

Safety Data Sheet (SDS)

Section 1: Identification

Product identifier: Superalloy Etch

Other name(s): Modified Kalling's Reagent

Item number: 155, 156

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 Corrosion	1A
Serious Eye Damage	1
Acute toxicity (oral):	4
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):

H225 Highly flammable liquid and vapor.
H314 Cause severe skin burn and eye damage.
H331 Toxic if inhaled.
H302 Harmful if swallowed.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s):

P210 Keep away from heat, sparks, open flames, hot surfaces – No smoking.
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: 3
Reactivity: 0

NFPA Ratings:

Health: 3
Flammability: 3
Reactivity: 0
Special hazard: None

Section 3: Composition/Information on Ingredients

Component	CAS No.	Concentration
Ethanol (ethyl alcohol)	64-17-5	Balance
Cupric chloride, dihydrate	10125-13-0	5-7%
Hydrochloric acid	7647-01-0	40-45%
Water	7732-18-5	3-5%

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: Dry chemical, "alcohol foam", carbon dioxide. Water may be ineffective.

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. 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: Use a 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. Keep away from ignition sources.

Section 7: Handling and Storage

Precautions for safe handling: Wear protective equipment. Open and handle the container with care. Protect against electrostatic charges. Fume can combine with air to form an explosive mixture.

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.

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

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/LEL: Not determined
LFL/LEL: Not determined
Odor: Acidic

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

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, international regulations.

Section 14: Transport Information

D.O.T. shipping name: Flammable liquid, corrosive, n.o.s., (Ethanol, Hydrochloric acid)

D.O.T. hazard class: 3, 8

UN number: UN2924

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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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. Avoid excessive heat.

Possibility of hazardous reactions: see incompatibilities.

Incompatibilities: Strong oxidizers, strong bases, heat, sparks, open flame.

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 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 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.

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: