

# Safety Data Sheet (SDS)

Reactivity: 1

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Special hazard: None

## 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	1A
Serious Eye Damage	1
Acute toxicity (inhalation):	3
Specific Target Organ Toxicity – Single Exposure:	3
Acute aquatic toxicity	1
Chronic aquatic toxicity	2

**Signal word:** Danger

**Pictogram:**



**Hazard statement(s):**

H314 Cause severe skin burn and eye damage.

H331 Toxic if inhaled.

H411 Toxic 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.

**Response statement(s):**

P303+P361+P353 IF ON SKIN (or hair): remove/take off immediately all contaminated clothing. Rinses 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.

**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, international regulations.

**Hazard(s) not otherwise classified:** No information.

**Label elements:** See tables above

**HMIS Ratings:**

Health: 3

Flammability: 1

**NFPA Ratings:**

Health: 3

Flammability: 1

## Section 3: Composition/Information on Ingredients

Component	CAS No.	Concentration
Ethanol (Ethyl alcohol)	64-17-5	20 – 25%
Cupric chloride, dihydrate	10125-13-0	Approx. 5%
Hydrochloric acid	7647-01-0	35 - 40%

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 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	1000 ppm	1000 ppm
Cupric chloride, dihydrate	10125-13-0	1 mg/m3 TWA	1 mg/m3 TWA

Hydrochloric acid	7647-01-0	C 5 ppm	C 5 ppm
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**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.

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## Section 9: Physical and Chemical Properties

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

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## 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.

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## Section 11: Toxicological Information

**For ethanol (Ethyl alcohol):**

**Acute toxicity:**

Oral Human LDLo: 1400 mg/kg BWT  
Inhalation rate LC50: 20000 ppm/10H

**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: 900 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: 336 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.

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## 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.

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## 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, international regulations.

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## Section 14: Transport Information

**D.O.T. shipping name:** Hydrochloric acid

**D.O.T. hazard class:** 8

**UN number:** UN1789

**Packing group:** II

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## Section 15: Regulatory Information

**Not meant to be all inclusive, selected regulation 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.

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## 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.

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