

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

| | |
|--------------|-------------------------|
| Product name | Stainless Steel Etchant |
| CAS number | See Section 3 |
| Synonyms | N/A |

1.2 Relevant identified uses of the substance or mixture and uses advised against

| | |
|-----------------|--------------------------------------|
| Identified uses | Scientific research and development. |
|-----------------|--------------------------------------|

1.3 Details of the supplier of the safety data sheet

| | |
|-----------|--|
| Company | Lab Alley, LLC 12501 Pauls Valley Road Austin, Texas 78737 U.S.A. |
| Telephone | 512-668-9918 |
| Fax | 512-886-4008 |

1.4 Emergency telephone

| | | |
|--------------------------|------------------------------|----------|
| Emergency Phone # | US & Canada: 1-800-535-5053 | INFOTRAC |
| | International 1-352-323-3500 | INFOTRAC |

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

| | |
|--------------------------|-------------|
| Corrosive to Metal | Category 1 |
| Skin Corrosion | Category 1A |
| Serious Eye Damage | Category 1 |
| Acute Aquatic Toxicity | Category 3 |
| Chronic Aquatic Toxicity | Category 3 |

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word Danger

Hazard statements May be corrosive to metals.
Cause severe skin burn and eye damage.
Harmful to aquatic life with long lasting effects.

Precautionary statements Prevention: Wear protective gloves, protective clothing, eye protection, face protection.

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinses skin with water/shower.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage: Store locked up.

Disposal: Avoid release to environment. Dispose of contents/container in accordance with local, regional, national, international regulations.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

No information available.

SECTION 3: Composition/information on ingredients

3.1 Components

| Chemical name | Common name and synonyms | CAS number | Concentration |
|-------------------|--------------------------|------------|---------------|
| Hydrochloric acid | - | 7647-01-0 | 8-10% |
| Ferric chloride | Iron(III) chloride | 7705-08-0 | 8-12% |

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

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

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

In case of 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.

If swallowed Do not induce vomiting. Rinse mouth. Get medical aid immediately.

4.2 Most important symptoms and effects, both acute and delayed

No further relevant information.

4.3 Indication of any immediate medical attention and special treatment needed

No further relevant information.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media Water spray, Carbon dioxide (CO₂), dry chemical, alcohol-resistant foam.

Unsuitable extinguishing media No information available.

5.2 Specific hazards arising from the substance or mixture

In the case of fire, the following can be released: acidic liquid and irritating fumes.

5.3 Special protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

5.4 Further information

Flash Point No information available.

Autoignition Temperature No information available.

Explosion limits

Upper No data available.

Lower No data available.

Sensitivity to Mechanical Impact No information available.
Sensitivity to Static Discharge No information available.

NFPA

| Health | Flammability | Instability | Physical hazards |
|--------|--------------|-------------|------------------|
| 3 | 0 | 0 | N/A |

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation.

6.2 Environmental precautions

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

6.3 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.

6.4 Reference to other sections

See Section 2 for full list of hazard and precaution statements.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Precautions on safe handling

Wear protective equipment. Ensure good ventilation in the workplace. Open and handle with care.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly sealed. Store in an approved corrosive liquid storage container/area.

Incompatibilities

Store away from strong bases and reducing agents.

SECTION 8: Exposure controls/personal protection

8.1 Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

| Component | Type | Value |
|-------------------|------|---------------------|
| Hydrochloric acid | PEL | 5 ppm |
| Ferric chloride | PEL | 1 mg/m ³ |

US. ACGIH Threshold Limit Values

| Component | Type | Value |
|-------------------|------|---------------------|
| Hydrochloric acid | TLV | 2 ppm |
| Ferric chloride | TLV | 1 mg/m ³ |

Biological occupational exposure limits

No information available.

8.2 Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face protection

Wear safety glasses or goggles.

Skin protection

Wear protective clothing and chemical-resistant gloves.

Body Protection

Wear protective clothing and chemical-resistant gloves.

Respiratory protection

Use a self-contained respiratory device in an emergency.

