Handy Flo 220 and DF 220

Safety Data Sheet

1. Product and Company Identification

Manufacturer

Lucas-Milhaupt, Inc.
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Telephone: 414-769-6000
www.lucasmilhaupt.com

Emergency Phone Number

Chemtrec: 800-424-9300

SDS Number: 244
Product Code: 83-220
Product Use(s): Flux binder for metal brazing

2. Hazards Identification

Classification(s)

Flammable Liquid: Hazard Category 4
Reproductive Toxicity: Hazard Category 2
Eye Irritation: Hazard Category 2B

Label Symbol(s): Health Hazard

Label Signal Word(s): Warning

Label Hazard Statement(s)

Combustible liquid.
Suspected of damaging fertility or the unborn child.
Causes eye irritation.

Label Precautionary Statement(s)

Do not handle until all safety precautions have been read and understood.
Obtain special instructions before using. Store locked up.
Keep away from flames and hot surfaces. No smoking.
Wear protective gloves and eye/face protection.
Wash hands and face thoroughly after handling. Store locked up.
If exposed or concerned, get medical advice or attention.

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.

IN CASE OF FIRE: Use dry chemical, foam, or carbon dioxide to extinguish.

Store in a well-ventilated place. Keep cool.
Dispose of contents/container in accordance with applicable regulations.
The acute toxicities of 1-16% of the product’s ingredients are unknown.

3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Boric acid	10043-35-3	40-48	None known
Lithium chloride	7447-41-8	<1-2	None known
Petroleum naphtha, aliphatic	64742-88-7	40-45	None known
Potassium fluoride	7789-23-3	1-3	None known
Potassium tetraborate	1332-77-0	2-5	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 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

The component potassium fluoride is potentially toxic if ingested. Its concentration in the product is <30 mg/kg. Treat fluoride intoxication symptomatically. If ingested, the petroleum naphtha component may cause gastrointestinal irritation, nausea, and vomiting. Do not induce vomiting. No components are readily 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 ignite if exposed to flame at temperatures above its flash point. 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

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

Ingredients - Exposure Limits

Boric acid		
	ACGIH TLVs: 2 mg/m3 TWA; 6 mg/m3 STEL	No OSHA PEL(s)
Lithium chloride		
	No ACGIH TLV(s)	No OSHA PEL(s)
Petroleum naphtha, aliphatic		
	No specific ACGIH TLV(s)	No specific OSHA PEL(s)
Potassium fluoride		
	ACGIH TLV: 2.5 mg/m3 TWA (as F-)	OSHA PEL: 2.5 mg/m3 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)
Lithium chloride
    No ACGIH BEI(s) or other biological limit(s)
Petroleum naphtha, aliphatic
    No ACGIH BEI(s) or other biological limit(s)
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 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: thick paste or 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: not determined
Flash Point: >142F./61C.
Autoignition point: not determined
Flammability Class: IIIA
Lower/Upper Explosive Limits: approx. 1.0%/7.0%
Evaporation Rate: <0.03 (n-butyl acetate = 1)
Vapor pressure: <5 mm Hg @ 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; oxygen; hypochlorites; perchlorates; acetic anhydride; alkali and alkali earth metals; zirconium; platinum; permanganates; bromine trifluoride.

Potential Hazardous Decomposition Products

Boron oxide, potassium hydroxide, fluorides, carbon monoxide, smoke, and decomposition byproducts.

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
Lithium chloride
    LD50: 526 mg/kg (oral/rat) LC50: No data available
Petroleum naphtha, aliphatic
    LD50: 20,000 mg/kg (oral/rat) LC50: No data available
Potassium fluoride
    LD50: 245 mg/kg (oral/rat) LC50: No data available
Potassium tetraborate
    LD50: 2,660 mg/kg (oral/rat) LC50: No data available

Primary Routes(s) of Entry

Ingestion; inhalation.

Eye Hazards

This product may cause eye irritation.

Skin Hazards

Prolonged skin contact may cause irritation.

Ingestion Hazards

Ingestion of the product may cause one or more of the following symptoms and effects: nausea, vomiting, cramps, gastrointestinal irritation, abdominal pain, and convulsions.

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

Symptoms Related to Overexposure

Irritation to the nose, throat, and respiratory tract.

Delayed Effects from Long Term Overexposure

Aggravation of pre-existing diseases of the liver, kidneys, and the skeletal, nervous, and gastrointestinal systems. Chronic overexposure to boric acid

may cause borism, which is characterized by dry skin, skin lesions, and gastrointestinal distress.

Carcinogenicity

The 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 such effects in humans from occupational exposure to 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): approx. 2,800 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: 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 Aquatic Toxicity to Microorganisms, Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

Petroleum Naphtha, Aliphatic

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

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

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): B3, 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

HMIS Ratings (Legend)

Health - 2* (moderate chronic hazard)
Flammability – 2 (moderate 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 - 2 Reactivity – 0

Preparation Information

Date of Preparation:
Date of Prior SDS: 23 March 2001

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Lucas-Milhaupt, Inc.