Material Safety Data Sheet
Copper (II) Nitrate Hemipentahydrate

ACC# 05646

Section 1 - Chemical Product and Company Identification

MSDS Name: Copper (II) Nitrate Hemipentahydrate
Catalog Numbers: S73211, C467 500, C467-500, C467500
Synonyms: Cupric Nitrate Hemipentahydrate; Copper Dinitrate Hemipentahydrate; Nitric Acid Copper Salt Hemiipentahydrate.
Company Identification:

Fisher Scientific
1 Reagent Lane
Fair Lawn, NJ 07410

For information, call: 201-796-7100
Emergency Number: 201-796-7100
For CHEMTREC assistance, call: 800-424-9300
For International CHEMTREC assistance, call: 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
19004-19-4	Copper (II) Nitrate, Hemipentahydrate	>98	unlisted

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: blue solid.
Danger! Strong oxidizer. Contact with other material may cause a fire. Causes digestive and respiratory tract irritation with possible burns. May cause allergic skin reaction. May cause severe eye and skin irritation with possible burns. May cause liver and kidney damage.
Target Organs: Kidneys, liver.

Potential Health Effects
Eye: Contact with eyes may cause severe irritation, and possible eye burns. Contact may cause ulceration of the conjunctiva and cornea. May cause conjunctivitis. May cause permanent corneal opacification.
Skin: May cause severe irritation and possible burns. May cause dermatitis. May cause skin discoloration.
Ingestion: May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause liver and kidney damage. May cause hemorrhaging of the digestive tract. Methemoglobinemia is characterized by dizziness, drowsiness, headache, shortness of breath, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), rapid heart rate and chocolate-brown colored blood. May cause nausea, vomiting, and diarrhea, possibly with blood.
Inhalation: May cause methemoglobinemia, cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood), convulsions, tachycardia, dyspnea (labored breathing), and death. May cause ulceration and perforation of the nasal septum if inhaled in excessive quantities. May cause severe irritation of the upper respiratory tract with pain, burns, and inflammation. May cause acute pulmonary edema, asphyxia, chemical pneumonitis, and upper airway obstruction caused by edema.
Chronic: Chronic inhalation and ingestion may cause effects similar to those of acute inhalation and ingestion. May cause liver and kidney damage. May cause methemoglobinemia, which is characterized by chocolate-brown colored blood, headache, weakness, dizziness, breath shortness, cyanosis (bluish skin due to deficient oxygenation of blood), rapid heart rate, unconsciousness and possible death. Individuals with Wilson's disease are unable to metabolize copper. Thus, copper accumulates in various tissues and may result in liver, kidney, and brain damage.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.
Skin: Get medical aid. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.
Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Get medical aid immediately.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.
Notes to Physician: For methemoglobinemia, administer oxygen alone or with Methylene Blue depending on the methemoglobin concentration in the blood.
Antidote: The use of d-Penicillamine as a chelating agent should be determined by qualified medical personnel. Methylene blue, alone or in combination with oxygen is indicated as a treatment in nitrite induced methemoglobinemia.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Use water with

caution and in flooding amounts.
Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Contact professional fire-fighters immediately.
Flash Point: Not available.
Autoignition Temperature: Not available.
Explosion Limits, Lower: Not available.
Upper: Not available.
NFPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 1; Special Hazard: OX

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Remove all sources of ignition. Do not use combustible materials such as paper towels to clean up spill.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Use with adequate ventilation. Minimize dust generation and accumulation. Contents may develop pressure upon prolonged storage. Keep away from heat, sparks and flame. Avoid contact with clothing and other combustible materials. Do not get on skin or in eyes. Avoid ingestion and inhalation.
Storage: Keep away from heat, sparks, and flame. Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Copper (II) Nitrate, Hemipentahydrate	none listed	1 mg/m3 TWA (as Cu except Copper fume) (listed under Copper compounds, n.o.s.).	none listed

OSHA Vacated PELs: Copper (II) Nitrate, Hemipentahydrate: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin: Wear appropriate gloves to prevent skin exposure. Wear impervious gloves.
Clothing: Wear a chemical apron. Wear appropriate clothing to prevent skin exposure.
Respirators: Wear a NIOSH/MSHA or European Standard EN 149 approved full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Appearance: blue
Odor: odorless
pH: Not available.
Vapor Pressure: Not available.
Vapor Density: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: Not available.
Freezing/Melting Point:255 deg C
Decomposition Temperature: Not available.
Solubility: Soluble in water.
Specific Gravity/Density:>1.0
Molecular Formula: CuN2O6.2.5H2O
Molecular Weight:224.5896

Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.
Conditions to Avoid: Incompatible materials, ignition sources, dust generation, combustible materials, reducing agents, organic matter.
Incompatibilities with Other Materials: Reducing agents.
Hazardous Decomposition Products: Oxides of nitrogen, irritating and toxic fumes and gases, copper fumes.
Hazardous Polymerization: Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 19004-19-4 unlisted.
LD50/LC50:
Not available.

Carcinogenicity:
CAS# 19004-19-4: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: No information found
Reproductive Effects: No information found
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	NITRATES, INORGANIC, N.O.S.	NITRATES INORGANIC NOS (CUPRIC NITRATE)
Hazard Class:	5.1	5.1
UN Number:	UN1477	UN1477
Packing Group:	II	II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 19004-19-4 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 19004-19-4: immediate, delayed, fire.
Section 313
This material contains Copper (II) Nitrate, Hemipentahydrate (listed as Copper compounds, n.o.s.), >98%, (CAS# 19004-19-4) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 19004-19-4 is listed as a Toxic Pollutant under the Clean Water Act.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 19004-19-4 can be found on the following state right to know lists: California, (listed as Copper compounds, n.o.s.), Pennsylvania, (listed as Copper compounds, n.o.s.).

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

O

Risk Phrases:

R 8 Contact with combustible material may cause fire.

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 19004-19-4: No information available.

Canada - DSL/NDSL

None of the chemicals in this product are listed on the DSL or NDSL list.

Canada - WHMIS

This product has a WHMIS classification of C, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 19004-19-4 (listed as Copper compounds, n.o.s.) is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 9/02/1997
Revision #5 Date: 10/03/2005