Control of environmental exposure

No information available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

| | |
|---------------------|--------------------------|
| Physical State | Liquid |
| Appearance | Brown |
| Odor | Acidic, pungent |
| Odor Threshold | No information available |
| pH | No information available |
| Melting Point/Range | Approximately 0 °C |
| Boiling Point/Range | Approximately 100 °C |

| | |
|---|--------------------------|
| Evaporation Rate | No information available |
| Flammability (solid) | Not applicable |
| Flammability or explosive limit | No data available |
| Upper | |
| Lower | |
| Vapor Pressure | No information available |
| Vapor Density | No information available |
| Density | No information available |
| Solubility | Miscible |
| Partition coefficient; n-octanol/water | No data available |
| Autoignition Temp | No information available |
| Decomposition Temp | No information available |
| Viscosity | No information available |
| Molecular Formula | N/A |
| Molecular Weight | N/A |
| VOC Content(%) | No information available |
| Oxidizing properties | No information available |

9.2 Other safety information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

No information available.

10.2 Chemical stability

Stable under recommended conditions.

10.3 Possibility of hazardous reactions

See incompatibilities.

10.4 Conditions to avoid

Decomposition will not occur if used and stored according to specifications.

10.5 Incompatible materials

Strong bases and reducing agents. May react with metals and generate hydrogen gas.

10.6 Hazardous decomposition products

Acidic and irritating fumes when heated to decomposition.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Product Information, Component Information

Acute toxicity

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|-------------------|---------------------|----------------------|--------------------|
| Hydrochloric acid | 238-277 mg/kg (Rat) | >5010 mg/kg (Rabbit) | 1.68 mg/L (Rat) 1h |
| Ferric chloride | 450 mg/kg (Rat) | - | - |

Skin corrosion/irritation

Cause skin irritation. Strong corrosive effect.

Serious eye damage/eye irritation

Cause serious eye damage. Strong corrosive effect.

Respiratory or skin sensitization

No sensitizing effects were known.

Germ cell mutagenicity

No information available.

Carcinogenicity

| Component | CAS | IARC | NTP | ACGIH | OSHA | Mexico |
|-------------------|-----------|------------|------------|------------|------------|------------|
| Hydrochloric acid | 7647-01-0 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ferric chloride | 7705-08-0 | Not listed | Not listed | Not listed | Not listed | Not listed |

Specific target organ toxicity - single exposure

No information available.

Specific target organ toxicity - repeated exposure

No information available.

Reproductive toxicity

No information available.

Chronic effects

No information available.

11.2 Additional Information

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

SECTION 12: Ecological information

12.1 Toxicity

Ferric chloride is toxic to aquatic organisms.

12.2 Persistence and degradability

Ferric chloride may cause long-lasting harmful effects on aquatic life.

12.3 Bio accumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Endocrine disrupting properties

No information available.

12.7 Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1 Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

SECTION 14: Transport information

DOT (US)

| | |
|----------------------|---|
| UN-no | UN3264 |
| Proper Shipping Name | Corrosive liquid, acidic, inorganic, n.o.s. |
| Hazard Class | 8 |
| Packing Group | II |

IMDG

| | |
|----------------------|---|
| UN-no | UN3264 |
| Proper Shipping Name | Corrosive liquid, acidic, inorganic, n.o.s. |
| Hazard Class | 8 |
| Packing Group | II |

IATA

| | |
|----------------------|---|
| UN-no | UN3264 |
| Proper Shipping Name | Corrosive liquid, acidic, inorganic, n.o.s. |
| Hazard Class | 8 |
| Packing Group | II |

SECTION 15: Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not applicable.

CERCLA Hazardous Substance List (40 CFR 302.4)
Listed, Hydrochloric acid (CAS #7647-01-0), RQ: 5000 lb.
Listed, Ferric chloride (CAS #7705-08-0), RQ: 1000 lb.

SARA 304 Emergency release notification
Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous
See Section 2 for more information.

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Listed, Hydrochloric acid (CAS #7647-01-0).

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Clean Water Act (CWA) - Hazardous Substances
Listed, Hydrochloric acid (CAS #7647-01-0), RQ: 5000 lb.
Listed, Ferric chloride (CAS #7705-08-0), RQ: 1000 lb.

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace
Not listed.

US state regulations

US. Massachusetts RTK - Substance List
Listed, Hydrochloric acid (CAS #7647-01-0).
Listed, Ferric chloride (CAS #7705-08-0).

US. New Jersey Worker and Community Right-to-Know Act

Listed, Hydrochloric acid (CAS #7647-01-0).

Listed, Ferric chloride (CAS #7705-08-0).

US. Pennsylvania Worker and Community Right-to-Know Law

Listed, Hydrochloric acid (CAS #7647-01-0).

Listed, Ferric chloride (CAS #7705-08-0).

California Proposition 65

Not listed.

SECTION 16: Other information

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SECTION 17: Disclaimer

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.