

TEC Flux

Safety Data Sheet

1. Product and Company Identification

Suppliers and Manufacturers

Lucas Milhaupt, Inc.
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Telephone: 414-769-6000
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Emergency Phone Number

Chemtrec: 800-424-9300

SDS Number: 196

Product Codes: 36-100 (1 Gallon Handy Flux Type TEC), 36-200 (1 Quart Handy Flux Type TEC), 36-300 (1 Pint Handy Flux Type TEC), 36-301 (1.5 Oz Handy Flux Type TEC), 36-304 (4 Oz Handy Flux Type TEC)

Product Use(s): Flux for metal soldering

2. Hazards Identification

Classification(s)

Acute Toxicity, Oral: Hazard Category 4
Acute Toxicity, Inhalation: Hazard Category 4
Skin Corrosion: Hazard Category 1B
Severe Eye Damage: Hazard Category 1

Label Symbol(s): Corrosive, Exclamation Point

Label Signal Word(s): Danger

Label Hazard Statement(s)

Harmful if swallowed or inhaled.
Causes severe skin burns and eye damage.

Label Precautionary Statement(s)

Do not breathe vapors or mist.
Use only outdoors or in a well-ventilated area.
Wear protective gloves and eye/face protection.
Wash hands thoroughly after handling. Store locked up.
Do not eat, drink, or smoke when using this product.

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting. Immediately call a doctor or Poison Control Center, or also if you feel unwell.

IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse.

IF IN EYES: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if easy to do. Continue rinsing. Immediately call a doctor or Poison Control Center.



IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Dispose of contents/container in accordance with applicable regulations.

3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Ammonium chloride	12125-02-9	3-6	None known
Hydrochloric acid	7647-01-0	1-3	None known
Lithium chloride	7447-41-8	<4	None known
Zinc chloride	7646-85-7	40-50	None known

4. First Aid Measures

Eyes

Flush affected areas with water for at least 15 minutes. Seek medical assistance if necessary.

Skin

Remove contaminated clothing. Wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary. Launder or dry-clean clothing before reuse.

Ingestion

Do not induce vomiting. If the subject is conscious, give large quantities of liquids. Seek immediate medical assistance. Do not attempt to give anything by mouth to an unconscious or convulsive person.

Inhalation

If signs and symptoms of toxicity are observed, remove subject from area, administer oxygen, and seek medical attention. Keep the subject warm and at rest. Perform artificial respiration if breathing has stopped.

Note to Physician

The components zinc chloride and hydrogen chloride are harmful and corrosive to tissues. There is no specific antidote. Treat ingestion symptomatically. No components are absorbed through skin, although skin contact can cause irritation or burns.

5. Fire Fighting Measures

Extinguishing Media

Not applicable.

Fire and Explosion Hazards

This product is non-flammable and non-explosive. If it is present in a fire or explosion, potential decomposition byproducts may include hydrogen chloride, ammonium chloride, zinc chloride, lithium oxide, and/or zinc oxide.

Fire Fighting Instructions

If fighting a fire in which this product is present, wear a self-contained breathing apparatus with full-facepiece operated in pressure-demand or other positive pressure mode.

6. Accidental Release Measures

Methods and Materials

Isolate spilled product and transfer to impervious containers.

Personal Precautions

Avoid contact with skin, eyes, and mucous membranes. Wear appropriate protective equipment (e.g., gloves, chemical goggles) during cleanup.

Environmental Precautions

Prevent spills from entering sewers or contaminating soil.

7. Handling and Storage

Handling Precautions

Avoid contact with skin and clothing, using protective equipment as needed.

Work and Hygiene Practices

To prevent ingestion following use of the product, wash hands and face before eating, drinking, applying cosmetics, or using tobacco. Remove contaminated clothing or protective equipment before entering eating/drinking areas.

Storage Precautions

Store in a cool location away from incompatible materials (see Section #10).

