Silver Brazing Flux Paste

LA-CO Industries, Inc.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
- Product form: Mixture
- Trade name: Silver Brazing Flux Paste

1.2. Relevant identified uses of the substance or mixture and uses advised against
- Use of the substance/mixture: Soldering flux

1.3. Details of the supplier of the safety data sheet
- LA-CO Industries, Inc.
- 1201 Pratt Boulevard
- Elk Grove Village, IL 60007-5746
- Phone: (847) 956-7600
- Fax: (847) 956-9885
- E-mail: customer_service@laco.com

1.4. Emergency telephone number

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification in accordance with the Globally Harmonized Standard
- Acute Tox. 4 (Oral) H302
- Skin Corr. 1B H314
- Rep. 1B H360

Full text of H-phrases: see section 16

2.2. Label elements

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
- P264 - Wash hands thoroughly after handling
- P270 - Do not eat, drink or smoke when using this product
- P280 - Wear eye protection, face shield, protective clothing, protective gloves
- P301+P312 - If swallowed: Call a POISON CENTER, a doctor if you feel unwell
- P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
- 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
- P310 - Immediately call a doctor
- P321 - Specific treatment (see First aid measures on this label)
- P330 - Rinse mouth
- P363 - Wash contaminated clothing before reuse
- P405 - Store locked up
- P501 - Dispose of contents/container to an approved waste disposal plant
SECTION 3: Composition/information on ingredients

3.1. Substance
Not applicable

3.2. Mixture

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>% (w/w)</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>boric acid</td>
<td>(CAS No) 10043-35-3</td>
<td>26.36 - 26.63</td>
<td>Repr. 1B, H360</td>
</tr>
<tr>
<td>potassium hydrogendifluoride</td>
<td>(CAS No) 7789-29-9</td>
<td>25.45</td>
<td>Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314</td>
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<tr>
<td>Potassium tetraborate tetrahydrate</td>
<td>(CAS No) 12045-78-2</td>
<td>7.88 - 7.96</td>
<td>Aquatic Chronic 3, H412</td>
</tr>
<tr>
<td>potassium fluoride</td>
<td>(CAS No) 7789-23-3</td>
<td>6.43</td>
<td>Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation: dust, mist), H331</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

First-aid measures after skin contact: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor/physician.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

First-aid measures after ingestion: Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries: May damage fertility or the unborn child.

Symptoms/injuries after inhalation: Inhalation may cause: irritation, coughing, shortness of breath.

Symptoms/injuries after skin contact: Causes severe skin burns and eye damage.

Symptoms/injuries after eye contact: Causes serious eye damage.

Symptoms/injuries after ingestion: Swallowing a small quantity of this material will result in serious health hazard. Harmful if swallowed.

4.3. Indication of any immediate medical attention and special treatment needed

All treatments should be based on observed signs and symptoms of distress in the patient.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media: Carbon dioxide. Dry powder. Foam.
Unsuitable extinguishing media: None known.

5.2. Special hazards arising from the substance or mixture
Fire hazard: Not flammable.
Reactivity: Thermal decomposition generates: Corrosive vapours.

5.3. Advice for firefighters
Firefighting instructions: Exercise caution when fighting any chemical fire. Do not allow run-off from fire fighting to enter drains or water courses. Cool adjacent structures and containers with water spray to protect and prevent ignition.

Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Wear fire/flame resistant/retardant clothing. Wear a self contained breathing apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures: Avoid all eye and skin contact and do not breathe vapour and mist.
6.1.1. For non-emergency personnel

Protective equipment: Chemical goggles or safety glasses. Wear suitable gloves. Face shield.

Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment: Wear suitable gloves. Chemical goggles or safety glasses. Face shield.

Emergency procedures: Ventilate area.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment: Stop the flow of material, if this is without risk. Contain and/or absorb spill with inert material, then place in suitable container.

Methods for cleaning up: Take up in non-combustible absorbent material and shove into container for disposal.

6.4. Reference to other sections

Section 13: disposal information. Section 7: safe handling. Section 8: personal protective equipment.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Do not breathe vapours, fume. Do not handle until all safety precautions have been read and understood. Obtain special instructions before use.

Hygiene measures: Do not eat, drink or smoke when using this product. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Comply with applicable regulations.

Storage conditions: Keep only in original container. Keep container tightly closed and in a well-ventilated place.


Prohibitions on mixed storage: Keep away from incompatible materials.

7.3. Specific end use(s)

Flux.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th></th>
<th>ACGIH</th>
<th>OSHA</th>
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</thead>
<tbody>
<tr>
<td>Silver Brazing Flux Paste</td>
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<td>Not applicable</td>
</tr>
<tr>
<td>boric acid (10043-35-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH TWA (mg/m³) 2 mg/m³</td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>ACGIH STEL (mg/m³) 6 mg/m³</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>Potassium tetraborate tetrahydrate (12045-78-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>potassium hydrogendifluoride (7789-29-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>Not applicable</td>
<td></td>
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<tr>
<td>potassium fluoride (7789-23-3)</td>
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<td></td>
</tr>
<tr>
<td>ACGIH</td>
<td>Not applicable</td>
<td></td>
</tr>
<tr>
<td>OSHA</td>
<td>Not applicable</td>
<td></td>
</tr>
</tbody>
</table>
8.2. Exposure controls

Appropriate engineering controls: Avoid creating mist or spray. Emergency safety showers should be available in the immediate vicinity of any potential exposure. Eyewash stations. Either local exhaust or general room ventilation is usually required.

Personal protective equipment: Avoid all unnecessary exposure.

Hand protection: Wear suitable gloves resistant to chemical penetration. Use rubber gloves.

Eye protection: Face shield. Chemical goggles or safety glasses.

Skin and body protection: Wear suitable protective clothing. Impervious clothing.

Respiratory protection: Wear appropriate mask. Use air-purifying respirator equipped with particulate filtering cartridges.

Other information: Do not eat, drink or smoke when using this product.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Paste.
Colour: white.
Odour: odourless.
Odour threshold: No data available
pH: 8 - 10
Relative evaporation rate (butyl acetate=1): No data available
Melting point: No data available
Freezing point: No data available
Boiling point: 100 °C
Flash point: No data available
Auto-ignition temperature: No data available
Decomposition temperature: No data available
Flammability (solid, gas): No data available
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: 1.6 - 1.7
Solubility: Soluble in water.
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information

VOC content: 0 %

SECTION 10: Stability and reactivity

10.1. Reactivity
Thermal decomposition generates: Corrosive vapours.

10.2. Chemical stability
Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions
Hazardous polymerization will not occur.

10.4. Conditions to avoid
Extremely high or low temperatures. Moisture.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Thermal decomposition generates: Corrosive vapours. Potassium oxides. boron. Fluorine (F).
SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Silver Brazing Flux Paste

<table>
<thead>
<tr>
<th>Substance</th>
<th>Route</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>387</td>
<td></td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>387.000 mg/kg bodyweight</td>
<td></td>
</tr>
<tr>
<td>boric acid (10043-35-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>&gt;= 2660 mg/kg</td>
<td></td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 2000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>&gt; 2 mg/l/4h</td>
<td></td>
</tr>
<tr>
<td>Potassium tetraborate tetrahydrate (12045-78-2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>3500 - 4100 mg/kg</td>
<td></td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 2000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>3500.000 mg/kg bodyweight</td>
<td></td>
</tr>
<tr>
<td>potassium hydrogen difluoride (7789-29-9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>100.000 mg/kg bodyweight</td>
<td></td>
</tr>
<tr>
<td>potassium fluoride (7789-23-3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50 oral rat</td>
<td>148.5 mg/kg</td>
<td></td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>1 mg/l/4h</td>
<td></td>
</tr>
<tr>
<td>ATE CLP (oral)</td>
<td>148.500 mg/kg bodyweight</td>
<td></td>
</tr>
<tr>
<td>ATE CLP (dermal)</td>
<td>300.000 mg/kg bodyweight</td>
<td></td>
</tr>
<tr>
<td>ATE CLP (vapours)</td>
<td>1.000 mg/l/4h</td>
<td></td>
</tr>
<tr>
<td>ATE CLP (dust,mist)</td>
<td>1.000 mg/l/4h</td>
<td></td>
</tr>
</tbody>
</table>

