



Health	1
Fire	0
Reactivity	1
Personal Protection	H

## Material Safety Data Sheet

### Fehling Solution "A" MSDS

#### Section 1: Chemical Product and Company Identification

**Product Name:** Fehling Solution "A"

**Catalog Codes:** SLF1021

**CAS#:** Mixture.

**RTECS:** Not applicable.

**TSCA:** TSCA 8(b) inventory: Copper sulfate pentahydrate; Sulfuric acid; Water

**CI#:** Not applicable.

**Synonym:**

**Chemical Name:** Not applicable.

**Chemical Formula:** Not applicable.

**Contact Information:**

**Sciencelab.com, Inc.**

14025 Smith Rd.

Houston, Texas 77396

US Sales: **1-800-901-7247**

International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**

1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

#### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
Copper sulfate pentahydrate	7758-99-8	6.93
Sulfuric acid	7664-93-9	0.18
Water	7732-18-5	92.9

**Toxicological Data on Ingredients:** Copper sulfate pentahydrate: ORAL (LD50): Acute: 300 mg/kg [Rat.]. Sulfuric acid: ORAL (LD50): Acute: 2140 mg/kg [Rat.]. VAPOR (LC50): Acute: 255 ppm 4 hour(s) [Rat.].

#### Section 3: Hazards Identification

**Potential Acute Health Effects:**

Hazardous in case of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (corrosive, irritant, permeator).

**Potential Chronic Health Effects:**

Non-corrosive for skin. Non-irritant for skin. Non-sensitizer for skin. Non-permeator by skin. Non-irritating to the eyes. Non-hazardous in case of ingestion. Non-hazardous in case of inhalation. CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to kidneys, the nervous system, lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

## Section 4: First Aid Measures

### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

### Skin Contact:

After contact with skin, wash immediately with plenty of water. Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Cold water may be used. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.

**Serious Skin Contact:** Not available.

**Inhalation:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.

**Serious Inhalation:** Not available.

### Ingestion:

Do not induce vomiting. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Non-flammable.

**Auto-Ignition Temperature:** Not applicable.

**Flash Points:** Not applicable.

**Flammable Limits:** Not applicable.

**Products of Combustion:** Not available.

**Fire Hazards in Presence of Various Substances:** Not applicable.

### Explosion Hazards in Presence of Various Substances:

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.

**Fire Fighting Media and Instructions:** Not applicable.

**Special Remarks on Fire Hazards:** Not available.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

### Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

### Large Spill:

Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

**Precautions:**

Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapour/spray. Never add water to this product Wear suitable protective clothing In case of insufficient ventilation, wear suitable respiratory equipment If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

**Storage:**

No specific storage is required. Use shelves or cabinets sturdy enough to bear the weight of the chemicals. Be sure that it is not necessary to strain to reach materials, and that shelves are not overloaded.

## Section 8: Exposure Controls/Personal Protection

**Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

**Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

**Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

**Exposure Limits:**

Copper sulfate pentahydrate TWA: 1 (mg/m<sup>3</sup>) from OSHA ACGIH Sulfuric acid TWA: 1 STEL: 3 (mg/m<sup>3</sup>) from ACGIH Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

**Odor:** Not available.

**Taste:** Not available.

**Molecular Weight:** Not applicable.

**Color:** Not available.

**pH (1% soln/water):** Neutral.

**Boiling Point:** The lowest known value is 100°C (212°F) (Water).

**Melting Point:** Not available.

**Critical Temperature:** Not available.

**Specific Gravity:** Weighted average: 1.04 (Water = 1)

**Vapor Pressure:** The highest known value is 17.535 mm of Hg (@ 20°C) (Water).

**Vapor Density:** The highest known value is 0.62 (Air = 1) (Water).

**Volatility:** Not available.

**Odor Threshold:** Not available.

**Water/Oil Dist. Coeff.:** The product is much more soluble in water.

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, methanol.

**Solubility:**

Easily soluble in cold water, hot water. Partially soluble in methanol. Very slightly soluble in diethyl ether. Insoluble in n-octanol.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Not available.

**Incompatibility with various substances:** Slightly reactive to reactive with metals, alkalis.

**Corrosivity:**

Corrosive in presence of steel. Slightly corrosive to corrosive in presence of aluminum, of zinc, of copper. Non-corrosive in presence of glass.

**Special Remarks on Reactivity:** Hygroscopic; keep container tightly closed. (Copper sulfate pentahydrate)

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** No.

### Section 11: Toxicological Information

**Routes of Entry:** Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:** Acute oral toxicity (LD50): 4330 mg/kg (Rat.) (Calculated value for the mixture).

**Chronic Effects on Humans:**

The substance is toxic to kidneys, the nervous system, lungs, mucous membranes. The substance is not toxic to blood, liver.

**Other Toxic Effects on Humans:**

Hazardous in case of ingestion, of inhalation. Slightly hazardous in case of skin contact (corrosive, irritant, permeator).

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** May cause jaundice and liver enlargement. (Copper sulfate pentahydrate)

**Special Remarks on other Toxic Effects on Humans:** Material is irritating to mucous membranes and upper respiratory tract. (Copper sulfate pentahydrate)

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are more toxic.

**Special Remarks on the Products of Biodegradation:** Not available.

### Section 13: Disposal Considerations

**Waste Disposal:**

## Section 14: Transport Information

**DOT Classification:** CLASS 9: Miscellaneous hazardous material.

**Identification:** : Not available. (Copper sulfate pentahydrate) : Not available. PG: II

**Special Provisions for Transport:** Marine Pollutant (Copper sulfate pentahydrate)

## Section 15: Other Regulatory Information

### Federal and State Regulations:

Pennsylvania RTK: Copper sulfate pentahydrate Massachusetts RTK: Copper sulfate pentahydrate TSCA 8(b) inventory: Copper sulfate pentahydrate; Sulfuric acid; Water CERCLA: Hazardous substances.: Copper sulfate pentahydrate;

**Other Regulations:** OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

### Other Classifications:

**WHMIS (Canada):** CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

**DSCL (EEC):** R36- Irritating to eyes.

### HMIS (U.S.A.):

**Health Hazard:** 1

**Fire Hazard:** 0

**Reactivity:** 1

**Personal Protection:** h

### National Fire Protection Association (U.S.A.):

**Health:** 1

**Flammability:** 0

**Reactivity:** 1

**Specific hazard:**

### Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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