

MATERIAL SAFETY DATA SHEET

Chemical Product

Product Name: FEHLING SOLUTION 'A'

CAS#: Not Available.

Synonym: Fehling's Solution No.1

Chemical Name: Fehling Solution 'A'

Chemical Formula: Not Available.

Composition and Information on Ingredients

Name	S.K.U	% by Weight
FEHLING SOLUTION 'A'	GCS-2684	100

Hazards Identification

Potential Acute Health Effects:

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

Potential Chronic Health Effects:

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage.

First Aid Measures

Eye Contact:

Check for and remove any contact lenses. 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. Cover the irritated skin with an emollient. If irritation persists, seek medical attention.

Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

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.

Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not available.

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 applicable.

Special Remarks on Explosion Hazards: Not applicable.

Accidental Release Measures

Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:

Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Handling and Storage**Precautions:**

Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If you feel unwell, seek medical attention and show the label when possible. 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.

Exposure Controls/Personal Protection**Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:

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

Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Dust 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/m³) from OSHA ACGIH Sulfuric acid TWA: 1 STEL: 3 (mg/m³) from ACGIH Consult local authorities for acceptable exposure limits.

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 (Water).	: The lowest known value is 100°C (212°F)
Melting Point	: Not available.
Critical Temperature	: Not available.
Specific Gravity	: Weighted average: 1.04 (Water = 1)
Vapor Pressure (@ 20°C) (Water).	: The highest known value is 17.535 mm of Hg
Vapor Density (Water).	: The highest known value is 0.62 (Air = 1)
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 noctanol.	

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.

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, and 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).

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.].

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.

Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Transformation Information

Land transport (ADR-RID)

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

UN N°: 3082

H.I. nr: 90

ADR - Class: 9

Labelling – Transport: 9 : Miscellaneous dangerous substances and articles. 9 : Miscellaneous dangerous substances and articles.

ADR - Group: III

Sea transport (IMDG) [English only]

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

UN N°: 3082

IMO-IMDG - Class or division: 9 : Miscellaneous dangerous substances and articles. (9 : Miscellaneous dangerous substances and articles.)

IMO-IMDG - Packing group: III

Air transport (ICAO-IATA) [English only]

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.

UN N°: 3082

IATA - Class or division: 9 : Miscellaneous dangerous substances and articles. (9 : Miscellaneous dangerous substances and articles.)

IATA - Packing group: III

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: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: E

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

Health: 2

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:

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

Additional Information

References: Not available.


Other Special Considerations: Not available.

Disclaimer:

The information contained herein in good faith but makes no representations as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.



makes no representations or warranties, either express or implied, including without limitation any

warranties of merchantability, fitness for a particular purpose with respect to the information set forth herein or the product to which the information refers. Accordingly,  will not be responsible for damages resulting from use of or reliance upon this information.