

Handy Flux Type B-1 and Handy Flux SLSB

Safety Data Sheet

1. Product and Company Identification

-----  
Manufacturer

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

Emergency Phone Number

-----  
CHEMTREC Within the USA and Canada: 1-800-424-9300  
CHEMTREC Outside USA and Canada: +1 703-741-5970

SDS Number: 19  
Product: Flux

Product Codes: 73-230, 73-231 (HANDY FLUX SLSB), 73-232 (HANDY FLUX TYPE B-1), 73-233 (HANDY FLUX TYPE B-1), 73-234 (HANDY FLUX TYPE B-1), 73-235 (HANDY FLUX TYPE B-1), 73-236 (HANDY FLUX TYPE B-1), 73-237 (HANDY FLUX TYPE B-1), 82-050 (HANDY FLUX TYPE B-1), 40019 (HANDY FLUX TYPE B-1), A00000227 (HANDY FLUX TYPE B-1), 82-091 (X6067 FLUX), 82-098 (HANDY FLUX SLSB), 82-105 (HANDY FLUX SLSBLP), 82-116 (HANDY FLUX LSB)

Product Use(s): Flux for metal brazing

2. Hazards Identification

-----  
Classification(s)

-----  
Acute Toxicity, Oral: Hazard Category 4  
Reproductive Toxicity: Hazard Category 2

Label Symbol(s): Health Hazard, Exclamation Point

Label Signal Word(s): Warning

Label Hazard Statement(s)

-----  
Harmful if swallowed.  
Suspected of damaging fertility or the unborn child.

Label Precautionary Statement(s)

-----  
Do not handle until all safety precautions have been read and understood.  
Obtain special instructions before using. Store locked up.  
Wear protective gloves and eye/face protection.  
Wash hands thoroughly after handling.  
Do not eat, drink, or smoke when using this product.

IF SWALLOWED: Rinse mouth. Do not induce vomiting unless so instructed by medical personnel. Call a Poison Control Center/doctor if you feel unwell.

If exposed or concerned, get medical advice or attention.



Dispose of contents/container in accordance with applicable regulations.  
The acute toxicities of 40-60% of the product's ingredients are unknown.

### 3. Composition/Information on Ingredients

| Ingredient                  | CAS Number | %     | Impurities |
|-----------------------------|------------|-------|------------|
| Boric acid                  | 10043-35-3 | 5-20  | None known |
| Boron                       | 7440-42-8  | <1    | None known |
| Potassium fluoride          | 7789-23-3  | 1-2   | None known |
| Potassium fluorohydroborate | 12228-71-6 | 35-45 | None known |
| Potassium tetraborate       | 1332-77-0  | 5-15  | 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 instructed by medical personnel. If the subject is conscious, give 2-4 cups of milk or water. 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

Depending upon the dose, ingestion of this product containing the components potassium fluoride and potassium fluorohydroborate may be harmful. The total quantity of fluoride in the product is <150 gm/kg. Treat fluoride intoxication symptomatically. No components are readily absorbed through the skin, although contact may cause skin irritation.

### 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 boron oxide, potassium hydroxide, and/or fluorides.

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

## 8. Exposure Controls and Personal Protection

---

### Ingredients - Exposure Limits

---

#### Boric acid

ACGIH TLVs: 2 mg/m<sup>3</sup> TWA; 6 mg/m<sup>3</sup> STEL      No OSHA PEL(s)

#### Boron

No ACGIH TLV(s)      No OSHA PEL(s)

#### Potassium fluorohydroborate

ACGIH TLV: 2.5 mg/m<sup>3</sup> TWA (as F-)      OSHA PEL: 2.5 mg/m<sup>3</sup> TWA (as F-)

#### Potassium fluoride

ACGIH TLV: 2.5 mg/m<sup>3</sup> TWA (as F-)      OSHA PEL: 2.5 mg/m<sup>3</sup> TWA (as F-)

#### Potassium tetraborate

No ACGIH TLV(s)      No OSHA PEL(s)

## Ingredients - Biological Limits

---

### Boric acid

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

### Boron

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

### Potassium fluorohydroborate

ACGIH BEIs for fluoride in urine: 2 mg/l. prior to shift  
3 mg/l. end of shift

### Potassium fluoride

ACGIH BEIs for fluoride in urine: 2 mg/l. prior to shift  
3 mg/l. end of shift

### Potassium tetraborate

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 brazing. Plastic-frame spectacles with side shields are recommended.

## Skin Protection

---

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

## Respiratory Protection

---

If an exposure level 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

---

Appearance: brown paste

Odor: no odor

Odor threshold: not applicable

pH: approx. 8.0

Melting point: not applicable

Freezing point: not applicable

Boiling point/boiling range: >212F./100C.

