

REC'D MAR 23 2000

3699

Material Safety Data Sheet

Page: 1  
Rev. Date  
08/12/98

Handy Flux

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FLX00003

Lucas-Milhaupt, Inc.  
A Handy & Harman Company  
5656 South Pennsylvania Avenue  
Cudahy, WI 53110 USA

TELEPHONE NUMBER: (414)769-6000

EMERGENCY TELEPHONE NUMBER

Chemtrec (800)424-9300

PRODUCT NAME: Handy Flux

CHEMICAL FAMILY: Salts of compounds of fluorine and boron

The information in this MSDS is applicable to products with the following product codes: 73-100 through 73-108, 73-111, 73-110, 73-117, 82-045, and 83-107.

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT: Potassium fluoride

CAS NUMBER: 7789-23-3

PERCENT BY WEIGHT: 15 to 30

OSHA PEL: 2.5 mg/m3 TWA (as F-)

ACGIH TLV: 2.5 mg/m3 TWA (as F-)

INGREDIENT: Potassium tetraborate

CAS NUMBER: 12045-78-2

PERCENT BY WEIGHT: 15 to 30

No OSHA PEL(s)

No ACGIH TLV(s)

INGREDIENT: Boric acid

CAS NUMBER: 10043-35-3

PERCENT BY WEIGHT: 15 to 30

No OSHA PEL(s)

No ACGIH TLV(s)

3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

EYES

This product can cause eye irritation or injury upon prolonged contact.

SKIN

This product can produce irritation, particularly on abraded skin. Prolonged exposure can cause dermatitis.

3699

Material Safety Data Sheet

Page: 2  
Rev. Date  
08/12/98

Handy Flux

3. HAZARDS IDENTIFICATION - Continued

INGESTION

Some components of this product are potentially toxic if ingested, and may cause one or more of the following symptoms and effects: nausea, vomiting, diarrhea, abdominal pain, cramps, gastrointestinal irritation, tachycardia, convulsions, and central nervous system depression.

INHALATION

Inhalation of the components and decomposition byproducts of this product does not pose a significant risk to health when the product is used in accordance with instructions and appropriate protective measures (see Section #8). The components/decomposition products may cause one or more of the following symptoms and effects if exposure is excessively high and/or prolonged.

- » Acute exposure: Irritation to the nose, throat, and respiratory tract; cough, nose bleeds, nausea, vomiting, chest tightness, chills, fever, tearing, pneumonitis, and pulmonary edema.
- » Chronic exposure: Abdominal pain and cramps, impaired pulmonary function, liver and kidney damage, and fluorosis (a bone disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints).

4. FIRST AID MEASURES

EYES

Flush affected areas with water for at least 15 minutes. Seek medical assistance if necessary.

SKIN

Remove contaminated clothing, and wash affected area with large quantities of water for at least five minutes. Seek medical attention if necessary.

INGESTION

If subject is conscious, induce vomiting. If unconscious or convulsive, seek immediate medical assistance.

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.

3699

Material Safety Data Sheet

Page: 3  
Rev. Date  
08/12/98

Handy Flux

5. FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS

This product is non-flammable and non-explosive. However, if it is present in a fire or explosion, potential decomposition byproducts include hydrogen fluoride, boron trifluoride, and/or boron oxide.

FIRE FIGHTING INSTRUCTIONS

If fighting a fire in which this products is present, wear a self-contained breathing apparatus with full facepiece operated in pressure-demand or other positive pressure mode.

6. ACCIDENTAL RELEASE MEASURES

Avoid contact with skin, eyes, and mucous membranes. Dilute and wash down spillage with water. Wear appropriate protective equipment (e.g., gloves, boots, impervious goggles) during cleanup and disposal.

7. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS

Store in a cool, dry place away from incompatible materials (see Section #6).

WORK/HYGIENIC PRACTICES

To avoid ingestion, wash hands and face before eating, drinking, or using cosmetics or tobacco.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

Use appropriate ventilation (e.g., dilution, local exhaust) adequate to maintain concentrations of all components and their decomposition byproducts to within their respective OSHA PELs.

