

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/01/2009

Reviewed on 09/18/2007

## 1 Identification of substance:

### Product details:

**Product name:** Copper (II) nitrate

**Stock number:** 12523

### Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company  
Johnson Matthey Catalog Company, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Emergency Phone: (978) 521-6300  
CHEMTREC: (800) 424-9300  
Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department

### Emergency information:

During normal hours the Health, Safety and Environmental Department. After normal hours call Chemtrec at (800) 424-9300.

## 2 Composition/Data on components:

### Chemical characterization:

**Description:** (CAS#)

Copper (II) nitrate (CAS# 10031-43-3); 100%

**Identification number(s):**

**EINECS Number:** 221-838-5

## 3 Hazards identification

### Hazard description:



C Corrosive  
O Oxidizing

### Information pertaining to particular dangers for man and environment

R 8 Contact with combustible material may cause fire.

R 22 Harmful if swallowed.

R 34 Causes burns.

### Classification system

**HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	1
FIRE	0
REACTIVITY	2

Health (acute effects) = 1

Flammability = 0

Reactivity = 2

### GHS label elements



**Danger**

2.14/2 - May intensify fire; oxidizer.



**Danger**

3.1/3 - Toxic if swallowed.



**Danger**

3.2/1B - Causes severe skin burns and eye damage.

### Prevention:

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep/Store away from clothing/combustible materials.

Take any precaution to avoid mixing with combustibles.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wear protective gloves/protective clothing/eye protection/face protection.

### Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

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IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 Immediately call a POISON CENTER or doctor/physician.  
 Specific treatment (see label).  
 Rinse mouth.  
 Wash contaminated clothing before reuse.  
 In case of fire: Use for extinction: CO2, powder or water spray.  
**Storage:**  
 Store locked up.  
**Disposal:**  
 Dispose of contents/container in accordance with local/regional/national/international regulations.

#### 4 First aid measures

**After inhalation**  
 Supply fresh air. If required, provide artificial respiration. Keep patient warm.  
 Seek immediate medical advice.  
**After skin contact**  
 Immediately wash with water and soap and rinse thoroughly.  
 Seek immediate medical advice.  
**After eye contact**  
 Rinse opened eye for several minutes under running water. Then consult a doctor.  
**After swallowing** Seek immediate medical advice.

#### 5 Fire fighting measures

**Suitable extinguishing agents**  
 Product is not flammable. Use fire fighting measures that suit the surrounding fire.  
**Protective equipment:**  
 Wear self-contained respirator.  
 Wear fully protective impervious suit.

#### 6 Accidental release measures

**Person-related safety precautions:**  
 Wear protective equipment. Keep unprotected persons away.  
 Ensure adequate ventilation  
**Measures for environmental protection:**  
 Do not allow material to be released to the environment without proper governmental permits.  
**Measures for cleaning/collecting:**  
 Dispose contaminated material as waste according to item 13.  
**Additional information:**  
 See Section 7 for information on safe handling  
 See Section 8 for information on personal protection equipment.  
 See Section 13 for disposal information.

#### 7 Handling and storage

**Handling**  
**Information for safe handling:**  
 Keep container tightly sealed.  
 Store in cool, dry place in tightly closed containers.  
 Ensure good ventilation at the workplace.  
**Information about protection against explosions and fires:**  
 Substance/product can reduce the ignition temperature of flammable substances.  
**Storage**  
**Requirements to be met by storerooms and receptacles:** No special requirements.  
**Information about storage in one common storage facility:**  
 Store away from flammable substances.  
 Store away from reducing agents.  
**Further information about storage conditions:**  
 Keep container tightly sealed.  
 Store in cool, dry conditions in well sealed containers.

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### 8 Exposure controls and personal protection

#### Additional information about design of technical systems:

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

#### Components with limit values that require monitoring at the workplace:

Copper fume, dusts and mists (as Cu)	
	mg/m <sup>3</sup>
ACGIH TLV	1 (dust, mist); 0.2 (fume)
Austria MAK	1; 0.1 (fume)
Belgium TWA	0.2 (fume); 1 (dust)
Denmark TWA	0.1
Finland TWA	0.2 (fume); 1 (dust)
France VME	0.2 (fume); 1 (dust); 1; 2-STEEL (dust)
Germany MAK	0.1 (fume); 1 (dust)
Hungary TWA	0.2; 0.4-STEEL (dust)
Korea TLV	1 (dust, mist); 0.2 (fume)
Netherlands MAC-TGG	1 (dust)
Norway TWA	0.05; 0.1 (fume)
Poland TWA	0.1 (fume); 0.3-STEEL (fume)
Russia	1-STEEL (dust)
Sweden NGV	0.2 (resp. dust); 1 (total dust)
Switzerland MAK-W	0.1; 0.2-KZG-W (fume)
	1; 1-KZG-W
United Kingdom TWA	0.2 (fume)
	1; 3-STEEL (dusts and mist)
USA PEL TWA	0.1 (fume); 1 (dusts and mists)

