

Handy Flo 170 and DF 170

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: 800-424-9300

SDS Number: 341  
Product Code: 83-170  
Product Use(s): Flux binder for metal brazing

## 2. Hazards Identification

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Classification(s)

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Acute Toxicity, Oral: Hazard Category 4  
Reproductive Toxicity: Hazard Category 2  
Eye Irritation: Hazard Category 2B

Label Symbol(s): Health Hazard; Exclamation Point

Label Signal Word(s): Warning

Label Hazard Statement(s)

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Harmful if swallowed.  
Suspected of damaging fertility or the unborn child.  
Causes eye irritation.

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 and eye/face protection.  
Wash hands thoroughly after handling. Store locked up.  
Do not eat, drink, or smoke when using this product.  
If exposed or concerned, get medical advice or attention.

IF SWALLOWED: Do NOT induce vomiting. Call a Poison Control Center or doctor if you feel unwell.

IF IN EYES: Rinse cautiously with water for at least 15 minutes.  
Remove contact lenses, if easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Dispose of contents/container in accordance with applicable regulations.  
The acute toxicities of <1-25% of the product's ingredients are unknown.

## 3. Composition/Information on Ingredients



Ingredient	CAS Number	%	Impurities
Boric acid	10043-35-3	35-45	None known
Potassium fluoborate	14075-53-7	10-15	None known
Potassium fluoride	7789-23-3	20-30	None known
Propylene glycol	57-55-6	10-20	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 soap and 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 authority. 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, the component potassium fluoride may be harmful. Its concentration in the product is <300 gm/kg. Treat fluoride intoxication symptomatically. There is no specific antidote. No components are readily absorbed through the skin, although prolonged contact can cause irritation.

#### 5. Fire Fighting Measures

##### Extinguishing Media

Use dry chemical, foam, or carbon dioxide. Do not use water.

##### Fire and Explosion Hazards

This product may ignite if exposed to a source of ignition at temperatures above its flash point or to temperatures above its autoignition temperature. If it is present in a fire or explosion, potential decomposition byproducts may include boron oxide, potassium hydroxide, fluorides, carbon monoxide, smoke, and irritant combustion byproducts.

##### 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 place 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 fluoborate

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-)

#### Propylene glycol

No ACGIH TLV(s)      No OSHA PEL(s)

### Ingredients - Biological Limits

#### Boric acid

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

#### Potassium fluoborate

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

#### Propylene glycol

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 if the product is used with a flame. Plastic-frame spectacles with side shields are recommended.

#### Skin Protection

Wear protective gloves and clothing to prevent skin injuries if the product is used with a flame 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

Appearance: viscous translucent liquid  
Odor: faint  
Odor threshold: not determined  
pH: not applicable  
Melting point: not applicable  
Freezing point: not determined  
Boiling point: >212F./100C.  
Boiling range: not determined  
Flash Point: >210F./99C.  
Autoignition Point: >700F./371C.  
Flammability Class: IIIB  
Lower/Upper Explosive Limits: 2.6%/12.5%  
Evaporation Rate: not determined  
Vapor pressure: <0.1 mm @ 25C.  
Vapor density: not determined  
Relative density (H2O): not determined  
Solubility (H2O): partial  
Oil-water partition coefficient: not determined  
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 of the product may decompose at elevated temperatures.

#### Incompatible Materials

Strong oxidizing agents; strong acids; halogens; hypochlorites; perchlorates; acetic anhydride; alkali and alkali earth metals; zirconium; platinum; permanganates; bromine trifluoride.

#### Potential Hazardous Decomposition Products

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Boron oxide, potassium hydroxide, fluorides, carbon monoxide, carbon dioxide, smoke, and 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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Boric acid		
LD50: 2,660 mg/kg (oral/rat)		LC50: No data available
Potassium fluoborate		
LD50: 5,854 mg/kg (oral/rat)		LC50: No data available
Potassium fluoride		
LD50: 245 mg/kg (oral/rat)		LC50: No data available
Propylene glycol		
LD50: 20,000 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 eye irritation.

### Skin Hazards

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Prolonged skin contact may cause 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, and abdominal pain. 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 to the nose, throat, and respiratory tract.

### Delayed Effects from Long Term Overexposure

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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 fluoride or potassium fluoborate have been established.

#### Reproductive Effects

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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

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LD50 (oral): approx. 600 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: 1,020 mg/l. for 3 d. (Freshwater fish)  
Aquatic toxicity to Invertebrates: EC50 <875 mg/l. for 48 h. (Daphnia)  
Aquatic Toxicity to Plants: 290 mg/l., time not reported (Algae)  
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, Mobility in Soil.

#### Potassium Fluoborate

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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.

#### Potassium Fluoride

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Acute toxicity to Fish: LC50 = 64 mg/l. for 240 h. (Trout)  
Acute 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, Mobility in Soil.

#### Propylene Glycol

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Aquatic toxicity to Fish: LC50 = 5,000 mg/l. for 1 d. (Goldfish)  
Aquatic toxicity to Invertebrates: EC50 = 10,000 mg/l. for 2 d. (Water flea)  
No data available for Aquatic Toxicity to 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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Transport is not regulated by USDOT, TDG (Canada), IATA, or IMO.

#### 15. Regulatory Information

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##### 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).

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

Components on Ingredients Disclosure List:

1. Boric acid (CASRN 10043-35-3)
2. Fluoride compounds, inorganic, n.o.s.
3. 1,2-Propylene glycol (CASRN 57-55-6)

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

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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:  
Date of Prior SDS: 4 January 2007

Disclaimer  
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Lucas-Milhaupt, Inc.