EYE/FACE PROTECTION

Wear eye protection adequate to prevent eye contact with this material and to prevent eye injury from the hazards of brazing. Plastic-frame spectacles with side-shields and filter lenses (shade #3 or #4) are recommended.

SKIN PROTECTION

Wear appropriate protective gloves and clothing to prevent skin injuries from the hazards of brazing and/or for prolonged or repeated contact with this

3699

Material Safety Data Sheet

Page: 4  
Rev. Date  
08/12/98

Handy Flux

8. EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued

SKIN PROTECTION - Continued

material. Avoid flammable fabrics.

RESPIRATORY PROTECTION

If an exposure level exceeds an OSHA PEL(s) or other applicable standard, use a NIOSH-approved respirator having a configuration (class, type of facepiece, filter media, assigned protection factor, etc.) appropriate to the concentration of the contaminant(s) generated. For guidance on selection and use of respiratory protection, consult American National Standard Z88.2 (ANSI, New York, NY 10036 USA).

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Odorless white paste

BASIC PHYSICAL PROPERTIES

MELTING POINT: 01050 F 0565 C  
SPECIFIC GRAVITY: 1.67  
SOLUBILITY (H2O): soluble  
pH: 08.0

10. STABILITY AND REACTIVITY

CONDITIONS TO AVOID (STABILITY)

Stable at room temperature. Some components of product may decompose at elevated temperatures.

INCOMPATIBLE MATERIALS

Acetic anhydride; alkali and alkali earth metals; zirconium.

HAZARDOUS DECOMPOSITION PRODUCTS

Hydrogen fluoride, boron trifluoride, and/or boron oxide. Hazardous polymerization will not occur.

3699

Material Safety Data Sheet

Page: 5  
Rev. Date  
08/12/98

Handy Flux

11. TOXICOLOGICAL INFORMATION

MISCELLANEOUS TOXICOLOGICAL INFORMATION

**Carcinogenicity:** The International Agency for Research on Cancer has reviewed evidence regarding the possible carcinogenicity of fluorides, and has concluded that there is inadequate evidence of carcinogenicity to either humans or animals (IARC, 1987). None of the other components are classified as potential or demonstrated human carcinogens by IARC, NTP, or OSHA.

**Genetic/Reproductive Effects:** Fluorides have been demonstrated to induce mutagenic changes in a number of human and animal cell cultures. In animal studies, borate compounds have been found to cause decreased sperm production and testicular effects in males, and developmental effects in fetuses of exposed females. No human reproductive effects attributable to borate compounds have been reported.

**Biological Monitoring:** The American Conference of Governmental Industrial Hygienists has established Biological Exposure Indices (BEIs) of 3mg fluoride per gram (mg/g) of creatinine in urine collected prior to a workshift and 10 mg/g creatinine in urine collected at the end of the workshift (ACGIH, 1991).

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Pre-existing pulmonary diseases (e.g., bronchitis, asthma), may be aggravated by inhalation exposure to the components and decomposition byproducts of this compound. Ingestion of the substance can aggravate pre-existing diseases of the kidneys, liver, gastrointestinal system, and skeletal system.

12. ECOLOGICAL INFORMATION

OTHER ENVIRONMENTAL INFORMATION

This product contains no chemicals in concentrations greater than 1% (for carcinogens 0.1%) which are subject to U.S. Environmental Protection Agency regulations under 40CFR, Part 372 (SARA Section 313).

13. DISPOSAL CONSIDERATIONS

Dispose of unused or unusable product in accordance with applicable Federal, State/Provincial, and local regulations.

14. TRANSPORT INFORMATION

HAZARD CLASS: Not Hazardous Materials or Dangerous Goods per USDOT/ICAO/IMO.

3699

Material Safety Data Sheet

Page: 6  
Rev. Date  
08/12/98

Handy Flux

15. REGULATORY INFORMATION

SARA TITLE III NOTIFICATIONS AND INFORMATION

SARA TITLE III - HAZARD CLASSES: Acute Health Hazard  
Chronic Health Hazard

16. OTHER INFORMATION

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).