

TEC Flux

Material Safety Data Sheet

1. Product And Company Identification

Supplier

Lucas Milhaupt, Inc. Handy & Harman of Canada, Ltd.
5656 South Pennsylvania Avenue 290 Carlingview Drive
Cudahy, WI 53110 Rexdale, ON M9W5G1

Supplier Emergency Contacts & Phone Number

Lucas-Milhaupt, Inc.: 414-769-6000
Handy & Harman of Canada, Ltd.: 416-675-1860

Manufacturer

Lucas-Milhaupt, Inc.
5656 South Pennsylvania Avenue
Cudahy, WI 53110
Telephone: 414-769-6000
Fax: 414-769-1093

Manufacturer Emergency Contacts & Phone Number

Chemtrec: 800-424-9300

Issue Date: 07/13/2009
Product Name: TEC Flux
MSDS Number: 196
Product Codes: 36-100, 36-200, 36-300, 36-301, and 36-304.

2. Composition/Information On Ingredients

Ingredient Name	CAS Number	%
Ammonium chloride	12125-02-9	3-6
Hydrochloric acid	7647-01-0	1-3
Lithium chloride	7447-41-8	<4
Zinc chloride	7646-85-7	40-50

3. Hazards Identification

Primary Routes(s) Of Entry

Ingestion; inhalation.

Eye Hazards

Eye contact may cause severe irritation and/or corneal injury.

Skin Hazards

Skin contact with this product may cause irritation and/or skin burns,

particularly on abraded skin. Prolonged exposure may cause skin ulceration.

Ingestion Hazards

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

Inhalation Hazards

Inhalation of the components of this product is not known to present a significant risk to health when used according to instructions and with appropriate protective measures (see Section #8). Inhalation of components and/or decomposition byproducts has been reported to cause one or more of the following symptoms or acute effects upon very high or prolonged exposure:

ACUTE EFFECTS: inhalation may irritate the nose, throat, and respiratory tract, and cause nausea, chest tightness, fever, and shortness of breath.

CHRONIC EFFECTS: Long-term inhalation exposure may cause ulceration of mucous membranes, pneumonitis, and pulmonary edema.

4. First Aid Measures

Eye

Flush affected areas with water for at least fifteen 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 plenty of milk or water. Seek immediate medical assistance. Do not attempt to give anything by mouth to an unconscious 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 component zinc chloride is corrosive to tissues and, depending upon ingested dose, may be toxic. There is no specific antidote. Treat ingestion symptomatically. The component hydrochloric acid is also corrosive to tissues. No components are absorbed through the skin, although the skin contact can cause irritation or burns.

5. Fire Fighting Measures

Flash Point: N/Appl.
Autoignition Point: N/Appl.
Flammability Class: N/Appl.
Lower Explosive Limit: N/Appl.
Upper Explosive Limit: N/Appl.

Fire And Explosion Hazards

This product is non-flammable and non-explosive. If it is present in a fire or explosion, potentially hazardous emissions may include zinc chloride, zinc oxide, lithium oxide, ammonium chloride, and hydrogen chloride.

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

Isolate spilled material and transfer to impervious containers. Avoid contact with skin, eyes, and mucous membranes. Wear appropriate protective equipment (e.g., gloves, chemical goggles) during cleanup and disposal.

7. Handling And Storage

Handling Precautions

Avoid contact with skin, eyes, and mucous membranes, using protective equipment as necessary.

Storage Precautions

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

Work/Hygienic Practices

To minimize ingestion, wash hands and face before eating, drinking, applying cosmetics, or using tobacco.

8. Exposure Controls/Personal Protection

Engineering Controls

Use appropriate ventilation (e.g., dilution, local exhaust) 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 eye injury from the hazards of soldering. Plastic-frame spectacles with side shields and filter lenses (shade #3 or #4) are recommended.

