SECTION 1: Identification

1.1. Identification

Product form : Mixture
Trade name : HANDY FLUX TYPE B-1
Product code : A00001124

1.2. Recommended use and restrictions on use

Recommended use : Flux for alloy brazing

1.3. Supplier

Supplier
Lucas-Milhaupt, Inc.
5656 South Pennsylvania Ave.
Cudahy, 53110
USA
T (414)-769-6000
LM_SDSinfo@lucasmilhaupt.com - www.Lucasmilhaupt.com

1.4. Emergency telephone number

Emergency number : CHEMTREC within the USA and Canada: 1-800-424-9300
CHEMTREC outside the USA and Canada +1 701-741-5970

SECTION 2: Hazard(s) Identification

2.1. Classification of the substance or mixture

GHS US classification
Acute toxicity (oral), Category 4 H302 Harmful if swallowed.
Skin corrosion/irritation, Category 1A H314 Causes severe skin burns and eye damage.
Reproductive toxicity, Category 1B H360 May damage fertility or the unborn child.

Full text of H-statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS US labelling
Hazard pictograms (GHS US) : 
Signal word (GHS US) : Danger
Hazard statements (GHS US) : H302 - Harmful if swallowed.
H314 - Causes severe skin burns and eye damage.
H360 - May damage fertility or the unborn child.
Precautionary statements (GHS US) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312 - If swallowed: Call a poison center/doctor if you feel unwell
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.
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P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P310 - Immediately call a poison center/doctor
P321 - Specific treatment (see supplemental first aid instruction on this label).
P330 - Rinse mouth.
P363 - Wash contaminated clothing before reuse.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium fluoride (K(HF2))</td>
<td>CAS-No.: 7789-29-9</td>
<td>28 – 36.5</td>
</tr>
<tr>
<td>Boric acid (H3BO3)</td>
<td>CAS-No.: 10043-35-3</td>
<td>27.2 – 34.4</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.
First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact : Rinse skin with water/shower. Take off immediately all contaminated clothing. Call a physician immediately.
First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact : Burns.
Symptoms/effects after eye contact : Serious damage to eyes.
Symptoms/effects after ingestion : Burns.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.
SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media


5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Only qualified personnel equipped with suitable protective equipment may intervene. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: “Exposure controls/personal protection”.

6.2. Environmental precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures : Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
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No additional information available

Potassium fluoride (K(F2)) (7789-29-9)
No additional information available

Boric acid (H3BO3) (10043-35-3)

USA - ACGIH - Occupational Exposure Limits

| ACGIH OEL TWA | 2 mg/m³ (inhalable particulate matter) |
| ACGIH OEL STEL | 6 mg/m³ (inhalable particulate matter) |
| ACGIH chemical category | Not Classifiable as a Human Carcinogen |

8.2. Appropriate engineering controls

Appropriate engineering controls: Ensure good ventilation of the work station.
Environmental exposure controls: Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

Hand protection:
Protective gloves

Eye protection:
Safety glasses

Skin and body protection:
Wear suitable protective clothing

Respiratory protection:
[In case of inadequate ventilation] wear respiratory protection.

Personal protective equipment symbol(s):

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| Physical state | Solid |
| Colour | No data available |
| Odour | No data available |
| Odour threshold | No data available |
| pH | No data available |
| Melting point | No data available |
| Freezing point | Not applicable |
| Boiling point | No data available |
| Flash point | Not applicable |
| Relative evaporation rate (butylacetate=1) | No data available |
| Flammability (solid, gas) | Non flammable |
| Vapour pressure | No data available |
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Relative vapour density at 20 °C : No data available
Relative density : No data available
Solubility : No data available
Partition coefficient n-octanol/water (Log Pow) : No data available
Auto-ignition temperature : Not applicable
Decomposition temperature : No data available
Viscosity, kinematic : Not applicable
Viscosity, dynamic : No data available
Explosive limits : Not applicable
Explosive properties : No data available
Oxidising properties : No data available

9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

HANDY FLUX TYPE B-1

ATE US (oral) 416.301 mg/kg bodyweight

Potassium fluoride (K(HF2)) (7789-29-9)
LD50 oral rat 160 mg/kg

Boric acid (H3BO3) (10043-35-3)
LD50 oral rat 2660 mg/kg
LD50 dermal rabbit > 2000 mg/kg
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according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Boric acid (H3BO3) (10043-35-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 Inhalation - Rat</td>
</tr>
</tbody>
</table>

| Skin corrosion/irritation      : Causes severe skin burns. |
| Serious eye damage/irritation  : Assumed to cause serious eye damage |
| Respiratory or skin sensitisation : Not classified |
| Germ cell mutagenicity         : Not classified |
| Carcinogenicity                : Not classified |
| Reproductive toxicity          : May damage fertility or the unborn child. |
| STOT-single exposure           : Not classified |
| STOT-repeated exposure         : Not classified |
| Aspiration hazard              : Not classified |
| Viscosity, kinematic           : Not applicable |
| Symptoms/effects after skin contact : Burns. |
| Symptoms/effects after eye contact : Serious damage to eyes. |
| Symptoms/effects after ingestion : Burns. |

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

<table>
<thead>
<tr>
<th>Boric acid (H3BO3) (10043-35-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 - Crustacea [1]</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Boric acid (H3BO3) (10043-35-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF - Fish [1]</td>
</tr>
<tr>
<td>Partition coefficient n-octanol/water (Log Pow)</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods
Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information
In accordance with DOT / TDG / IMDG / IATA
14.1. UN number
Not regulated for transport

14.2. UN proper shipping name
Proper Shipping Name (DOT) : Not applicable
Proper Shipping Name (TDG) : Not applicable
Proper Shipping Name (IMDG) : Not applicable
Proper Shipping Name (IATA) : Not applicable

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not applicable

TDG
Transport hazard class(es) (TDG) : Not applicable

IMDG
Transport hazard class(es) (IMDG) : Not applicable

IATA
Transport hazard class(es) (IATA) : Not applicable

14.4. Packing group
Packing group (DOT) : Not applicable
Packing group (TDG) : Not applicable
Packing group (IMDG) : Not applicable
Packing group (IATA) : Not applicable

14.5. Environmental hazards
Other information : No supplementary information available.

14.6. Special precautions for user

DOT
No data available

TDG
No data available

IMDG
No data available

IATA
No data available

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations
Commercial status of components according to the United States Environmental Protection Agency's Toxic Substances Control Act (TSCA):
### Name

<table>
<thead>
<tr>
<th>Name</th>
<th>CAS-No.</th>
<th>Listing</th>
<th>Commercial status</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium fluoride (K(HF2))</td>
<td>7789-29-9</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
<tr>
<td>Boric acid (H3BO3)</td>
<td>10043-35-3</td>
<td>Present</td>
<td>Active</td>
<td></td>
</tr>
</tbody>
</table>

#### 15.2. International regulations

No additional information available

#### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

<table>
<thead>
<tr>
<th>Component</th>
<th>State or local regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium fluoride (K(HF2))(7789-29-9)</td>
<td>U.S. - New Jersey - Right to Know Hazardous Substance List</td>
</tr>
</tbody>
</table>

### SECTION 16: Other information

Full text of H-statements

- **H302** Harmful if swallowed.
- **H314** Causes severe skin burns and eye damage.
- **H360** May damage fertility or the unborn child.

Safety Data Sheet (SDS), USA

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).

Lucas-Milhaupt, Inc.