8. Exposure Controls and Personal Protection

Ingredients - Exposure Limits

Ammonium chloride

ACGIH TLVs: 10 mg/m³ TWA; 20 mg/m³ STEL No OSHA PEL(s)

Hydrochloric acid

ACGIH TLV: 2 ppm "Ceiling" OSHA PEL: 5 ppm "Ceiling"

Lithium chloride

No ACGIH TLV(s) No OSHA PEL(s)

Zinc chloride

ACGIH TLVs: 1 mg/m³ TWA; 2 mg/m³ STEL OSHA PEL: 1 mg/m³ TWA

Ingredients - Biological Limits

Ammonium chloride

No ACGIH BEI(s) or other biological limit(s)

Hydrochloric acid

No ACGIH BEI(s) or other biological limit(s)

Lithium chloride

No ACGIH BEI(s) or other biological limit(s)

Zinc chloride

No ACGIH BEI(s) or other biological limit(s)

Engineering Controls

Use dilution or local exhaust ventilation adequate to maintain concentrations of all components and their byproducts to within their applicable standards.

Eye/Face Protection

Wear eye protection adequate to prevent eye contact with the product and injury from the hazards of soldering. Plastic-frame spectacles with side shields and filter lenses (shade #3/#4) are recommended.

Skin Protection

Wear protective gloves and clothing to prevent skin injuries from the hazards of soldering and/or for prolonged contact with the product. Avoid flammable fabrics.

Respiratory Protection

If an exposure level to a component(s) exceeds an applicable standard, use a NIOSH-approved respirator having a configuration (facepiece, filter media, assigned protection factor, etc.) effective for the concentration of the component(s) generated. For guidance on selection and use of respirators, consult American National Standard Z88.2 (ANSI, New York, NY 1003, USA).

9. Physical and Chemical Properties

Appearance: red liquid

Odor: mildly acidic

Odor threshold: not applicable

pH: <7

Melting point: not applicable

Freezing point: <32F./0C.

Boiling point/boiling range: approx. 229F./109C.

Flash Point: not applicable

Evaporation Rate: not applicable

Flammability Class: not applicable

Lower Explosive Limit: not applicable

Upper Explosive Limit: not applicable

Vapor pressure: not applicable

Vapor density: not applicable

Relative density (H₂O): approx. 1.5

Solubility (H₂O): soluble

Oil-water partition coefficient: not determined

Autoignition Point: not applicable

Decomposition temperature: not determined

Viscosity: not determined

10. Stability and Reactivity

Reactivity: none reasonably foreseeable

Stability: stable

Hazardous Polymerization: will not occur

Risk of Dangerous Reactions: some components may decompose at elevated temperatures.

Incompatible Materials

Strong alkalis; potassium plus aluminum bromide; potassium chlorate; ammonium nitrate; iodine pentafluoride; bromine trifluoride.

Hazardous Decomposition Products

Hydrogen chloride, zinc chloride, zinc oxide, lithium chloride, and ammonium chloride.

11. Toxicological Information

This product has not been subject to toxicological testing by the supplier/manufacturer.

Ingredients - Toxicological Data

Ammonium chloride		
LD50: 1,650 mg/kg (oral/rat)		LC50: No data available
Hydrochloric acid		
LD50: No data available		LC50: 4,500 mg/m3 for 0.5h. (rat)
Lithium chloride		
LD50: 526 mg/kg (oral/rat)		LC50: No data available
Zinc chloride		
LD50: 350 mg/kg (oral/rat)		LC50: No data available

Primary Routes(s) of Entry

Ingestion; inhalation.

Eye Hazards

This product may cause serious eye damage or corneal injury.

Skin Hazards

This product may cause skin corrosion or irritation.

Ingestion Hazards

Some components of this product are potentially harmful if ingested, and may cause one or more of the following symptoms and effects: nausea, vomiting, abdominal pain, gastrointestinal irritation, convulsions, and kidney damage.

Inhalation Hazards

Inhalation of toxicologically-significant quantities of the components is unlikely when the product is used in accordance with instructions and specified protective measures (see Section #8). If the aqueous phase of the product is boiled away, inhalation of components may cause irritation to the nose, throat, and respiratory tract; chest tightness, nausea, chills, fever, shortness of breath, pneumonitis, and pulmonary edema.

Symptoms Related to Overexposure

Irritation to the nose, throat, and respiratory tract; chest tightness, nausea, chills, fever, shortness of breath, pneumonitis, and pulmonary edema.

Delayed Effects from Long Term Overexposure

Chronic overexposure by ingestion can aggravate pre-existing diseases of the gastrointestinal and cardiovascular systems.