Skin Protection

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

Respiratory Protection

If an exposure level exceeds an applicable exposure standard, use a NIOSH-approved respirator having a configuration (type of facepiece, filter media, assigned protection factor, etc.) appropriate to the concentration of the contaminant(s) generated. For guidance on selection and use of respirators, consult American National Standard Z88.2 (ANSI, New York, NY 10036 USA).

Ingredient(s) - 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" (as HCl) OSHA PEL: 5ppm "Ceiling" (as HCl)

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

9. Physical And Chemical Properties

Appearance

Red liquid with a mild odor.

Chemical Type: Mixture

Physical State: Liquid

Boiling Point: ca. 229F./109C.

Specific Gravity: ca. 1.55

Solution pH: <7

Solubility: soluble

Other physical properties (odor threshold, evaporation rate, vapor pressure, vapor density, oil-water coefficient, percent volatiles, percent VOCs) are not applicable to this product.

10. Stability And Reactivity

Stability: stable

Hazardous Polymerization: will not occur

Conditions To Avoid (Stability)

Some components of the product will decompose and/or off gas at elevated temperatures.

Incompatible Materials

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

Hazardous Decomposition Products

Zinc chloride, zinc oxide, ammonium chloride, lithium chloride, and/or hydrogen chloride.

11. Toxicological Information

Chronic/Carcinogenicity

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

Reproductive Effects

In experimental animal studies, ingestion or injection of lithium chloride has been found to cause various reproductive problems, including reduced litter size and fetal death in females, adverse effects on sperm in males, and developmental abnormalities in offspring. These are not plausible routes of human exposure in occupational settings, and the relevance of these findings to human health is unknown.

Intraperitoneal injection of zinc chloride in fetal mice has produced skeletal abnormalities and delayed development. This is not a plausible route of human exposure in occupational settings, and the significance of this finding with respect to humans is unknown.

Mutagenicity (Genetic Effects)

Zinc chloride has been associated with an increase in chromosomal aberrations in mouse bone marrow.

Conditions Aggravated By Overexposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation overexposure to the components or decomposition byproducts of this product. Overexposure by inhalation or ingestion may aggravate diseases of the liver, kidneys, and skeletal, cardiovascular, central nervous, and gastrointestinal systems.

Ingredient(s) - Toxicological Data

Ammonium chloride	LD50: 1,650 mg/kg (oral/rat)	LC50: No data available
Hydrochloric acid	LD50: 900 mg/kg (oral/rabbit)	LC50: 3,124 ppm for 1 hr. (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

12. Ecological Information

In its intended manner of use, this product should not be released into the environment, and adverse effects on ecosystems are not anticipated under recommended conditions of use, storage, and disposal.

13. Disposal Considerations

Dispose of unused or unusable product in accordance with applicable Federal, State/Provincial, and local regulations.

14. Transport Information

Proper Shipping Name: Corrosive liquid, n.o.s.
(contains zinc chloride and hydrochloric acid)

Hazard Class: 8
Packing Group: II
DOT Identification Number: UN1760
DOT Shipping Label: CORROSIVE
Packaging Exceptions: 49CFR Part 173.154

15. Regulatory Information

----- TSCA Information

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

SARA Hazard Classes

Acute Health Hazard; Chronic Health Hazard

Ingredient(s) - U.S. Regulatory Information

----- Hydrochloric acid

SARA Title III - Section 313 Form "R"/TRI Reportable Chemical

Canadian Regulatory Information

All components of this product are listed on the Domestic Substances List.

WHMIS Hazard Class(es) and Division(s): D1B, D2A, D2B, E

Components on Ingredients Disclosure List:

1. Ammonium chloride (CASRN 12125-02-9)
2. Hydrogen chloride (CASRN 7647-01-0)
3. Zinc chloride (CASRN 7646-85-7)

16. Other/Revision Information

This MSDS supersedes a previous MSDS dated 06/18/2004.

Disclaimer

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