

Liquid Blue Flux

Safety Data Sheet

1. Product and Company Identification

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

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

SDS Number: 842  
Product Codes: 82-166  
Product Use(s): Flux for metal brazing

Blue Flux  
709001  
709002  
709003  
709004

2. Hazards Identification

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Classification(s)  
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Reproductive Toxicity: Hazard Category 2  
Skin Corrosion: Hazard Category 1C  
Severe Eye Damage: Hazard Category 1

Label Symbol(s): Health Hazard, Corrosive

Label Signal Word(s): Danger

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Label Hazard Statement(s)  
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Harmful if swallowed.  
Causes severe skin burns and eye damage.  
Suspected of damaging fertility or the unborn child.

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Label Precautionary Statement(s)  
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Do not handle until all safety precautions have been read and understood.  
Obtain special instructions before using.  
Wear protective gloves, protective clothing, and eye/face protection.  
Wash hands thoroughly after handling.  
Do not eat, drink, or smoke when using this product.  
If exposed or concerned, get medical advice or attention.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a doctor or Poison Control Center 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.



Store locked up.

Dispose of contents/container in accordance with applicable regulations.  
The acute toxicities of 4-6% of the product's ingredients are unknown.

### 3. Composition/Information on Ingredients

Ingredient Name	CAS Numbers	%	Impurities
Boric acid	10043-35-3	8-12	None known
Potassium bifluoride	7789-29-9	4-5	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 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

Depending upon the dose, ingestion of the component potassium bifluoride may be harmful or toxic. It is also corrosive to skin and eyes. Its concentration in the product is <50 gm/kg. Treat fluoride intoxication symptomatically. No components are readily absorbed through the skin, although skin corrosion or skin injury may occur from prolonged contact.

### 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 in a cool location 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)

#### Potassium bifluoride

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

### Ingredients - Biological Limits

#### Boric acid

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

#### Potassium bifluoride

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

### 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 or chemical goggles are recommended.

#### Skin Protection

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

#### Respiratory Protection

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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: blue liquid  
Odor: no odor  
Odor threshold: not applicable  
pH: not determined  
Melting point: not applicable  
Freezing point: not applicable  
Boiling point: >212F./100C.  
Boiling range: not determined  
Flash Point: not applicable  
Evaporation Rate: not applicable  
Flammability Class: not applicable  
Autoignition Point: not applicable  
Lower/Upper Explosive Limits: not applicable  
Vapor pressure: not applicable  
Vapor density: not applicable  
Relative density (H<sub>2</sub>O): not determined  
Solubility (H<sub>2</sub>O): soluble  
Oil-water partition coefficient: not determined  
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 of the product may decompose at elevated temperatures.

#### Incompatible Materials

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

#### Potential Hazardous Decomposition Products

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Boron oxide, potassium hydroxide, and/or fluorides.

### 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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### Boric acid

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

LC50: No data available

### Potassium bifluoride

LD50: no data available

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.

### Skin Hazards

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This product may cause skin corrosion or irritation.

### Ingestion Hazards

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Ingestion of the 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

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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

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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

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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

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

### Germ Cell Mutagenicity

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Some inorganic fluorides have been demonstrated to induce mutagenic changes in mammalian cells in culture. No such effects in humans from occupational exposure to potassium bifluoride have been established.

### Reproductive Effects

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In experimental studies, boric acid and other inorganic borates have 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

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LD50 (oral): >2,000 mg/kg  
LD50 (dermal): no data available  
LC50: no data available  
Interactive Effects of Components: no data available

#### 12. Ecological Information

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

##### Boric Acid

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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.

##### Potassium Bifluoride

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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

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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

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UN Number: 3421  
Proper Shipping Name: Potassium hydrogendifluoride, solution  
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

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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

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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  
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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 - 3\* (serious, 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  
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Health - 3      Flammability - 0      Reactivity - 0

Preparation Information  
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Date of Preparation: 07 December 2015  
Date of Prior SDS: not applicable

Disclaimer  
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Lucas-Milhaupt, Inc.