Skin corrosion/irritation

Serious eye damage/irritation

Respiratory or skin sensitisation

Germ cell mutagenicity

Carcinogenicity

potassium fluoride (7789-23-3)

| NOAEL (chronic, oral, animal/male, 2 years)   | 100 mg/kg bodyweight ppm |
| NOAEL (chronic, oral, animal/female, 2 years)| 175 mg/kg bodyweight ppm |

Reproductive toxicity

Specific target organ toxicity (single exposure)

Specific target organ toxicity (repeated exposure)

Aspiration hazard

Potential adverse human health effects and symptoms

Symptoms/injuries after inhalation

Symptoms/injuries after skin contact

Symptoms/injuries after eye contact

Symptoms/injuries after ingestion

Likely routes of exposure

SECTION 12: Ecological information

12.1. Toxicity

boric acid (10043-35-3)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>&gt;= 1.02 g/l Carassius auratus, 3 days</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>658 - 875 mg/l 48 hours</td>
</tr>
<tr>
<td>ErC50 (algae)</td>
<td>&lt; mg/l</td>
</tr>
<tr>
<td>LOEC (chronic)</td>
<td>&gt; 97 mg/l salmo gairdneri</td>
</tr>
</tbody>
</table>
12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Compound</th>
<th>Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boric acid (10043-35-3)</td>
<td>Not readily biodegradable.</td>
</tr>
<tr>
<td>Potassium tetraborate tetrahydrate (12045-78-2)</td>
<td>Readily biodegradable.</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Compound</th>
<th>BCF fish 1</th>
<th>Log Pow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boric acid (10043-35-3)</td>
<td>34 mg/l Oncorhynchus tschawytscha, 90 days at 12 degrees C</td>
<td>-0.757 at 25 degrees C</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 Waste treatment methods

- Sewage disposal recommendations: Do not dispose of waste into sewer.
- Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.
- Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT and TDG

- Transport document description: UN1740 Hydrogendifluorides, solid, n.o.s. (Potassium Bifluoride), 8, II
- UN-No. (DOT): UN1740
- Proper Shipping Name (DOT): Hydrogendifluorides, solid, n.o.s. (Potassium Bifluoride)
- Department of Transportation (DOT) Hazard Classes: 8 - Corrosive
- Packing group (DOT): II - Medium Danger

ADR

- Transport document description: UN 1740 HYDROGENDIFLUORIDES, SOLID, N.O.S. (Potassium Bifluoride), 8, II, (E)
- Proper Shipping Name (ADR): HYDROGENDIFLUORIDES, SOLID, N.O.S. (Potassium Bifluoride)
- Packing group (ADR): II
- Class (ADR): 8 - Corrosive substances

Transport by sea

- UN-No. (IMDG): UN 1740
- Proper Shipping Name (IMDG): HYDROGENDIFLUORIDES, SOLID, N.O.S. (Potassium Bifluoride)
- Class (IMDG): 8 - Corrosive substances
- Packing group (IMDG): II

Air transport

- UN-No. (IATA): UN 1740
- Proper Shipping Name (IATA): Hydrogendifluorides, solid, n.o.s. (Potassium Bifluoride)
- Class (IATA): 8 - Corrosives
- Packing group (IATA): II
## SECTION 15: Regulatory information

### 15.1. US Federal regulations

**Boric acid (10043-35-3)**  
Listed on the United States TSCA (Toxic Substances Control Act) inventory

**Potassium tetraborate tetrahydrate (12045-78-2)**  
Listed on the United States TSCA (Toxic Substances Control Act) inventory

**Potassium hydrogen difluoride (7789-29-9)**  
Listed on the United States TSCA (Toxic Substances Control Act) inventory

**Potassium fluoride (7789-23-3)**  
Listed on the United States TSCA (Toxic Substances Control Act) inventory

### 15.2. International regulations

**CANADA**

**Boric acid (10043-35-3)**  
Listed on the Canadian DSL (Domestic Substances List) inventory.

**Potassium tetraborate tetrahydrate (12045-78-2)**  
Not listed on the Canadian DSL (Domestic Substances List) inventory.

