N20}}$ A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.
 - N91 The use of a non specification sift-proof, non-bulk, metal can with or without lid, or a non specification sift-proof, non-bulk fiber drum, with or without lid is authorized when transporting coal tar pitch compounds by motor vehicle or rail freight. The fiber drum must to be fabricated with a three ply wall, as a minimum. The coal tar pitch compound must be in a solid mass during transportation.
 - T1 1.5 178.274(d)(2) Normal...... 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx) : 155

DOT Packaging Non Bulk (49 CFR 173.xxx) : 213

DOT Packaging Bulk (49 CFR 173.xxx) : 240

DOT Quantity Limitations Passenger aircraft/rail (49 : No Limit

CFR 173.27)

DOT Quantity Limitations Cargo aircraft only (49 CFR

175.75)

DOT Vessel Stowage Location : A - The material may be stowed ''on deck'' or ''under deck'' on a cargo vessel and on a passenger vessel.

: No Limit

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TDG

UN-No. (TDG) : UN3077

TDG Special Provisions

: 16 - 1) The technical name of the most dangerous substance related to the primary class must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause

3.5(1)(c)(i)(A) of Part 3, Documentation. The technical name must also be shown, in parentheses, on a

small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Port 4. Departure Goods Safaty Marks

4.11(2) and (3) of Part 4, Dangerous Goods Safety Marks.

2) subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport prohibits the disclosure of the technical: a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. An example in Canada is the "Food and Drugs Act",99 - (1) Mixtures of solids that are not dangerous goods and liquids or solids that are UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, may be handled, offered for transport or transported as UN3077 if there is no visible liquid when the dangerous goods are loaded into a means containment and during transport. (2) These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S, or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S, on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety. SOR/2014-306 UN3077, UN3082 SOR/2014-306

Explosive Limit and Limited Quantity Index : 5 kg
Excepted quantities (TDG) : E1

Emergency Response Guide (ERG) Number

IMDG

Special provision (IMDG) : 274, 335, 966, 967, 969

 Limited quantities (IMDG)
 : 5 kg

 Excepted quantities (IMDG)
 : E1

 Packing instructions (IMDG)
 : LP02, P002

 Packing provisions (IMDG)
 : PP12

 IBC packing instructions (IMDG)
 : IBC08

 IBC special provisions (IMDG)
 : B3

Tank instructions (IMDG) : BK1, BK2, BK3, T1

Tank special provisions (IMDG) : TP33

EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE

: 171

EmS-No. (Spillage) : S-F - SPILLAGE SCHEDULE Foxtrot - WATER-SOLUBLE MARINE POLLUTANTS

Stowage category (IMDG) : A Stowage and handling (IMDG) : SW23

IATA

PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y956
PCA limited quantity max net quantity (IATA) : 30kgG
PCA packing instructions (IATA) : 956
PCA max net quantity (IATA) : 400kg
CAO packing instructions (IATA) : 956
CAO max net quantity (IATA) : 400kg

Special provision (IATA) : A97, A158, A179, A197, A215

ERG code (IATA) : 9L

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

Not applicable

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SECTION 15: Regulatory information

15.1. US Federal regulations

COPPER SULPHATE HYDRATED (7758-98-7)

Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 10

Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):

Name	CAS-No.	Listing	Commercial status	Flags
COPPER SULPHATE	7758-98-7	Present	Active	

COPPER SULPHATE (7758-98-7)

Subject to reporting requirements of United States SARA Section 313

CERCLA RQ 10 lb

15.2. International regulations

CANADA

COPPER SULPHATE HYDRATED (7758-98-7)

Listed on the Canadian DSL (Domestic Substances List)

COPPER SULPHATE (7758-98-7)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

COPPER SULPHATE HYDRATED (7758-98-7)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

COPPER SULPHATE (7758-98-7)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

No additional information available

SECTION 16: Other information

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Full text of H-phrases	
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H332	Harmful if inhaled

Safety Data Sheet (SDS), USA

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.