

Safety Data Sheet (SDS)

Section 1: Identification

Product identifier: Vilella's Reagent

Other name(s): Vilella's Etch

Item number(s): 121, 122

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 |
|---|---------------|
| Flammable liquid: | 2 |
| Skin irritation | 2 |
| Eye irritation | 2A |
| Skin sensitization | 1 |
| Acute toxicity (oral) | 3 |
| Specific Target Organ Toxicity – Single Exposure: | 2 |

Signal word: Danger

Pictogram:



Hazard statement(s):

H225 Highly flammable liquid and vapor.
H315+H319 Cause skin irritation and serious eye irritation.
H317 May cause allergic skin reaction.
H301 Toxic if swallowed.
H371 May cause damage to organs.

Precautionary statement(s):

P210 Keep away from heat, sparks, open flames, hot surfaces – No smoking.
P260 Do not breathe 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+P311 IF SWALLOWED: rinse mouth. DO NOT induce vomiting. 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 Stored locked up.

Disposal statement(s):

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

Hazard(s) not otherwise classified: None.

Label elements: See tables above

HMIS Ratings:

Health: 2
Flammability: 3
Reactivity: 1

NFPA Ratings:

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

Section 3: Composition/Information on Ingredients

| Component | CAS No. | Concentration (wt%) |
|------------------------------------|-----------|---------------------|
| Ethanol (ethyl alcohol, denatured) | 64-17-5 | 85-87% |
| Hydrochloric acid (HCl) | 7647-01-0 | 2-3 % |
| Picric Acid | 88-89-1 | 1-2 % |

Any concentration shown as a range is to protect the confidentiality or is due to batch variation. Only major hazardous components are shown because the ethanol contains some denaturants

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. Skin stains may be removed using reagent alcohol or dilute Ammonium Hydroxide Solution. Get medical aid immediately.

Ingestion: Rinse mouth. Do not induce vomiting. Get medical aid immediately.

Most important symptoms and effects, both acute and delayed: May stain skin.

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

Section 5: Fire-Fighting Measures

Extinguishing media: Dry chemical, "alcohol foam", carbon dioxide, or water spray.

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. Keep away from ignition sources.

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: 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. Keep away from ignition sources.

Section 7: Handling and Storage

Precautions for safe handling: Wipe clean the screw top of the container with a wet tissue or paper towel before sealing. Ensure good ventilation in the workplace. Protect against electrostatic charges.

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

Incompatibilities: Store away from oxidizing agents, strong bases. Do not store on concrete floors (can form explosive calcium picrate). May react with various substances, see Section 10.

Specific storage requirement(s): Inspect the content periodically. Do not let it dry completely. Keep wetted with ethanol. Dispose of content as hazardous waste within one year of initial receipt.

Section 8: Exposure Controls/Personal Protection

Exposure Limits

| Component | CAS No. | ACGIH TLV | OSHA PEL |
|------------------------------|-----------|---------------------------------------|-----------------------------------|
| Ethanol (ethyl alcohol) | 64-17-5 | 1000 ppm STEL | 1000 ppm TWA |
| Methanol (methyl alcohol) | 67-56-1 | 200 ppm TWA skin 250 ppm STEL skin | 200 ppm TWA |
| Isopropanol | 67-63-0 | 200 ppm TWA 400 ppm STEL | 400 ppm TWA |
| Hydrochloric acid | 7647-01-0 | C 5 ppm | C 2 ppm |
| Picric Acid | 88-89-1 | 0.1 mg/m ³ TWA | 0.1 mg/m ³ TWA skin |

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.

Section 9: Physical and Chemical Properties

| | |
|---|----------------------|
| Appearance: | Clear, yellow liquid |
| UFL/LEL: | Not determined |
| LFL/LEL: | Not determined |
| Odor: | Alcohol-like |
| Vapor pressure: | Not determined |
| Odor threshold: | Not determined |
| Vapor density: | Not determined |
| pH: | Not determined |
| 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): Ethanol.

Safety issues that may arise should the product change in appearance: Picric Acid may detonate if allowed to dry completely. Do not touch the bottle if any crystalline residue is present around the cap. Call an explosive expert immediately.

Thermal decomposition/ conditions to Avoid: Excessive heat, incompatible materials, ignition sources, dryness.

Possibility of hazardous reactions: see incompatibilities.

Incompatibilities: Strong bases and oxidizers. Picric acid will react with metals including copper, lead, zinc, and aluminum; ammonia, concrete, plaster, salts, gelatin, silver salts, alkali metals, and many other materials to form dangerously sensitive salts.

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 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 sensitizing effects are known.

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 Picric Acid:

Acute toxicity:

Oral rat LD50: 200mg/kg.

Other exposure effect:

Inhalation: May cause irritation.
On the Skin: May stain skin and cause irritation.
On the Eye: May cause irritation.
Sensitization: May cause allergic skin reaction.

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

Section 12: Ecological Information

Toxicity:

Aquatic toxicity: No information.

Persistence and degradability: No information.

Behavior in environmental system:

Bioaccumulative potential: No information.

Mobility in soil: No information.

Additional ecological information: No information.

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, international regulations.

Section 14: Transport Information

D.O.T. shipping name: Flammable liquid, n.o.s., (ethanol, hydrochloric acid)

D.O.T. hazard class: 3

UN number: UN1993

Packing group: II

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.

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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