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 (H<sub>2</sub>O): approx. 1.7

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

Oil-water partition coefficient: not applicable

Autoignition Point: not applicable

## 9. Physical and Chemical Properties (Continued)

---

Decomposition temperature: not determined

Viscosity: not applicable

## 10. Stability and Reactivity

---

Reactivity: none reasonably foreseeable

Stability: stable

Hazardous Polymerization: will not occur

Possible Hazardous Reactions: Some components may decompose at elevated temperatures.

### Incompatible Materials

---

Acetic anhydride; alkali and alkali earth metals; zirconium; platinum; bromine trifluoride.

### Potential Hazardous Decomposition Products

---

Boron oxide, potassium hydroxide, and/or fluorides.

## 11. Toxicological Information

---

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

### Ingredients - Toxicological Data

---

Boric acid

LD50: 2,660 mg/kg (oral/rat)

LC50: No data available

Boron

LD50: 650 mg/kg (oral/rat)

LC50: No data available

Potassium fluoroborate

LD50: No data available

LC50: No data available

Potassium fluoride

LD50: 245 mg/kg (oral/rat)

LC50: No data available

Potassium tetraborate

LD50: No data available

LC50: No data available

### Primary Routes(s) of Entry

---

Ingestion; inhalation.

### Eye Hazards

---

This product may cause eye irritation or injury.

### Skin Hazards

---

This product can produce irritation, particularly on abraded skin. Prolonged exposure can cause dermatitis.

### Ingestion Hazards

---

Ingestion of this product may cause one or more of the following symptoms and effects: nausea, vomiting, cramps, gastrointestinal irritation, abdominal pain, convulsions, and tachycardia. Chronic ingestion may cause fluorosis (a disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints).

## 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 of the nose, throat, and respiratory tract; cough, nose bleeds, nausea, vomiting, chest tightness, chills, fever, pneumonitis, tearing, and pulmonary edema.

## Delayed Effects from Long Term Overexposure

-----  
Liver and kidney damage, impaired pulmonary function, fluorosis, and/or aggravation of pre-existing diseases of the liver, kidneys, and the skeletal, nervous, and gastrointestinal systems.

## Carcinogenicity

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

## Germ Cell Mutagenicity

-----  
Some inorganic fluorides have been demonstrated to induce mutagenic changes in mammalian cells in culture. No genetic effects in humans from occupational exposure to potassium fluorohydroborate or potassium fluoride have been established.

## Reproductive Effects

-----  
In experimental studies, boric acid has been found to cause decreased sperm production and testicular effects in male rats, and developmental effects in fetuses of exposed female mice. No reproductive effects in humans from occupational exposure to borates have been established.

## Acute Toxicity Estimates

-----  
LD50 (oral): >400 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:

### Boric Acid

-----  
Aquatic Toxicity to Fish: LC50 = 1,020 mg/l. for 3 d. (Freshwater fish)  
Aquatic Toxicity to Invertebrates: EC50 = 658-875 mg/l. for 48 h. (Daphnia)  
Aquatic Toxicity to Plants, depressed growth rate: 290 mg/l. (Algae)  
No data available for Aquatic Toxicity to Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

#### Boron

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

#### Potassium fluorohydroborate

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

#### Potassium Fluoride

-----  
Aquatic Toxicity to Fish: LC50 = 64 mg/l. for 240 h. (Trout)  
Aquatic Toxicity to Invertebrates: EC50 = 270 mg/l. (Daphnia)  
Aquatic Toxicity to Plants: EC50 = 95 mg/l. for 96 h. (Algae)  
Aquatic Toxicity to Microorganisms: EC50 = 101 mg/l. (Protozoa)  
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

#### Potassium Tetraborate

-----  
No data available for Aquatic Toxicity to Fish, Invertebrates, Plants, or Microorganisms, 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. Disposal of products containing fluorides or borates may be subject to restrictions. Consult applicable Federal, State/Provincial, and local regulations.

#### 14. Transport Information

-----  
Transport is not regulated by USDOT, TDG (Canada), IATA, or IMO.

#### 15. Regulatory Information

##### United States Regulatory Information

-----  
SARA Hazard Classes: Acute Health Hazard; Chronic Health Hazard

SARA Section 313 Notification: This product contains no ingredients 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.

##### Canadian Regulatory Information

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

16. Other Information

-----  
HMIS Ratings (Legend)  
-----

Health - 2\* (moderate chronic 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  
-----

Health - 2      Flammability - 0      Reactivity - 0

Preparation Information  
-----

Date of Preparation: 13 June 2016  
Date of Prior SDS: 19 June 2015

Disclaimer  
-----

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

Lucas-Milhaupt, Inc.