**Additional information:** No data

#### Personal protective equipment

##### General protective and hygienic measures

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

**Breathing equipment:** Use suitable respirator when high concentrations are present.

**Protection of hands:** Impervious gloves

**Eye protection:** Safety glasses

**Body protection:** Protective work clothing.

### 9 Physical and chemical properties:

General Information	
<b>Form:</b>	Crystalline
<b>Color:</b>	Blue
<b>Odor:</b>	Odorless
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	114.5°C (238°F)
<b>Boiling point/Boiling range:</b>	Not determined
<b>Sublimation temperature / start:</b>	Not determined
<b>Flash point:</b>	Not applicable
<b>Flammability (solid, gaseous)</b>	Contact with combustible material may cause fire.
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Explosion limits:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure:</b>	Not determined
<b>Density at 20°C (68°F):</b>	2.32 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with</b>	
<b>Water at 0°C (32°F):</b>	1378 g/l

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## 10 Stability and reactivity

**Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**

Reducing agents, easily oxidized materials

Organic materials

**Dangerous reactions**

Reacts with reducing agents

Reacts with flammable substances

**Dangerous products of decomposition:**

Nitrogen oxides

Toxic metal compounds

## 11 Toxicological information

**Acute toxicity:**
**LD/LC50 values that are relevant for classification:**

Oral	LD50	430 mg/kg (mouse)
		940 mg/kg (rat)

**Primary irritant effect:**
**on the skin:** Irritant to skin and mucous membranes.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

**Subacute to chronic toxicity:**

Copper compounds may be irritating to the skin, eyes and respiratory tract. They may cause metal fume fever, hemolysis of the red blood cells and injury to the liver, lungs, kidneys and pancreas. Ingestion may also cause vomiting, gastric pain, dizziness, anemia, cramps, convulsions, shock, coma and death. Copper solutions may cause sensitization reactions. Small doses of nitrates may cause weakness, general depression, headache and mental impairment. Larger doses may cause dizziness, abdominal cramps, vomiting, bloody diarrhea, convulsions and collapse.

**Additional toxicological information:**

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

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for components in this product.

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

## 12 Ecological information:

**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

Do not allow material to be released to the environment without proper governmental permits.

## 13 Disposal considerations

**Product:**

**Recommendation** Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

**DOT regulations:**

**Hazard class:**

5.1

**Identification number:**

UN1477

**Packing group:**

III

**Hazardous substance:**

100 lbs, 45.4 kg

**Proper shipping name (technical name):** NITRATES, INORGANIC, N.O.S.

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Label 5.1

Land transport ADR/RID (cross-border)



ADR/RID class: 5.1 (O2) Oxidizing substances  
 Danger code (Kemler): 50  
 UN-Number: 1477  
 Packaging group: III  
 Description of goods: 1477 NITRATES, INORGANIC, N.O.S. (Copper (II) nitrate)

Maritime transport IMDG:



IMDG Class: 5.1  
 UN Number: 1477  
 Label: 5.1  
 Packaging group: III  
 EMS Number: F-A,S-Q  
 Proper shipping name: NITRATES, INORGANIC, N.O.S.

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 5.1  
 UN/ID Number: 1477  
 Label: 5.1  
 Packaging group: III  
 Proper shipping name: NITRATES, INORGANIC, N.O.S.

UN "Model Regulation": UN1477, NITRATES, INORGANIC, N.O.S., 5.1, III

## 15 Regulations

Product related hazard informations:

Hazard symbols:

C Corrosive  
 O Oxidizing

Risk phrases:

8 Contact with combustible material may cause fire.  
 22 Harmful if swallowed.  
 34 Causes burns.

Safety phrases:

17 Keep away from combustible material.  
 20 When using do not eat or drink.  
 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
 45 In case of accident or if you feel unwell, seek medical advice immediately.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.  
 All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.  
 This product contains copper and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

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**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.

**Contact:** Zachariah Holt

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMS: Hazardous Materials Identification System (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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