

Safety Data Sheet

1. Product and Company Identification

Suppliers and Manufacturers

Lucas Milhaupt, Inc.
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Emergency Phone Number

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

SDS Number: 001
Product: FLUX

Product Codes: 73-100 (HANDY FLUX 1 Lb Bilingual SLS), 73-101 (1/4 Lb HANDY FLUX), 73-103 (5 Lb HANDY FLUX), 73-104 (1 Lb HANDY FLUX), 73-105 (1/2 Lb HANDY FLUX), 73-106 (1 oz HANDY FLUX), 73-107 (50 Lb HANDY FLUX), 73-108 (25 Lb HANDY FLUX), 73-110 (HANDY FLUX SLS 5 Lb Bilingual), 73-111 (HANDY FLUX SLS 1/2 Lb Bilingual), 73-117 (7 oz HANDY FLUX with Brush Cap), 73-119 (HANDY FLUX 5 Lb Bilingual), 73-120 (HANDY FLUX 1/2 Lb Bilingual), 73-122 (7 oz HANDY FLUX SLS with Brush Cap No Labels), 73-200 (200G HANDY FLUX SLS Brush Cap Bilingual), 73-407 (50 Lb HANDY FLUX SLS), 73-408 (25 Lb HANDY FLUX SLS), 82-045 (HANDY FLUX), 40018 (HANDY FLUX), A00000226 (HANDY FLUX), 82-096 (HANDY FLUX SLS), 83-107 (1.5 AO HANDY FLUX Tube)

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.

3. Composition/Information on Ingredients

Ingredient	CAS Number	%	Impurities
Boric acid	10043-35-3	15-30	None known
Potassium fluoride	7789-23-3	15-30	None known
Potassium tetraborate	1332-77-0	15-30	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 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 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. 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 oxide, and/or fluorides.

5. Fire Fighting Measures (Continued)

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/m³ TWA; 6 mg/m³ STEL No 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)

8. Exposure Controls and Personal Protection (Continued)

----- Ingredients - Biological Limits -----

Boric acid

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 from the hazards of brazing. Plastic-frame spectacles with side shields and filter lenses (shade #3/#4) are recommended.

Skin Protection -----

Wear protective gloves and clothing to prevent skin injuries from the hazards of brazing and/or for prolonged 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: white pastes

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 (H₂O): approx. 1.7

Solubility (H₂O): soluble

Oil-water partition coefficient: not applicable

Autoignition Point: not applicable

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 oxide, and/or fluorides.

11. Toxicological Information

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

Ingredients - Toxicological Data

Boric acid
 LD50: 2,660 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 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).

11. Toxicological Information (Continued)

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

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 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

Prolonged toxicity to fish: 1,020 mg/liter for 3 d. (Freshwater fish)
Prolonged toxicity to fish: 1,260 mg/liter for 5 d. (Freshwater fish)
Prolonged toxicity to fish: 890 mg/liter for 9 d. (Freshwater fish)
EC50: 658-875 mg/liter for 48 hrs. (Daphnia)
Depressed growth rate: 290 mg/liter (Algae)
No data available for Toxicity to Terrestrial Organisms, Persistence and Degradability, Bioaccumulation Potential, or Mobility in Soil.

12. Ecological Information (Continued)

Potassium Fluoride

Aquatic Toxicity to Fish: LC50 = 64 mg/liter for 240 h. (Trout)
Aquatic Toxicity to Fish: LC50 = 9.3 mg/liter for 96 h. (Grass Carp)
Aquatic Toxicity to Invertebrates: EC50 = 270 mg/liter (Daphnia)
Aquatic Toxicity to Plants: EC50 = 95 mg/liter for 96 h. (Algae)
Aquatic Toxicity to Microorganisms: EC50 = 101 mg/liter (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, 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 and/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): 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 - 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

Health - 3 Flammability - 0 Reactivity - 0

Preparation Information

Date of Preparation: 19 April 2016
Date of Prior SDS: July 2014

Disclaimer

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Lucas-Milhaupt, Inc.