

SILVABRITE Paste Solder Flux

Safety Data Sheet

1. Product and Company Identification

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Manufacturer

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Lucas Milhaupt, Inc.  
5656 South Pennsylvania Avenue  
Cudahy, WI 53110 USA  
Telephone: 414-769-6000  
www.lucasmilhaupt.com

Emergency Phone Number

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CHEMTREC within the USA and Canada: 1-800-424-9300  
CHEMTREC outside USA and Canada: +1 703-741-5970

SDS Number: 255

Product: Flux

Product Codes: 73-304 (SILVABRITE Paste Solder Flux), 84-213 (SILVABRITE Paste Solder Flux), 40025 (SILVABRITE Paste Solder Flux), A00000228 (SILVABRITE Paste Solder Flux), 4 Oz Clean and Brite with Brush Cap, New Clean and Brite

Product Use(s): Flux for metal soldering

2. Hazards Identification

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Classification(s)

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Specific Target Organ Toxicity,  
Repeated Exposure: Hazard Category 2  
Acute Toxicity, Oral: Hazard Category 4  
Skin Corrosion: Hazard Category 1B  
Severe Eye Damage: Hazard Category 1

Label Symbol(s): Corrosive, Health Hazard, Exclamation Point

Label Signal Word(s): Danger

Label Hazard Statement(s)

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Harmful if swallowed or inhaled.  
Causes severe skin burns and eye damage.  
May cause damage to kidneys through prolonged or repeated exposure.

Label Precautionary Statement(s)

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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.  
Get medical advice/attention if you feel unwell.



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.

Dispose of contents/container in accordance with applicable regulations. The acute toxicities of 53-75% of the product's ingredients are unknown.

WARNING - This product contains a chemical known to the state of California to cause birth defects or other reproductive harm via ingestion.

### 3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Ammonium chloride	12125-02-9	5-10	None known
Ethylene glycol	107-21-1	5-12	None known
Zinc chloride	7646-85-7	15-25	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 unless so directed by medical authority. 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 or Poison Control Center

The component zinc chloride is corrosive to tissues. There is no specific antidote. If ingested, treat ingestion symptomatically. No components are absorbed through skin, although skin contact can cause irritation or burns.

## 5. Fire Fighting Measures

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### Extinguishing Media

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Use dry chemical. Do not use water

## 5. Fire Fighting Measures (Continued)

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### Fire and Explosion Hazards

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If this product is present in a fire or explosion, potential decomposition byproducts may include ammonium chloride, zinc chloride, and/or zinc oxide.

### Fire Fighting Instructions

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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

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### Methods and Materials

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Isolate spilled product and transfer to impervious containers.

### Personal Precautions

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

### Environmental Precautions

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Prevent spills from entering sewers or contaminating soil.

## 7. Handling and Storage

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### Handling Precautions

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

### Work and Hygiene Practices

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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

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Store away from incompatible materials (see Section #10).

## 8. Exposure Controls and Personal Protection

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### Ingredients - Exposure Limits

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#### Ammonium chloride

ACGIH TLVs: 10 mg/m<sup>3</sup> TWA; 20 mg/m<sup>3</sup> STEL                      No OSHA PEL(s)

#### Ethylene glycol

ACGIH TLV: 100 mg/m<sup>3</sup> "Ceiling"                                      No OSHA PEL(s)

## 8. Exposure Controls and Personal Protection (Continued)

### ----- Ingredients - Exposure Limits (Continued) -----

#### Zinc chloride

ACGIH TLVs: 1 mg/m<sup>3</sup> TWA; 2 mg/m<sup>3</sup> STEL                      OSHA PEL: 1 mg/m<sup>3</sup> TWA

### ----- Ingredients - Biological Limits -----

#### Ammonium chloride

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

#### Ethylene glycol

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 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 10036, USA).

