

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 03/25/2009

1 Identification of substance:

Product details:

Product name: Copper(II) formate tetrahydrate

Stock number: A18569

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) formate tetrahydrate (CAS# 5893-61-8): 100%

Identification number(s):

EINECS Number: 208-865-8

Additional information:

CAS# for anhydrous form:
544-19-4

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 37/38 Irritating to respiratory system and skin.

R 41 Risk of serious damage to eyes.

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	1
REACTIVITY	1

Health (acute effects) = 2
Flammability = 1
Reactivity = 1

GHS label elements



Danger

3.1/3 - Toxic if swallowed.

3.2/2 - Causes skin irritation.

3.8/3 - May cause respiratory irritation.



Danger

3.3/1 - Causes serious eye damage.



Warning

4.1/1 - Very toxic to aquatic life with long lasting effects.

Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

(Contd. on page 2)

USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 03/25/2009

Product name: Copper(II) formate tetrahydrate

(Contd. of page 1)

Do not eat, drink or smoke when using this product.
 Use only outdoors or in a well-ventilated area.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
 IF ON SKIN: Wash with plenty of soap and water.
 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.
 Call a POISON CENTER or doctor/physician if you feel unwell.
 Specific treatment (see label).
 Rinse mouth.
 If skin irritation occurs: Get medical advice/attention.
 Take off contaminated clothing and wash before reuse.
 Collect spillage.

Storage:

Store in a well-ventilated place. Keep container tightly closed.
 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**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards caused by the material, its products of combustion or resulting gases:

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

Metal oxide fume

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: Ensure adequate ventilation.

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: No special measures required.

(Contd. on page 3)

USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 03/25/2009

Product name: Copper(II) formate tetrahydrate

(Contd. of page 2)

Storage**Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Do not store together with oxidizing and acidic materials.

Store away from strong bases.

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.

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:	Blue
Odor:	Not determined

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: Not applicable**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:****Lower:** Not determined

(Contd. on page 4)

-USA-

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 03/25/2009

Product name: Copper(II) formate tetrahydrate

(Contd. of page 3)

Upper:	Not determined
Vapor pressure:	Not determined
Density:	Not determined
Solubility in / Miscibility with Water at 20°C (68°F):	125 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:

Oxidizing agents

Bases

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Carbon monoxide and carbon dioxide

Metal oxide fume

11 Toxicological information

Acute toxicity:

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.

on the eye: Strong irritant with the danger of severe eye injury.

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.

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

General notes:

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

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.

14 Transport information

DOT regulations:



Hazard class:

9

Identification number:

UN3077

Packing group:

III

(Contd. on page 5)

USA

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 03/25/2009

Product name: Copper(II) formate tetrahydrate

(Contd. of page 4)

Proper shipping name (technical name): ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
(Copper(II) formate tetrahydrate)

Label 9

Land transport ADR/RID (cross-border)



ADR/RID class: 9 (M7) Miscellaneous dangerous substances and articles
Danger code (Kemler): 90
UN-Number: 3077
Packaging group: III
Description of goods: 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) formate tetrahydrate)

Maritime transport IMDG:



IMDG Class: 9
UN Number: 3077
Label 9
Packaging group: III
EMS Number: F-A,S-F
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) formate tetrahydrate)

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 9
UN/ID Number: 3077
Label 9
Packaging group: III
Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Copper(II) formate tetrahydrate)

UN "Model Regulation": UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., 9, III
Environmental hazards: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID

15 Regulations

Product related hazard informations:

Hazard symbols:

Xn Harmful

N Dangerous for the environment

Risk phrases:

22 Harmful if swallowed.

37/38 Irritating to respiratory system and skin.

41 Risk of serious damage to eyes.

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

Safety phrases:

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.

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).

(Contd. on page 6)

-USA-

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/16/2009

Reviewed on 03/25/2009

Product name: Copper(II) formate tetrahydrate

(Contd. of page 5)

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.

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)

HMIS: Hazardous Materials Identification System (USA)

USA