

Safety Data Sheet (SDS)

Section 1: Identification

Product identifier: Fry's Reagent

Other name(s): Fry's Etch

Item number(s): 131, 132

Identified use: SU24 Scientific research and development.

Details of the supplier of the safety data sheet:

ES Laboratory, LLC

2041 E. Gladstone St. Unit N Glendora, CA 91740 USA

Tel: 626-208-9011

Emergency telephone number:

CHEMTREC® 1-800-424-9300 (US & Canada Only)

Section 2: Hazard(s) Identification

Hazardous classification of the substance or mixture:

Hazard Class	Category code
Skin Corrosion	1B
Serious Eye Damage	1
Acute toxicity (inhalation)	3
Specific Target Organ Toxicity – Single Exposure	3
Acute aquatic toxicity	1
Chronic aquatic toxicity	3

Signal word: Danger

Pictogram:



Hazard statement(s):

H314	Causes severe skin burns and eye damage.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H400	Very toxic to aquatic life.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s):

P261	Avoid breathing dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P273	Avoid release to the environment.

Response statement(s):

P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301+P330+P331+P310	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P391	Collect spillage.

Storage statement(s):

P403+P233+P235	Store in a well-ventilated place. Keep container tightly closed. Keep cool.
P405	Store locked up.

Disposal statement(s):

P501	Dispose of contents/container in accordance with local, regional, national, and international regulations.
------	--

Hazard(s) not otherwise classified: No information.

Label elements: See tables above

HMIS Ratings:

Health: 3
Flammability: 2
Reactivity: 1

NFPA Ratings:

Health: 3
Flammability: 2
Reactivity: 1
Special hazard: None

Section 3: Composition/Information on Ingredients

Component	CAS No.	Concentration (wt%)
Ethanol (Ethyl alcohol)	64-17-5	15-20%
Cupric chloride, dihydrate	10125-13-0	4-7%
Hydrochloric acid	7647-01-0	15-20%

Any concentration shown as a range is to protect the confidentiality or is due to batch variation. Only hazardous components are shown.

Section 4: First-Aid Measures

Eye contact: Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical aid immediately.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid immediately.

Skin contact: Wash the areas of contact with water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid immediately.

Ingestion: Do not induce vomiting. Rinse mouth. Get medical aid immediately. **Most important symptoms and effects, both acute and delayed:** Monitor the blood alcohol level if swallowed.

Recommendation for immediate medical care and special treatment needed, when necessary: No information.

Section 5: Fire-Fighting Measures

Extinguishing media: Water, dry chemical, or carbon dioxide.

Special hazards arising from the substance or mixture: In the case of fire, the following can be released: acidic liquid, carbon monoxide, and carbon dioxide.

Special protective equipment or precautions for firefighters: Wear full protective clothing and a self-contained respirator.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation.

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

Methods and materials for containment and cleaning up: Use neutralizing agent. Absorb with a liquid binding material (sand, diatomite, acid binder, universal binders, sawdust). Dispose of contaminated material as waste according to section 13. Ensure adequate ventilation.

Section 7: Handling and Storage

Precautions for safe handling: Wear protective equipment. Ensure good ventilation in the workplace. Open and handle the container with care.

Condition for safe storage: Keep container tightly sealed. Store in an approved corrosive liquid storage container/area.

Incompatibilities: Store away from strong bases.

Specific storage requirement(s): No information.

Section 8: Exposure Controls/Personal Protection

Exposure Limits

Component	CAS No.	ACGIH TLV	OSHA PEL
Ethanol (Ethyl alcohol)	64-17-5	STEL 1000 ppm	1000 ppm
Cupric chloride, dihydrate	10125-13-0	1 mg/m ³ TWA	1 mg/m ³ TWA
Hydrochloric acid	7647-01-0	C 2 ppm	C 5 ppm

Engineering controls: Use general and/or local exhaust ventilation to control the vapor concentration.

Eye protection: Wear safety glasses or goggles.