## 9. Physical and Chemical Properties

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Appearance: thick white gel

Odor: glycol-like

Odor threshold: not applicable

pH: not determined

Melting point: not applicable

Freezing point: not determined

Boiling point/boiling range: >388F./198C.

Flash Point: >232F./111C.

Evaporation Rate: not determined

Flammability Class: IIIB

Lower Explosive Limit: not determined

Upper Explosive Limit: not determined

Vapor pressure: <0.1 mm. Hg @ 25C.

Vapor density: not determined

Relative density (H<sub>2</sub>O): approx. 2.15

Solubility (H<sub>2</sub>O): partial

Oil-water partition coefficient: not determined

## 9. Physical and Chemical Properties (Continued)

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Autoignition Point: >752F./400C.  
Decomposition temperature: not determined  
Viscosity: not determined

## 10. Stability and Reactivity

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Reactivity: none reasonably foreseeable  
Stability: stable  
Hazardous Polymerization: will not occur  
Risk of Dangerous Reactions: some components may decompose at elevated temperatures.

### Incompatible Materials

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Sulfuric acid; chlorosulfonic acid; acetic and chromic anhydrides; chlorates; perchlorates; cyanides; halogens; ammonium nitrate; bromine trifluoride; iodine heptafluoride; potassium; inorganic peroxides; potassium permanganate; aniline plus nitrobenzene.

### Hazardous Decomposition Products

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Zinc chloride, zinc oxide, ammonium chloride, carbon monoxide, smoke, and irritant decomposition byproducts.

## 11. Toxicological Information

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This product has not been tested for toxicology by the manufacturer.

### Ingredients - Toxicological Data

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Ammonium chloride	
LD50: 1,650 mg/kg (oral/rat)	LC50: No data available
Ethylene glycol	
LD50: 4,700 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

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Ingestion; inhalation.

### Eye Hazards

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This product may cause serious eye damage or corneal injury.

### Skin Hazards

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This product may cause skin corrosion or irritation.

### Ingestion Hazards

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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.

## 11. Toxicological Information (Continued)

### 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).

### 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 liver, kidneys, and gastrointestinal system.

### 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

In experimental studies, adverse reproductive effects have been reported in rats and mice following ingestion of ethylene glycol. Ingestion is an unlikely mode of occupational exposure, and adverse reproductive effects in humans from ethylene glycol have not been established.

### Acute Toxicity Estimates

LD50 (oral): >500 mg/kg  
LD50 (dermal): no data available  
LC50: no data available

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.

## 12. Ecological Information (Continued)

### Ethylene glycol

Aquatic Toxicity to Fish: LC50 = >10,000 mg/l. for 2 d. (Freshwater fish)  
Aquatic Toxicity to Invertebrates: EC50 >20,000 mg/l. for 1 d. (Crustacea)  
Aquatic Toxicity to Microorganisms: EC50 = 5,000 mg/l. for 1 d. (Protozoa)  
Toxicity to Terrestrial Plants: LC50 = 5,500 mg/l. for 1 d. (Tomatensamen)  
No data available for Aquatic Toxicity to Plants, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or 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: 2331  
Proper Shipping Name: Zinc chloride, anhydrous mixture  
Hazard Class(es): 8  
Packing Group: III  
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. Ethylene glycol (CASRN 107-21-1)

### Ingredient(s) - State Regulations

Ethylene glycol (CASRN 107-21-1) - California Proposition 65 listed chemical

15. Regulatory Information (Continued)

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

This product has been classified in accordance with Canada's Hazardous Products Regulations (SOR/DORS/2015-17).

16. Other Information

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HMIS Ratings (Legend)  
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Health - 2\* (moderate chronic hazard)  
Flammability - 1 (slight 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

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Health - 2      Flammability - 1      Reactivity - 0

Preparation Information

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Date of Preparation: 1 February 2016  
Date of Prior SDS: 2 July 2014

Disclaimer

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Lucas-Milhaupt, Inc.