

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 12/19/2007

Reviewed on 02/06/2007

1 Identification of substance:

Product details:

Product name: copper (II) sulfate

Stock number: 33308

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) sulfate (CAS# 7758-98-7); 100%

Identification number(s):

EINECS Number: 231-847-6

EU Number: 029-004-00-0

3 Hazards identification

Hazard description:



Xn Harmful

N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 22 Harmful if swallowed.

R 36/38 Irritating to eyes and skin.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	2
FIRE	0
REACTIVITY	1

Health (acute effects) = 2

Flammability = 0

Reactivity = 1

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.

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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.

Prevent formation of dust.

Information about protection against explosions and fires:

No special measures required.

Storage**Requirements to be met by storerooms and receptacles:**

No special requirements.

Information about storage in one common storage facility: Not required.**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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.

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Components with limit values that require monitoring at the workplace:

Copper fume, dusts and mists (as Cu)

mg/m³

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-STEL (dust)
Germany MAK	0.1 (fume); 1 (dust)
Hungary TWA	0.2; 0.4-STEL (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-STEL (fume)
Russia	1-STEL (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-STEL (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**

Form:	Crystalline
Color:	White
Odor:	Odorless

Change in condition

Melting point/Melting range:	200 dec°C (392 dec°F) (dec)
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: Not applicable

Ignition temperature: Not determined

Decomposition temperature: Not determined

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Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density at 20°C (68°F):	3.603 g/cm ³
Solubility in / Miscibility with Water at 0°C (32°F):	316 g/l

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:

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Sulfur dioxide

Toxic metal oxide fume

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

Oral	LD50	470 mg/kg (mam)
		300 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.

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:**Ecotoxicological effects:**

Remark: Very toxic for fish

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General notes:

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

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

Very toxic for aquatic organisms

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:	6.1
Identification number:	UN3288
Packing group:	III
Hazardous substance:	10 lbs, 4.54 kg
Proper shipping name (technical name):	TOXIC SOLID, INORGANIC, N.O.S. (copper (II) sulfate)
Label	6.1

Land transport ADR/RID (cross-border)

ADR/RID class:	6.1 (T5) Toxic substances
Danger code (Kemler):	60
UN-Number:	3288
Packaging group:	III
Description of goods:	3288 TOXIC SOLID, INORGANIC, N.O.S. (copper (II) sulfate)

Maritime transport IMDG:

IMDG Class:	6.1
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UN Number:	3288
Label	6.1
Packaging group:	III
Proper shipping name:	TOXIC SOLID, INORGANIC, N.O.S. (copper (II) sulfate)

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class:	6.1
UN/ID Number:	3288
Label	6.1
Packaging group:	III
Proper shipping name:	TOXIC SOLID, INORGANIC, N.O.S. (copper (II) sulfate)

15 Regulations**Product related hazard informations:****Hazard symbols:**

Xn Harmful

N Dangerous for the environment

Risk phrases:

22 Harmful if swallowed.

36/38 Irritating to eyes and skin.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

22 Do not breathe dust.

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

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: Paul V. Connolly

USA