Skin protection: Wear protective clothing and chemical-resistant gloves.

Respiratory protection: Use a self-contained respiratory device in an emergency situation.

Section 9: Physical and Chemical Properties

Appearance:	Dark green liquid
UFL/UEL:	Not determined
LFL/LEL:	Not determined
Odor:	Acidic
Vapor pressure:	Not determined
Odor threshold:	Not determined
Vapor density:	Not determined
pH:	< 1
Relative density:	Not determined
Melting Point/Freezing point:	Not determined
Solubility in water:	Miscible
Boiling point/boiling range:	Not determined
Flashpoint:	Not determined
Evaporation Rate:	Not determined
Flammability (solid, gas):	Not applicable
Partition coefficient (n-octanol/water):	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Viscosity:	Not determined

Section 10: Stability and Reactivity

Reactivity: No information.

Chemical stability: Stable under recommended conditions.

Stabilizer(s): Not required.

Safety issues that may arise should the product change in appearance:
No information.

Thermal decomposition/ conditions to avoid: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions: see incompatibilities.

Incompatibilities: Strong bases, react with metal powders and release hydrogen gas.

Hazardous decomposition products: oxides of carbon, when heated to decomposition.

Section 11: Toxicological Information

For Ethanol (Ethyl alcohol):

Acute toxicity:

Oral Human LDLo: 1400 mg/kg BWT
Inhalation rat LC50: 20000 ppm (10 h)

Other exposure effect:

On the Skin: No information.
On the Eye: May cause irritation.
Sensitization: No sensitizing effects were known.

Additional toxicological information: To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known. Danger through skin absorption. No classification data on carcinogenic properties of this material is available from NTP, IARC, ACGIH, or OSHA.

For Hydrochloric acid:

Acute toxicity:

Oral rat LD50: 700 mg/kg.

Other exposure effect:

Inhalation: Strong corrosive effect.
On the Skin: Strong corrosive effect.
On the Eye: Strong corrosive effect.
Sensitization: No data.

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 the carcinogenic properties of this material is available from NTP or OSHA. IARC-3 Not classifiable as to human carcinogenicity.

For Cupric chloride, dihydrate:

Acute toxicity:

Oral rat LD50: 290 mg/kg.
Dermal rat (male) LD50: >2000 mg/kg
Dermal rat (female) LD50: 1224 mg/kg

Other exposure effect:

Inhalation: No data.
On the Skin: Irritation to skin.
On the Eye: Risk of serious damage to eyes.
Sensitization: No data.

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 NTP, IARC, or OSHA.

Section 12: Ecological Information

Toxicity:

Aquatic toxicity: Cupric chloride is very toxic to aquatic organisms.

Persistence and degradability: Cupric chloride may cause long-lasting harmful effects on aquatic life.

Behavior in environmental system:

Bioaccumulative potential: Cupric chloride is expected to significantly bioaccumulate.

Mobility in soil: No information.

Additional ecological information: Avoid transfer into the environment.

Other adverse effects: No information.

Section 13: Disposal Considerations

Place in a chemical waste container for proper disposal in an approved waste disposal facility. Dispose of the content and container in accordance with local, regional, national, and international regulations.

Section 14: Transport Information

D.O.T. shipping name: Corrosive liquid, acidic, inorganic, n.o.s. (hydrochloric acid, copper(II) chloride)

D.O.T. hazard class: 8

UN number: UN3264

Packing group: II

Environmental hazards: Marine pollutant (copper(II) chloride)

Section 15: Regulatory Information

Not meant to be all inclusive, selected regulations represented

OSHA status: These items meet the OSHA Hazard Communication Standard (29 CFR 1910.1200) definition of a hazardous material.

TSCA status: All components are listed.

Section 16: Other Information

Disclaimer: The information above is believed to be accurate and represents the best information currently available to us. ES Laboratory, LLC makes no warranty, express or implied, as to its accuracy, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. We shall not be liable for any damages to person or property resulting from its use.

Revised Date: 6/19/2026