Carcinogenicity

The product contains no chemicals classified as potential or demonstrated carcinogens by IARC, NTP, or OSHA.

Germ Cell Mutagenicity

The product contains no chemicals determined to be germ cell mutagens.

Reproductive Effects

The product contains no chemicals determined to be damaging to fertility or the unborn child.

Acute Toxicity Estimates

LD50 (oral): >350 mg/kg
LD50 (dermal): no data available
LC50: 4,500 mg/m³

Interactive Effects of Components: no data available

12. Ecological Information

No ecological data is available for the product. Ecological data for the components is as follows:

Ammonium Chloride

Aquatic Toxicity to Fish: LC50 >123.8 mg/l. for 4d. (Freshwater fish)
Aquatic Toxicity to Invertebrates: LC50 = 0.39 mg/l. for 48h. (Daphnia)
Aquatic Toxicity to Plants: EC40 = 21.3 mg/l. for 2d. (Algae)
No data available for Toxicity to Microorganisms, Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Hydrochloric Acid

Aquatic Toxicity to Fish: LC50 = 282 mg/l. for 4d. (Freshwater fish)
Aquatic Toxicity to Invertebrates: LC80 = 56 mg/l. for 72h. (Daphnia)
No data available for Aquatic Toxicity to Plants, Toxicity to Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Lithium Chloride

No data available for Aquatic Toxicity to Fish and Invertebrates, Aquatic Toxicity to Plants and Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

Zinc Chloride

Aquatic Toxicity to Fish: LC50 = 18.18 mg/l. for 4d. (Freshwater fish)
Aquatic Toxicity to Invertebrates: EC50 = 0.16 mg/l. for 48h. (Daphnia)
Aquatic Toxicity to Plants: NOEC = 0.05 mg/l. for 4d. (Algae)
Toxicity to Microorganisms: EC50 = 30.45 mg/l., time not reported (Bacteria)
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Ozone Depletion Potential: This product contains no ingredients listed in the Annexes to the Montréal Protocol on Substances that Deplete the Ozone Layer.

13. Disposal Considerations

Do not discharge waste product into sanitary or storm sewers or allow it to contaminate soil. Consult applicable Federal, State/Provincial, and local regulations.

14. Transport Information

UN Number: 3264

Proper Shipping Name: Corrosive liquid, acidic, inorganic
(contains hydrochloric acid and zinc chloride)

Hazard Class(es): 8

Packing Group: II

Environmental Hazards: not applicable

Transport in Bulk: not applicable

Special Precautions: not applicable

15. Regulatory Information

United States Regulatory Information

All components of this product are listed on the EPA's TSCA inventory.

SARA Hazard Classes: Acute Health Hazard; Chronic Health Hazard

SARA Section 313 Notification: This product contains these ingredient(s) in concentrations >1% (for carcinogens >0.1%) regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372.

1. Hydrochloric acid (CASRN 7647-85-7)

Canadian Regulatory Information

All components of this product are listed on either the Domestic Substances List (DSL) or the Nondomestic Substances List (NDSL).

WHMIS Class(es) and Division(s): D1B, D2B, E

Components on Ingredients Disclosure List:

1. Ammonium chloride (CASRN 12125-02-9)
2. Hydrochloric acid (CASRN 7647-85-7)
3. Zinc chloride (CASRN 7646-85-7)

This product has been classified according to the hazard criteria of the CPR and this SDS contains all of the information required by the CPR.

16. Other Information

HMIS Ratings (Legend)

Health - 3 (serious hazard)

Flammability - 0 (minimal hazard)

Physical Hazard - 0 (minimal hazard)

PPE - see Note

Note: Lucas-Milhaupt, Inc. recommends use of protective eyewear and gloves (Personal Protection Index "B") as standard PPE. HMIS recommends that its ratings be used only in conjunction with a fully implemented HMIS program, and that specific PPE codes be created by the user, who is familiar with the actual conditions under which the product is used. We cannot anticipate every condition of the product's use, and it is the user's responsibility to evaluate the hazards pertinent to its specific operations, and to determine the specific PPE required.

NFPA Ratings for Product

Health - 3 Flammability - 0 Reactivity - 0

Preparation Information

Date of Preparation: 3 July 2014

Date of Prior SDS: 10 July 2012

Disclaimer

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Lucas-Milhaupt, Inc.