SECTION 1: Identification

1.1. Identification
Product form: Mixture
Product name: HANDY FLUX Type A-1
Product code: A00000775

1.2. Recommended use and restrictions on use
No additional information available

1.3. Supplier
Lucas-Milhaupt, Inc.
5656 South Pennsylvania Ave.
Cudahy, WI 53110 - USA
T (414)-769-6000
Contact: SDS Contact

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.
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): Warning
Hazard statements (GHS US): H302 - Harmful if swallowed.
Precautionary statements (GHS US): P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P301+P312 - If swallowed: Call a poison center/doctor if you feel unwell
P330 - Rinse mouth.
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 (CAS-No.)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc chloride</td>
<td>7646-85-7</td>
<td>4 - 8</td>
</tr>
<tr>
<td>Lithium chloride</td>
<td>7447-41-8</td>
<td>3 - 6</td>
</tr>
<tr>
<td>Potassium fluoride (K(HF2))</td>
<td>7789-29-9</td>
<td>1 - 5</td>
</tr>
</tbody>
</table>
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

Unsuitable extinguishing media : Water.

5.2. Specific hazards arising from the chemical

No additional information available

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 : Ventilate spillage area. Avoid contact with skin and eyes. 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.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.
Methods for cleaning up : Mechanically recover the product.
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. Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wear personal protective equipment.
Hygiene measures : 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

<table>
<thead>
<tr>
<th>Substance</th>
<th>ACGIH TWA (mg/m³)</th>
<th>ACGIH STEL (mg/m³)</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
<th>US IDLH (mg/m³)</th>
<th>NIOSH REL (TWA) (mg/m³)</th>
<th>NIOSH REL (STEL) (mg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride (7447-41-8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potassium fluoride (K(HF2)) (7789-29-9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc chloride (7646-85-7)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not applicable</td>
<td></td>
<td>Not applicable</td>
<td></td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 insufficient ventilation, wear suitable respiratory equipment

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Colour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour</td>
<td>No data available</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>No data available</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
 Decomposition temperature : No data available
 Viscosity, kinematic : No data available
 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

 ATE US (oral) 500 mg/kg bodyweight

 Lithium chloride (7447-41-8)
 LD50 oral rat 526 mg/kg
 ATE US (oral) 526 mg/kg bodyweight

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

 Zinc chloride (7646-85-7)
 LD50 oral rat 1100 mg/kg
 LC50 inhalation rat (mg/l) <= 1975 mg/m³ (Exposure time: 10 min)
 ATE US (oral) 1100 mg/kg bodyweight

 Skin corrosion/irritation : Not classified
 Serious eye damage/irritation : Not classified
 Respiratory or skin sensitisation : Not classified
 Germ cell mutagenicity : Not classified
 Carcinogenicity : Not classified

 Reproductive toxicity : Not classified
 STOT-single exposure : Not classified

 STOT-repeated exposure : Not classified

 Aspiration hazard : Not classified
 Viscosity, kinematic : No data available
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: Toxic to aquatic life. Toxic to aquatic life with long lasting effects.

12.2. **Persistence and degradability**
No additional information available

12.3. **Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Substance</th>
<th>BCF fish 1</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride (7447-41-8)</td>
<td>(no bioaccumulation)</td>
<td>2.66</td>
</tr>
<tr>
<td>Zinc chloride (7646-85-7)</td>
<td>16000</td>
<td></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**

Department of Transportation (DOT)
In accordance with DOT
Not regulated

Transportation of Dangerous Goods
Not applicable

Transport by sea
Not applicable

Air transport
Not applicable

**SECTION 15: Regulatory information**

15.1. **US Federal regulations**

<table>
<thead>
<tr>
<th>Substance</th>
<th>TSCA inventory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride (7447-41-8)</td>
<td>Listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
<tr>
<td>Potassium fluoride (K(HF2)) (7789-29-9)</td>
<td>Listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
</tbody>
</table>
15.2. International regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>State or local regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium chloride (7447-41-8)</td>
<td>Listed on the TCSI (Taiwan Chemical Substance Inventory)</td>
</tr>
<tr>
<td>Potassium fluoride (K(HF2)) (7789-29-9)</td>
<td>Listed on the TCSI (Taiwan Chemical Substance Inventory)</td>
</tr>
<tr>
<td>Zinc chloride (7646-85-7)</td>
<td>Listed on the TCSI (Taiwan Chemical Substance Inventory)</td>
</tr>
</tbody>
</table>

15.3. US State regulations

<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>
<tr>
<td>Zinc chloride (7646-85-7)</td>
<td>U.S. - Massachusetts - Right To Know List; U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List; U.S. - Pennsylvania - RTK (Right to Know) List</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 08/11/2020

Full text of H-statements:

| H302 | Harmful if swallowed. |

SDS US (GHS HazCom 2012)

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Lucas-Milhaupt, Inc.