**** MATERIAL SAFETY DATA SHEET ****

Copper (II) Nitrate Hemipentahydrate
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
Fairlawn, 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	%	EINECS#
19004-19-4	Copper (II) Nitrate, Hemipentahydrate	>98	unlisted

Hazard Symbols: O
Risk Phrases: 8

**** SECTION 3 - HAZARDS IDENTIFICATION ****

EMERGENCY OVERVIEW

Appearance: blue.
Danger! Strong oxidizer. Contact with other material may cause a fire. May cause allergic skin reaction. May cause liver and kidney damage. May cause severe eye and skin irritation with possible burns. Causes digestive and respiratory tract irritation with possible burns.
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, breath shortness, cyanosis with bluish skin, rapid heart rate and chocolate-brown colored blood. May cause nausea, vomiting, and diarrhea, possibly with blood.

Inhalation:
May cause methemoglobinemia, cyanosis, convulsions, tachycardia, dyspnea, 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, 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 soap and 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 to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. 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 methemoglobinemia 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 combustible materials may cause a 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.

**** 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. Avoid contact with 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	fume: 0.2 mg/m3 TWA; dusts and mists, as Cu: 1 mg/m3 TWA (listed under ** no name **).	as Cu: 1 mg/m3 TWA (dusts and mists); 0.1 mg/m3 TWA (fume) (listed under ** no name **).dusts as mists as Cu: 100 mg/m3 IDLH (listed under ** no name **).	fume, as Cu: 0.1 mg/m3 TWA; dusts and mists, as Cu: 1 mg/m3 TWA (listed under ** no name **).

OSHA Vacated PELs:
Copper (II) Nitrate, Hemipentahydrate:
fume, as Cu: 0.1 mg/m3 TWA (listed under ** no name **)

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
Autoignition Temperature:	Not available.
Flash Point:	Not available.
NFPA Rating:	(est.) Health: 2; Flammability: 0; Reactivity: 1
Explosion Limits, Lower:	Not available.
Upper:	Not available.
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:
Copper (II) Nitrate, Hemipentahydrate -
Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.
Epidemiology:
No information available.
Teratogenicity:
No information available.
Reproductive Effects:
No information available.
Neurotoxicity:
No information available.
Mutagenicity:
No information available.
Other Studies:
No data available.

**** SECTION 12 - ECOLOGICAL INFORMATION ****

**** SECTION 13 - DISPOSAL CONSIDERATIONS ****

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

**** SECTION 14 - TRANSPORT INFORMATION ****

US DOT
Shipping Name: NITRATES, INORGANIC, N.O.S.
Hazard Class: 5.1

UN Number: UN1477
Packing Group: II
Canadian TDG
Shipping Name: NITRATES INORGANIC NOS (CUPRIC NITRATE)
Hazard Class: 5.1
UN Number: UN1477

**** SECTION 15 - REGULATORY INFORMATION ****

US FEDERAL
TSCA
CAS# 19004-19-4 is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements (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.
SARA
Section 302 (RQ)
None of the chemicals in this material have an RQ.
Section 302 (TPQ)
None of the chemicals in this product have a TPQ.
SARA Codes
CAS # 19004-19-4: acute, chronic, flammable.
Section 313
This material contains Copper (II) Nitrate, Hemipentahydrate (listed as ** undefined **), 98%, (CAS# 19004-19-4) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.
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.
CAS# 19004-19-4 is listed as a Priority Pollutant under the Clean Water Act.
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
Copper (II) Nitrate, Hemipenta can be found on the following state right to know lists: California, (listed as ** no name **), California, (listed as ** no name **), New Jersey, (listed as ** no name **), Florida, (listed as ** no name **), Pennsylvania, (listed as ** no name **), Minnesota, (listed as ** no name **), Massachusetts, (listed as ** no name **).
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.
United Kingdom Occupational Exposure Limits
CAS# 19004-19-4: OES-United Kingdom, TWA (listed as ** undefined **): fume: 0.2 ppm TWA; dusts and mists, as Cu: 1 mg/m3 TWA
CAS# 19004-19-4: OES-United Kingdom, STEL (listed as ** undefined **): dusts and mists, as Cu: 2 mg/m3 STEL
Canada
None of the chemicals in this product are listed on the DSL/NDSL list.
This product has a WHMIS classification of C, D2B.
CAS# 19004-19-4 is not listed on Canada's Ingredient Disclosure List.
Exposure Limits
CAS# 19004-19-4 (listed as ** undefined **): OEL-ARAB Republic of Egypt:TWA 0.1 mg/m3 (fume)
OEL-AUSTRALIA:TWA 0.2 mg/m3 (fume)
OEL-AUSTRALIA:TWA 1 mg/m3 (dust)
OEL-BELGIUM:TWA 0.2 mg/m3 (fume)
OEL-BELGIUM:TWA 1 mg/m3 (dust)
OEL-DENMARK:TWA 0.1 mg/m3 (fume)
OEL-DENMARK:TWA 1 mg/m3 (dust)
OEL-FINLAND:TWA 0.2 mg/m3 (fume)
OEL-FINLAND:TWA 1 mg/m3
OEL-FINLAND:TWA 1 mg/m3 (dust)
OEL-FRANCE:TWA 0.2 mg/m3 (fume)
OEL-FRANCE:TWA 1 mg/m3;STEL 2 mg/m3 (dust)
OEL-GERMANY:TWA 0.1 mg/m3 (fume)

OEL-GERMANY:TWA 1 mg/m3
OEL-GERMANY:TWA 1 mg/m3 (dust)
OEL-HUNGARY:TWA 0.2 mg/m3;STEL 0.4 mg/m3 (dust)
OEL-INDIA:TWA 0.2 mg/m3 (fume)
OEL-THE NETHERLANDS:TWA 02 mg/m3 (fume)
OEL-THE NETHERLANDS:TWA 1 mg/m3 (dust)
OEL-THE PHILIPPINES:TWA 1.0 mg/m3 (fume)
OEL-POLAND:TWA 0.1 mg/m3 (fume)
OEL-RUSSIA:STEL 0.5 ppm (1 mg/m3) (dust)
OEL-SWEDEN:TWA 0.2 mg/m3 (resp. dust)
OEL-SWEDEN:TWA 0.2 mg/m3 (fume)
OEL-SWEDEN:TWA 1 mg/m3 (total dust)
OEL-SWITZERLAND:TWA 0.1 mg/m3;STEL 0.2 mg/m3 (fume)
OEL-SWITZERLAND:TWA 1 mg/m3;STEL 1 mg/m3
OEL-THAILAND:TWA 0.1 mg/m3 (fume)
OEL-THAILAND:TWA 1 mg/m3

**** SECTION 16 - ADDITIONAL INFORMATION ****

MSDS Creation Date: 9/02/1997 Revision #2 Date: 8/04/1999

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.