



Safety Data Sheet

In accordance with CFR 1910.1200 (OSHA HCS)

SDS No. 670

Date of review: December 6, 2018

1 Identification of substance and company

Product name: **Copper (II) Sulfate, Anhydrous**
Product code: 13861
Relevant use and restrictions on use: Research and product development
Manufacturer/Supplier: Noah Technologies Corporation
1 Noah Park
San Antonio, Texas 78249-3419
Phone: 210-691-2000
Fax: 210-691-2600
Web site: www.noahtech.com
Emergency information: CHEMTREC
800-424-9300

2 Hazards identification

Emergency Overview:

Pictogram(s):



Signal word(s):

Warning

Hazard statements:

H302 - Harmful if swallowed.
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements:

P264 - Wash skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
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
P501 - Dispose of contents/ container to an approved waste disposal plant

GHS Classification:

Acute toxicity, Oral - 4
Skin irritation - 2
Eye irritation - 2A
Acute aquatic toxicity - 1
Chronic aquatic toxicity - 1

Hazards not otherwise classified:

None

HMIS ratings (scale 0-4):

Health hazard: 2
Flammability: 0
Physical hazard: 0

3 Composition/Information on ingredients

Chemical name: Copper (II) sulfate, anhydrous
CAS number: 7758-98-7
EC number: 231-847-6

Formula: CuSO₄
Synonyms: Cupric sulfate, Blue Copper, Triangel

4 First aid measures

After inhalation: Move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact: Wash off with soap and plenty of water. Consult a physician.
After eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
After ingestion: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Information for doctor: Show this safety data sheet to the doctor in attendance
Symptoms/effects; acute and delayed: Human systemic effects by ingestion include gastritis, diarrhea, nausea or vomiting, damage to kidney tubules and hemolysis. Causes skin irritation. Causes severe eye irritation. Material is irritating to mucous membranes and upper respiratory tract. Exposure can cause damage to the eyes and gastrointestinal 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.
Immediate medical attention and special treatment needed: See above

5 Fire-fighting measures

Suitable and unsuitable extinguishing agents: Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
Special hazards caused by the material, its products of combustion or resulting gases: Oxides of copper and sulfur (Sox)
Special fire fighting procedures: Wear self-contained breathing apparatus and fully protective fire fighting equipment/clothing
Unusual fire and explosion hazard: No available data

6 Accidental release measures

Person-related safety precautions: Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
Measures for environmental protection: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Measures for cleaning/collecting: Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for proper disposal.
Additional information: See Section 7 for information on safe handling
See Section 8 for information on personal protective equipment
See Section 13 for information on disposal
See Section 15 for regulatory information

7 Handling and storage

Information for safe handling: Avoid contact with skin and eyes. Avoid dust formation. Provide appropriate exhaust ventilation.
Information about protection against explosions and fires: No data available
Storage requirements to be met by storerooms and containers: Air sensitive. Hygroscopic. Store under dry, inert gas. Keep container tightly closed in a dry and well-ventilated place
Incompatibility (avoid contact with): Moisture, air, finely powdered metals, corrodes steel
Reacts violently with hydroxylamine, magnesium

8 Exposure controls/personal protection

Ventilation requirements: Local exhaust, chemical fume hood
Components with exposure limits that require monitoring: OSHA PEL: TWA 1 mg (Cu)/m³
ACGIH TLV: TWA 1 mg (Cu)/m³
General protective and hygienic measures: The usual precautionary measures for handling chemicals should be adhered to
Keep away from foodstuffs, beverages and food
Instantly remove any soiled and impregnated garments
Wash hands during breaks and at the end of the work
Avoid contact with the eyes and skin
Personal protective equipment:
Respiratory protection: Filter-dust, fume, mist; respirator equipped with HEPA
(Use only NIOSH or CEN approved Equipment)
Hand protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique.
Eye protection: Safety glasses with side-shields
Skin protection: Completely covering work attire with full length apron
Additional protective equipment: Sufficient to prevent contact. Emergency eyewash and safety shower

Precautionary labeling:	Wash thoroughly after handling Do not get in eyes, on skin or on clothing Do not breathe dust, vapor, mist, gas Keep away from heat, sparks, and open flames Empty container may contain hazardous residues
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9 Physical and chemical properties

Physical state:	Crystalline powder
Color:	Light grey to light blue
Odor:	Odorless
Odor threshold:	No data available
Molecular Weight (Calculated):	159.6
pH	No data available
Melting point/freezing point/range:	> 560 C (decomposes)
Boiling point/range:	No data available
Sublimation temperature/start:	No data available
Decomposition temperature:	No data available
Flammability (solid, gas):	Non-flammable
Flash point:	No data available
Autoignition temperature:	No data available
Danger of explosion:	No data available
Flammable limits:	
Lower:	No data available
Upper:	No data available
Evaporation Rate:	No data available
Vapor pressure (mm Hg):	No data available
Vapor density:	No data available
Specific gravity:	3.603
Bulk density:	No data available
Solubility in/Miscibility with water:	143 g/L @ 0 C
Partition coefficient n-octanol/water:	No data available
Viscosity:	No data available
Other information:	No additional information

