

Handy Flo/DF

Safety Data Sheet

1. Product and Company Identification

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Supplier and 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: 30

Product Codes: 83-109 (Handy Flo 110J), 83-110 (Handy Flo 110), 83-111 (Handy Flo 111), 83-112 (Handy Flo 112), 83-113 (Handy Flo 113), 83-114 (Handy Flo 114), 83-115 (Handy Flo 115), 83-116 (Handy Flo 116), 83-117 (Handy Flo 112J), 83-118 (Handy Flo 118), 83-120 (Handy Flo 120), 83-121 (Handy Flo 121), 83-122 (Handy Flo DF 122), 83-125 (Handy Flo 125), 83-126 (Handy Flo 126)

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  
Aspiration Hazard: Hazard Category 1



Label Symbol(s): Health Hazard; Exclamation Point

Label Signal Word(s): Danger

Label Hazard Statement(s)

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Harmful if swallowed.  
Suspected of damaging fertility or the unborn child.  
Causes eye irritation.  
May be fatal if swallowed and enters airways.

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, or if you feel unwell, get medical advice or attention.

IF SWALLOWED: Do NOT induce vomiting. Immediately call a Poison Control Center or doctor.

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.

### 3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Boric acid	10043-35-3	30-35	None known
Hydrotreated light distillate	64742-47-8	25-35	None known
Potassium fluoborate	14075-53-7	10-15	None known
Potassium fluoride	7789-23-3	20-30	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. 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 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 the component potassium fluoride may be harmful. Its concentration in the product is <300 gm/kg. Treat fluoride intoxication symptomatically. If ingested, the hydrotreated light distillate component may cause gastrointestinal irritation, nausea, and vomiting. There is potential for aspiration into the lungs, which may cause pulmonary edema, coughing, choking, and gagging. If swallowed, do not induce vomiting. No components are absorbed through the skin, although prolonged skin 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 be combustible if exposed to flame and/or at temperatures exceeding its autoignition point. If it is present in a fire or explosion, potential decomposition byproducts may include boron oxide, potassium oxide, fluorides, carbon monoxide, smoke, and irritant combustion byproducts.

#### 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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Keep containers tightly closed. Store in a cool place away from sources of ignition and incompatible materials (see Section #10).

#### 8. Exposure Controls and Personal Protection

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##### Ingredients - Exposure Limits

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###### Boric acid

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

###### Hydrotreated light distillate

No specific ACGIH TLV(s)      No specific OSHA PEL(s)

Manufacturer's Recommended OEL: 1,200 mg/m<sup>3</sup> TWA

###### 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-)

##### Ingredients - Biological Limits

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###### Boric acid

No ACGIH BEI(s) or other biological limit(s)  
Hydrotreated light distillate

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

#### Engineering Controls

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Use dilution or local exhaust ventilation adequate to maintain concentrations of all components and their byproducts to within their applicable standards.

#### Eye/Face Protection

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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 and filter lenses (shade #3/#4) are recommended.

#### Skin Protection

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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

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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: white viscous liquid  
Odor: mineral spirits  
Odor threshold: not determined  
pH: not applicable  
Melting point: not applicable  
Freezing point: not determined  
Boiling point: approx. 370F./187C.  
Boiling range: approx. not determined  
Flash Point: >200F./94C.  
Evaporation Rate: <0.01 (n-butyl acetate = 1)  
Flammability Class: IIIB  
Lower Explosive Limit: approx. 0.6  
Upper Explosive Limit: approx. 5.0  
Vapor pressure: <1 mm Hg @ 25C.  
Vapor density: not determined  
Relative density (H2O): not determined  
Solubility (H2O): partial  
Oil-water partition coefficient: not determined  
Autoignition Point: >392F./200C.  
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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Strong oxidizing agents; strong acids; halogens; oxygen; 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 oxide, fluorides, carbon monoxide, carbon dioxide, smoke, and decomposition byproducts.

11. Toxicological Information

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This product has not been subject to toxicological testing by the supplier/manufacturer.

Ingredients - Toxicological Data

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Boric acid  
LD50: 2,660 mg/kg (oral/rat) LC50: No data available  
Hydrotreated light distillate  
LD50: 15,000 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

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, 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). If the product is heated to elevated temperatures, vapors of the hydrotreated light distillate may irritate the nose, throat, and upper respiratory system.

Symptoms Related to Overexposure

Irritation to 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 genetic effects in humans from occupational exposure to potassium bifluoride 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): >500 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, Aquatic Toxicity to Fish and Invertebrates

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

##### Hydrogenated light distillate

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Acute toxicity to Fish: LC50 = 1,740 mg/l. for 4 d. (Freshwater fish)  
Acute toxicity to Invertebrates: EC50 > maximum solubility (Crustacea)  
No data available for Toxicity to Microorganisms, 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, Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

## Potassium Fluoride

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Aquatic Toxicity: LC50 = 64 mg/liter for 240 h. (Trout)  
Aquatic Toxicity: LC50 = 9.3 mg/liter for 96 h. (Grass Carp)  
Aquatic Toxicity: EC50 = 270 mg/liter (Daphnia)  
Aquatic Toxicity: EC50 = 95 mg/liter for 96 h. (Algae)  
Aquatic Toxicity: EC50 = 101 mg/liter, time not reported (Protozoa)  
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, 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 and/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: 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.

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: 27 June 2014  
Date of Prior SDS: 15 August 2013

#### Disclaimer

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Lucas-Milhaupt, Inc.