

Material Safety Data Sheet

1. Product

Handy Flux for Soldering and Annealing

CAS Number: Not Established

Chemical Family: Salts of compounds of fluorine and boron

MSDS Number: 1

2. Composition/Information On Ingredients

Ingredient Name - (CAS Number) - %

Boric acid (10043-35-3) 15 - 30

Potassium fluoride (7789-23-3) 15 - 30

Potassium tetraborate tetrahydrate (12045-78-2) 15 - 30

Potassium Tetraborate Tetrahydrate is listed on the USEPA TSCA Inventory and Canadian DSL as its anhydrous form, Potassium Tetraborate, CASRN 1332-77-0.

3. Hazards Identification

----- Primary Routes(s) Of Entry

Ingestion; inhalation

Eye Hazards

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

Skin Hazards

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

Ingestion Hazards

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

Inhalation Hazards

Inhalation of the components and decomposition products 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, liver and kidney damage, impaired pulmonary function, and fluorosis (a disease characterized by mottled teeth, osteosclerosis, and pain and loss of mobility in joints).

4. First Aid Measures

----- Eye

Flush affected areas with water for at least fifteen 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.

Ingestion

If subject is conscious, induce vomiting. Seek immediate medical assistance. Never 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

The inorganic fluoride component is acutely toxic. Treat fluoride intoxications symptomatically. Intoxication may occur by ingestion and/or inhalation. No components are absorbed through the skin, although irritation or dermatitis may occur.

5. Fire Fighting Measures

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, boron trifluoride, and hydrogen fluoride.

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

Isolate spilled material and transfer to impervious containers. Avoid contact with skin, eyes, and mucous membranes. Wear appropriate protective equipment (e.g., gloves, chemical goggles) during cleanup and disposal.

7. Handling And Storage

Storage Precautions

Store in a cool, dry place away from incompatible materials (see Section #10).

Work/Hygienic Practices

To minimize ingestion, wash hands and face before eating, drinking, applying cosmetics, or using 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 byproducts to within their respective OSHA PELs or other 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 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 the product. Avoid flammable fabrics.

Respiratory Protection

If an exposure level exceeds an applicable exposure standard, use a NIOSH-approved respirator having a configuration (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).

Ingredient(s) - Exposure Limits

Boric acid

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

Potassium fluoride

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

Potassium tetraborate tetrahydrate

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

9. Physical And Chemical Properties

Appearance

Odorless white paste

Chemical Type: Mixture

Physical State: Solid

Melting Point: ca. 1050 F ca. 565 C

Specific Gravity: ca. 1.67

Percent Volatiles: Not applicable (N/A)

pH Factor: ca. 8.0

Solubility: soluble

10. Stability And Reactivity

Stability: stable

Hazardous Polymerization: will not occur

Conditions To Avoid (Stability)

Some components of the product may decompose at elevated temperatures.

Incompatible Materials

Acetic anhydride; alkali and alkali earth metals; zirconium; platinum; bromine trifluoride.

Hazardous Decomposition Products

Boron oxide, boron trifluoride, and/or hydrogen fluoride.

11. Toxicological Information

Chronic/Carcinogenicity

The product contains no chemicals classified as potential or demonstrated carcinogens by IARC, NTP, or OSHA.

Reproductive Effects

In experimental animal studies, inorganic borates have been found to cause decreased sperm production and testicular effects in male rats, and developmental effects in fetuses of exposed female mice. No human reproductive effects attributable to borates have been established.

Mutagenicity (Genetic Effects)

Inorganic fluorides have been demonstrated to induce mutagenic changes in a number of mammalian cell cultures. The significance of these findings to human health risks is unknown.

Conditions Aggravated By Overexposure

Pre-existing pulmonary diseases (e.g., bronchitis, asthma) may be aggravated by inhalation exposure. Chronic exposure by inhalation and/or ingestion may aggravate diseases of the liver, kidneys, and skeletal and gastrointestinal systems.

Ingredient(s) - Toxicological Data

Boric acid

LD50: 2660 mg/kg (oral/rat),

LC50: No data available.

Potassium fluoride

LD50: 245 mg/kg (oral/rat)

LC50: No data available

Potassium tetraborate tetrahydrate

LD50: No data available

LC50: No data available

12. Ecological Information

In its intended manner of use, this product should not be released into the environment, and adverse effects on ecosystems are not anticipated under recommended conditions of use, storage, and disposal.

13. Disposal Considerations

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

14. Transport Information

This product is not a Hazardous Substance or Dangerous Goods per USDOT/ICAO/IMO regulations.

15. Regulatory Information

SARA Hazard Classes

Acute Health Hazard; Chronic Health Hazard

SARA Section 313 Notification

This product contains no ingredients in concentrations greater than 1% (for carcinogens 0.1%) that are regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372.

Canadian Regulatory Information

WHMIS Class(es) and Division(s): D1A, D2A, D2B

Components on Ingredients Disclosure List: Fluoride compounds, inorganic, n.o.s.

16. Other Information

Revision/Preparer Information

This MSDS Superceeds A Previous MSDS Dated: 04/05/2000

Disclaimer

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