10 Stability and reactivity

Reactivity:	No data available
Chemical stability:	Stable under recommended storage conditions
Possibility of hazardous reactions:	No data available
Conditions to be avoided:	No data available
Materials to be avoided:	See section 7 for information on proper handling and storage
Dangerous reactions:	Reacts violently with hydroxylamine, magnesium
Hazardous decomposition products:	Oxides of copper and sulfur (SOx)

11 Toxicological information

LD/LC50 values that are relevant for classification:	oral-rat LD ₅₀ : 482 mg/kg intraperitoneal-rat LD ₅₀ : 20 mg/kg subcutaneous-rat LD ₅₀ : 43 mg/kg intravenous-rat LD ₅₀ : 48.9 mg/kg
Irritation or corrosion of skin:	No data available
Irritation or corrosion of eyes:	No data available
Primary irritant or corrosive effect:	
on the skin:	Moderate
on the eye:	Moderate
Sensitization:	Skin - allergen
Potential health effects:	
Inhalation:	material is irritating to mucous membranes and upper respiratory tract.
Ingestion:	May cause gastrointestinal disorders
Skin:	May cause moderate irritation
Eyes:	May cause moderate irritation
Signs and symptoms of exposure:	Harmful if inhaled or swallowed. A human poison by ingestion. An experimental poison by ingestion, subcutaneous, parenteral, intravenous and intraperitoneal routes. An experimental tumorigen. Human systemic effects by ingestion include gastritis, diarrhea, nausea or vomiting, damage to kidney tubules, and hemolysis. Mutagenic data. Causes skin irritation. Causes severe eye irritation. Material is irritating to mucous membranes and upper respiratory tract. Exposure can cause damage to the eyes and gastrointestinal disturbance.

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.

Carcinogenicity:

Not listed as a carcinogen with NTP, IARC, OSHA or ACGIH

Additional information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known

12 Ecotoxicological information

Toxicity:

Toxicity to fish:

Bluegill LC₅₀: 1.5 mg/L:24H

Rainbow trout LC₅₀: 0.17 mg/L:24H

Toxicity to daphnia and other aquatic invertebrates:

Daphnia magna EC₅₀: 0.024 mg/L:48H

Toxicity to algae:

Persistence and degradability:

Biodegradability:

No data available

Bioaccumulation:

No data available

Mobility in soil:

No data available

Other adverse effects:

Very toxic to aquatic life with long lasting effects

13 Disposal considerations

Recommendation:

Consult state, local or national regulation for proper disposal

Allow professional disposal company to handle waste

Must be specially treated under adherence to official regulations

Unclean packagings recommendation:

Disposal must be made according to official regulations

14 Transport information

Land transport DOT



Proper shipping name:

Environmentally hazardous substance, solid, n.o.s.

Technical name:

Copper (ii) sulfate, anhydrous

DOT Hazard Class:

9

UN Identification number:

UN3077

Label(s):

Class 9, Marine Pollutant

Packing group:

III

Reportable quantity (RQ):

4.54 kg

North American Emergency Response

Guidebook No.:

171

Air transport ICAO-TI and IATA-DGR:



Proper shipping name:

Environmentally hazardous substance, solid, n.o.s.

Technical name:

Copper (II) sulfate, anhydrous

DOT Hazard Class:

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UN Identification number:

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Label(s):

Class 9, Marine Pollutant

Packing group:

III

Reportable quantity (RQ):

4.54 kg

North American Emergency Response

Guidebook No.:

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UPS Ground / FedEx Ground



Proper shipping name:

Environmentally hazardous substances, solid, n.o.s.

Technical name: Copper (II) sulfate, anhydrous
DOT Hazard Class: 9
UN Identification number: UN3077
Label(s): Class 9, Marine Pollutant
Packing group: III
Reportable quantity (RQ): 4.54 kg
North American Emergency Response Guidebook No.: 171

UPS Air



Proper shipping name: Environmentally hazardous substance, solid, n.o.s.
Technical name: Copper (ii) sulfate, anhydrous
DOT Hazard Class: 9
UN Identification number: UN3077
Label(s): Class 9, Marine Pollutant
Packing group: III
Reportable quantity (RQ): 4.54 kg
North American Emergency Response Guidebook No.: 171

15 Regulatory information

SARA Section 302 Extremely Hazardous components and corresponding TPQs: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA Section 311 / 312 hazards: Acute Health Hazard, chronic Health Hazard
SARA Section 313 components: The following components are subject to reporting levels established by SARA Title III, Section 313:
Copper sulphate - CAS No.: 7758-98-7 - Revision Date: 1993-04-24
California Proposition 65 components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.
TSCA: Product is listed on TSCA Inventory

16 Other information

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulation are subject to change and the conditions of handling and use, or misuse are beyond our control. NOAH MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THE COMPLETENESS OR CONTINUING ACCURACY OF THE INFORMATION CONTAINED HEREIN AND DISCLAIMS ALL LIABILITY FOR RELIANCE THEREON. User should satisfy himself that he has all current data relevant to his particular use.