Material Safety Data Sheet

Copper, reference standard solution 1000 ppm

MSDS# 05462

Section 1 - Chemical Product and Company Identification

MSDS Name:	Copper, reference standard solution 1000 ppm
Catalog Numbers:	SC194-100, SC194-500
Synonyms:	None.
Company Identification:	Fisher Scientific One Reagent Lane Fair Lawn, NJ 07410
For information in the US, call:	201-796-7100
Emergency Number US:	201-796-7100
CHEMTREC Phone Number, US:	800-424-9300

Section 2 - Composition, Information on Ingredients

Risk Phrases: 35 8

CAS#:	7697-37-2
Chemical Name:	Nitric acid
%:	1.96
EINECS#:	231-714-2
Hazard Symbols:	O C

Risk Phrases:

CAS#:	7732-18-5
Chemical Name:	Water
%:	97.68
EINECS#:	231-791-2
Hazard Symbols:	

Risk Phrases:

CAS#:	19004-19-4
Chemical Name:	Cupric nitrate
%:	0.36
EINECS#:	unlisted
Hazard Symbols:	

Text for R-phrases: see Section 16

Hazard Symbols: XI

Risk Phrases: 37/38 41

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Danger! May cause lung damage. May cause severe eye irritation and possible injury. May cause liver and kidney damage. Corrosive to metal. Causes skin and respiratory tract irritation. Target Organs: Kidneys, liver, lungs, eyes, skin.

Potential Health Effects

Eye:	May cause irreversible eye injury.
Skin:	Causes skin irritation.
Ingestion:	May cause irritation of the digestive tract.
Inhalation:	Causes respiratory tract irritation. Damage may be delayed. Aspiration may lead to pulmonary edema. May cause systemic effects.
Chronic:	May cause liver and kidney damage. Exposure to high concentrations of nitric acid vapor may cause pneuomonitis and pulmonary edema which may be fatal. Symptoms may or may not be delayed. Continued exposure to the vapor & mist of nitric acid may result in a chronic bronchitis, & more severe exposure results in a chemical pneumonitis. The vapor & mists of nitric acid may erode the teeth, particularly affecting the canines & incisors.

Section 4 - First Aid Measures

Eyes:	Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).
Skin:	Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.
Ingestion:	Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. 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.
Notes to Physician:	

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. 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. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Contact with metals may evolve flammable hydrogen gas.
Extinguishing Media:	Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Cool containers with flooding quantities of water until well after fire is out.
Autoignition Temperature:	Not applicable.
Flash Point:	Not applicable.
Explosion Limits: Lower:	Not available
Explosion Limits: Upper:	Not available
NFPA Rating:	health: 3; flammability: 0; instability: 0;

Section 6 - Accidental Release Measures

General Information:	Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks:	Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Neutralize spill with sodium bicarbonate. Provide ventilation.

Section 7 - Handling and Storage

Handling:	Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Discard contaminated shoes.

Storage: Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances.

Section 8 - Exposure Controls, Personal Protection

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Nitric acid	2 ppm; 4 ppm STEL	2 ppm TWA; 5 mg/m3 TWA 25 ppm IDLH	2 ppm TWA; 5 mg/m3 TWA
Water	none listed	none listed	none listed
Cupric nitrate	none listed	1 mg/m3 TWA (dust and mist, as Cu, except copper fume) (listed under Copper compounds, n.o.s.).100 mg/m3 IDLH (dust and mist, as Cu) (listed under Copper compounds, n.o.s.).	none listed

OSHA Vacated PELs: Nitric acid: 2 ppm TWA; 5 mg/m3 TWA Water: None listed Cupric nitrate: None listed

Engineering Controls:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Personal Protective Equipment

Eyes: Wear chemical splash goggles.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to prevent skin exposure.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid

Color: blue

Odor: none reported

pH: Not available

Vapor Pressure: 14 mm Hg @ 20 deg C

Vapor Density: 0.7

Evaporation Rate: >1 (ether=1)

Viscosity: Not available

Boiling Point: > 100 deg C (> 212.00°F)

Freezing/Melting Point: Not available

Decomposition Temperature: Not available

Solubility in water: completely soluble in water.

Specific Gravity/Density: >1

Molecular Formula: Mixture

Molecular Weight: 0

Section 10 - Stability and Reactivity

Chemical Stability: Stable.

Conditions to Avoid:	Excess heat.
Incompatibilities with Other Materials	Strong oxidizing agents, strong bases.
Hazardous Decomposition Products	Oxides of nitrogen, copper fumes.
Hazardous Polymerization	Has not been reported.

Section 11 - Toxicological Information

RTECS#: CAS# 7697-37-2: QU5775000 QU5900000
CAS# 7732-18-5: ZC0110000
CAS# 19004-19-4: None listed

LD50/LC50: RTECS:
CAS# 7697-37-2: Inhalation, rat: LC50 = 260 mg/m3/30M;
Inhalation, rat: LC50 = 130 mg/m3/4H;
Inhalation, rat: LC50 = 67 ppm(NO2)/4H;
.
RTECS:
CAS# 7732-18-5: Oral, rat: LD50 = >90 mL/kg;
.
RTECS:
CAS# 19004-19-4:.

Carcinogenicity: Nitric acid - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Water - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.
Cupric nitrate - Not listed as a carcinogen by ACGIH, IARC, NTP, or CA Prop 65.

Other: See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Not available

Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

US DOT
Shipping Name: CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Hazard Class: 8
UN Number: UN3264
Packing Group: III

Canada TDG
Shipping Name: Not available
Hazard Class:
UN Number:
Packing Group:

USA RQ: CAS# 7697-37-2: 1000 lb final RQ; 454 kg final RQ

Section 15 - Regulatory Information

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: XI

Risk Phrases:

R 37/38 Irritating to respiratory system and skin.

R 41 Risk of serious damage to eyes.

Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 37/39 Wear suitable gloves and eye/face protection.

WGK (Water Danger/Protection)

CAS# 7697-37-2: 1

CAS# 7732-18-5: Not available

CAS# 19004-19-4: Not available

Canada

CAS# 7697-37-2 is listed on Canada's DSL List

CAS# 7732-18-5 is listed on Canada's DSL List

Canadian WHMIS Classifications: E, 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.

CAS# 7697-37-2 is listed on Canada's Ingredient Disclosure List

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

CAS# 19004-19-4 is not listed on Canada's Ingredient Disclosure List.

US Federal

TSCA

CAS# 7697-37-2 is listed on the TSCA Inventory.

CAS# 7732-18-5 is listed on the TSCA Inventory.

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 in on the Inventory (40CFR720.3(u)(2)).

Section 16 - Other Information

MSDS Creation Date: 9/02/1997

Revision #10 Date 7/20/2009
