

Material Safety Data Sheet

Date Printed: 20/FEB/2008
Date Updated: 08/FEB/2006
Version 1.6
Regulation (EC) No 1907/2006

1 - Product and Company Information

Product Name FEHLING'S SOLUTION FOR THE
DETER-MINATIO N OF SUGAR, REAG. PH.
EUR. I. COPPER SU
Product Number 36018
Company Sigma-Aldrich Company Ltd.
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2 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Toxic to aquatic organisms, may cause long-term adverse effects in
the aquatic environment.

3 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
COPPER(II) SULPHATE SOLUTION ~15% FOR ELECTROPLATING	None	None	None

Ingredient Name	Percent	CAS #	EC no	Annex I Index Number
COPPER (II) SULFATE	>= 10 <= 15	7758-98-7	231-847-6	029-004-00-0

Symbols: Xn-N

R-Phrases: 22-36/38-50/53

Harmful if swallowed. Irritating to eyes and skin. Very toxic to
aquatic organisms, may cause long-term adverse effects in the
aquatic environment.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give
artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for
at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

AFTER EYE CONTACT

In case of contact with eyes, flush with copious amounts of

water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL

Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves. Wear disposable coveralls and discard them after use.

METHODS FOR CLEANING UP

Absorb on sand or vermiculite and place in closed containers for disposal. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Use only in a chemical fume hood. Safety shower and eye bath.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	LTEL	1 MG(CU)/M3

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US)

or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator.
Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Liquid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/MP Range	> 100 °C	760 mmHg
MP/MP Range	N/A	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	1.04 g/cm ³	20 °C
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	N/A	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	N/A	

10 - Stability and Reactivity

STABILITY

Stable: Stable.

Materials to Avoid: Finely powdered metals Anhydrous copper(II) sulfate reacts violently with: hydroxylamine, magnesium.

HAZARDOUS DECOMPOSITION PRODUCTS

Hazardous Decomposition Products: Copper oxide, Sulfur oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

SENSITIZATION

Skin: Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals.

SIGNS AND SYMPTOMS OF EXPOSURE

Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis. To the best

of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: Causes skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes eye irritation.
Inhalation: May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: Harmful if swallowed.

TARGET ORGAN INFORMATION

Liver. Kidneys. Blood.

CHRONIC EXPOSURE - TERATOGEN

Result: May cause congenital malformation in the fetus.

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Result: May cause reproductive disorders.

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 3082
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.

IMDG

UN#: 3082
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.
Marine Pollutant: Yes
Severe Marine Pollutant: No
Technical Name: Required

IATA

UN#: 3082
Class: 9
PG: III
Proper Shipping Name: Environmentally hazardous substance, liquid, n.o.s.
Inhalation Packing Group I: No
Technical Name: Required

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

INDICATION OF DANGER: N

Dangerous for the environment.

R-PHRASES: 51/53

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-PHRASES: 60

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

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 2

Self-Classification

16 - Other Information

WARRANTY

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. Copyright 2008 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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