



[Tetraamminecopper\(II\) Sulfate
Monohydrate](#)

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Linear Formula	Cu(NH ₃) ₄ SO ₄ • H ₂ O
Pubchem CID	61513
MDL Number	MFCD00150661
EC No.	238-177-3
IUPAC Name	copper; azane; sulfate; hydrate
Beilstein/Reaxys No.	N/A
SMILES	N.N.N.N.O.[O-]S(=O)(=O)[O-].[Cu+2]
Inchl Identifier	InChI=1S/Cu.4H3N.H2O4S.H2O/c;;;;;1-5(2,3)4/h;4*1H3;(H2,1,2,3,4);1H2/q+2;;;;;;p-2
Inchl Key	ABAHXVHZPFQSDZ-UHFFFAOYSA-L

Signal Word	Warning
Hazard Statements	H315-H319-H335
Hazard Codes	Xi
Risk Codes	36/37/38
Safety Statements	26-37/39
RTECS Number	N/A
Transport Information	N/A
WGK Germany	3
GHS Pictograms	<p>GHS07 Exclamation Point</p>  <p>GHS09 Environment</p> 

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SAFETY DATA SHEET

Date Accessed: 04/28/2024

Date Revised: 01/15/2022

SECTION 1. IDENTIFICATION

Product Identifiers: All applicable American

Elements product codes for CAS #10380-29-7

Relevant identified uses of the substance:

Scientific research and development

Supplier details:

American Elements
10884 Weyburn Ave.
Los Angeles, CA 90024
Tel: +1 310-208-0551
Fax: +1 310-208-0351

Emergency telephone number:

Domestic, North America +1 800-424-9300

International +1 703-527-3887

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

2.2 GHS Label elements, including precautionary statements



Pictogram

Signal word Warning

Hazard statement(s)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H335 May cause respiratory irritation.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P261 Avoid breathing dust/ fume/ gas/ mist/ Vapors/ spray.

P264 Wash skin thoroughly after handling.

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

P273 Avoid release to the environment.

P280 Wear eye protection/ face protection.

P280 Wear protective gloves.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 + P312 IF INHALED: Remove person to

fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P391 Collect spillage.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

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

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula : $\text{H}_{12}\text{CuN}_4\text{O}_4\text{S} \cdot \text{H}_2\text{O}$

Molecular weight : 245.75 g/mol

CAS-No. : 10380-29-7

EC-No. : 238-177-3

Hazardous components

Component Classification Concentration

Tetraamminecopper(II) sulfate monohydrate

Skin Irrit. 2; Eye Irrit. 2A;

STOT SE 3; Aquatic Acute 1;

Aquatic Chronic 1; H315,

H319, H335, H410

<= 100 %

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Nitrogen oxides (NO_x), Sulphur oxides, Copper oxides

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing Vapors, mist or gas.

Ensure adequate

ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment

must be avoided.

6.3 Methods and materials for containment and

cleaning up

Pick up and arrange disposal without creating dust.
Sweep up and shovel. Keep in suitable, closed
containers for
disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of
dust and aerosols. Further processing of solid
materials may result

in the formation of combustible dusts. The potential
for combustible dust formation should be taken into
consideration

before additional processing occurs.

Provide appropriate exhaust ventilation at places
where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-
ventilated place.

Keep in a dry place. Keep in a dry place.

Storage class (TRGS 510): Non Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other
specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component CAS-No. Value Control
parameters

Basis

Tetraamminecopper(
II) sulfate

monohydrate

10380-29-7 TWA 1.000000

mg/m³

USA. NIOSH Recommended

Exposure Limits

TWA 1.000000

mg/m³

USA. NIOSH Recommended

Exposure Limits

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Safety glasses with side-shields conforming to EN166

Use equipment for eye protection tested and approved

under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after

use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Body Protection

impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and

components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance Form: powder

b) Odor No data available

c) Odor Threshold No data available

d) pH No data available

e) Melting point/freezing point

No data available

f) Initial boiling point and boiling range

No data available

g) Flash point N/A
h) Evaporation rate No data available
i) Flammability (solid, gas) No data available
j) Upper/lower
flammability or
explosive limits
No data available
k) Vapor pressure No data available
l) Vapor density No data available
m) Relative density 1.81 g/mL at 25 °C (77 °F)
n) Water solubility No data available
o) Partition coefficient: noctanol/
water
No data available
p) Auto-ignition
temperature
No data available
q) Decomposition
temperature
No data available
r) Viscosity No data available
s) Explosive properties No data available
t) Oxidizing properties No data available
9.2 Other safety information
No data available

SECTION 10. STABILITY AND REACTIVITY

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Avoid moisture.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

Dermal: No data available

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

No data available

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak

pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions,

paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic

cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by

humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and

accelerates arteriosclerosis.

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging

Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

DOT (US)

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substances, solid, n.o.s. (Tetraamminecopper(II) sulfate

monohydrate)

Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATA

Not dangerous goods

SECTION 15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:
Tetraamminecopper(II) sulfate monohydrate
CAS-No.
10380-29-7
Revision Date
2007-07-01
SARA 311/312 Hazards
Acute Health Hazard
Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right To Know Components
Tetraamminecopper(II) sulfate monohydrate
CAS-No.
10380-29-7
Revision Date
2007-07-01
New Jersey Right To Know Components
Tetraamminecopper(II) sulfate monohydrate
CAS-No.
10380-29-7
Revision Date
2007-07-01
California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.