**Potassium hydrogen difluoride (7789-29-9)**  
Listed on the Canadian DSL (Domestic Substances List) inventory.

**Potassium fluoride (7789-23-3)**  
Listed on the Canadian DSL (Domestic Substances List) inventory.

**EU-Regulations**

**Boric acid (10043-35-3)**  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**Potassium tetraborate tetrahydrate (12045-78-2)**  
Not listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**Potassium hydrogen difluoride (7789-29-9)**  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**Potassium fluoride (7789-23-3)**  
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**National regulations**

**Silver Brazing Flux Paste**  
All ingredients are listed in the Toxic Substances Control Act (TSCA).  
All ingredients are listed on the Canadian Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).

### 15.3. US State regulations

**Potassium hydrogen difluoride (7789-29-9)**

- U.S. - New Jersey - Right to Know Hazardous Substance List
- U.S. - New York - Right to Know List of Hazardous Chemicals

**Potassium fluoride (7789-23-3)**

- U.S. - New Jersey - Right to Know Hazardous Substance List
- U.S. - New York - Right to Know List of Hazardous Chemicals

## SECTION 16: Other information

Indication of changes: GHS classification information. Revised format. Revised sections: 1 - 16.
Silver Brazing Flux Paste
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
according to Canadian Hazardous Products Regulations (HPR)

Data sources:

Abbreviations and acronyms:
ACGIH (American Conference of Governmental Industrial Hygienists).
ATE: Acute Toxicity Estimate.
CAS (Chemical Abstracts Service) number.
CLP: Classification, Labelling, Packaging.
EC50: Environmental Concentration associated with a response by 50% of the test population.
GHS: Globally Harmonized System (of Classification and Labeling of Chemicals).
LD50: Lethal Dose for 50% of the test population.
OSHA: Occupational Safety & Health Administration.
PBT: Persistent, Bioaccumulative, Toxic.
STEL: Short Term Exposure Limits.
TSCA: Toxic Substances Control Act.
TWA: Time Weight Average.

Other information:
None.

NFPA health hazard:
3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.

NFPA fire hazard:
0 - Materials that will not burn.

NFPA reactivity:
0 - Normally stable, even under fire exposure conditions, and not reactive with water.

Full text of H-phrases:
- Acute Tox. 3 (Dermal) Acute toxicity (dermal), Category 3
- Acute Tox. 3 (Inhalation:dust,mist) Acute toxicity (inhalation:dust,mist) Category 3
- Acute Tox. 3 (Oral) Acute toxicity (oral), Category 3
- Acute Tox. 4 (Oral) Acute toxicity (oral), Category 4
- Aquatic Chronic 3 Hazardous to the aquatic environment — Chronic Hazard, Category 3
- Repr. 1B Reproductive toxicity, Category 1B
- Skin Corr. 1B Skin corrosion/irritation, Category 1B
- H301 Toxic if swallowed
- H302 Harmful if swallowed
- H311 Toxic in contact with skin
- H314 Causes severe skin burns and eye damage
- H331 Toxic if inhaled
- H360 May damage fertility or the unborn child
- H412 Harmful to aquatic life with long lasting effects

SDS Prepared by: The Redstone Group, LLC
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Suite 200
Dublin, OH USA 43016
T 614-923-7472
www.redstonegrp.com

LACO NA GHS SDS
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

09/03/2015 EN (English) SDS Ref.: LACO1412018 8/8