Silver Braze 45, 60Sn10, 56, 72 (V-HIAF Pastes) Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

Date of issue: 11/30/2015 Revision date: 1/6/2017 Supersedes: 1.1 Version: 1.2

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

1.1. Product identifier

Product form: Mixture
Product name: Silver Braze 45, 60Sn10, 56, 72 (V-HIAF Pastes)
Type of product: Alloy

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Main use category: Professional use
Industrial/Professional use spec: For professional use only
Use of the substance/mixture: Brazing
Function or use category: Welding, cutting, heating and brazing.

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

The Prince & Izant Companies
12999 Plaza Drive
44130 Cleveland, Ohio - USA
T 001-216-362-7000 - F 001-216-362-7456
support@princeizant.com - www.princeizant.com

1.4. Emergency telephone number

Emergency number: Global: +44 1865 407333 (NCEC)
USA: +1 202 464 2554 (NCEC)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Skin corrosion/irritation, Category 1B H314
Full text of H statements: see section 16

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

Signal word (CLP): Danger
Hazardous ingredients: potassium bifluoride, potassium hydrogen difluoride
Hazard statements (CLP): H314 - Causes severe skin burns and eye damage
Precautionary statements (CLP):
P260 - Do not breathe fume, vapours
P664 - Wash hands, forearms and face thoroughly after handling
P280 - Wear protective gloves, eye protection, face protection, protective clothing
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
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

Child-resistant fastening: No
Tactile warning: No
2.3. Other hazards

Adverse physicochemical, human health and environmental effects: Causes severe skin burns and eye damage.

Other hazards not contributing to the classification: None under normal conditions.

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>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver substance with a Community workplace exposure limit</td>
<td>(CAS No) 7440-22-4 (EC no) 231-131-3</td>
<td>40 - 80</td>
<td>Not classified</td>
</tr>
<tr>
<td>boric acid</td>
<td>(CAS No) 10043-35-3 (EC no) 233-139-2 (EC index no) 005-007-00-2</td>
<td>1 - 10</td>
<td>Repr. 1B, H360FD</td>
</tr>
<tr>
<td>potassium bifluoride, potassium hydrogen difluoride</td>
<td>(CAS No) 7789-29-9 (EC no) 232-156-2 (EC index no) 009-008-00-9</td>
<td>1 - 10</td>
<td>Acute Tox. 3 (Oral), H301 Skin Corr. 1B, H314</td>
</tr>
<tr>
<td>Distillates (petroleum), hydrotreated light, Kerosine - unspecified, [A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150 °C to 290 °C (302 °F to 554 °F).] substance with a Community workplace exposure limit</td>
<td>(CAS No) 64742-47-8 (EC no) 265-149-8 (EC index no) 649-422-00-2</td>
<td>1 - 10</td>
<td>Asp. Tox. 1, H304</td>
</tr>
</tbody>
</table>

Specific concentration limits:

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>boric acid</td>
<td>(CAS No) 10043-35-3 (EC no) 233-139-2 (EC index no) 005-007-00-2</td>
<td>(C &gt;= 5.5) Repr. 1B, H360FD</td>
</tr>
<tr>
<td>potassium bifluoride, potassium hydrogen difluoride</td>
<td>(CAS No) 7789-29-9 (EC no) 232-156-2 (EC index no) 009-008-00-9</td>
<td>(0.1 &lt;= C &lt; 1) Skin Irrit. 2, H315 (0.1 &lt;= C &lt; 1) Eye Irrit. 2, H319 (C &gt;= 1) Skin Corr. 1B, H314</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general: Get immediate medical advice/attention.

First-aid measures after inhalation: Remove person to fresh air and keep comfortable for breathing. Get medical advice/attention.

First-aid measures after skin contact: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. Get immediate medical advice/attention.

First-aid measures after eye contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid measures after ingestion: Rinse mouth. Do not induce vomiting. Get immediate medical advice/attention.

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

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

Symptoms/injuries after inhalation: May cause respiratory irritation.

Symptoms/injuries after skin contact: Burns.

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

Symptoms/injuries after ingestion: Burns.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Dry powder. Use extinguishing media appropriate for surrounding fire.
5.2. Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th>Fire hazard</th>
<th>The product is not flammable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explosion hazard</td>
<td>Product is not explosive.</td>
</tr>
<tr>
<td>Reactivity in case of fire</td>
<td>Not known.</td>
</tr>
<tr>
<td>Hazardous decomposition products in case of fire</td>
<td>Toxic fumes may be released.</td>
</tr>
</tbody>
</table>

5.3. Advice for firefighters

| Precautionary measures fire | No special measures required. |
| Firefighting instructions  | Use extinguishing media appropriate for surrounding fire. |
| 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

<table>
<thead>
<tr>
<th>General measures</th>
<th>Avoid release to the environment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.1. For non-emergency personnel</td>
<td>Wear suitable protective clothing, gloves and eye or face protection. Ventilate spillage area. Avoid contact with skin and eyes. Do not breathe dust, fume.</td>
</tr>
<tr>
<td>6.1.2. For emergency responders</td>
<td>Do not attempt to take action without suitable protective equipment. Wear suitable protective clothing, gloves and eye or face protection. For further information refer to section 8: “Exposure controls/personal protection”. Avoid contact with skin and eyes. Do not breathe Dust, Fumes. Ventilate area.</td>
</tr>
</tbody>
</table>

6.2. Environmental precautions

| Avoid release to the environment. |

6.3. Methods and material for containment and cleaning up

<table>
<thead>
<tr>
<th>For containment</th>
<th>Collect spillage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods for cleaning up</td>
<td>Take up liquid spill into absorbent material. Place in a suitable container for disposal in accordance with the waste regulations (see Section 13). This material and its container must be disposed of in a safe way, and as per local legislation.</td>
</tr>
<tr>
<td>Other information</td>
<td>This material and its container must be disposed of as hazardous waste.</td>
</tr>
</tbody>
</table>

6.4. Reference to other sections

| For further information refer to section 8: “Exposure controls/personal protection”. For disposal of solid materials or residues refer to section 13: “Disposal considerations”. |

SECTION 7: Handling and storage

7.1. Precautions for safe handling

| Precautions for safe handling | Ensure good ventilation of the work station. Wear personal protective equipment. Avoid contact with skin and eyes. |
| Hygiene measures | Always wash hands after handling the product. Do not eat, drink or smoke when using this product. Wash contaminated clothing before reuse. Separate working clothes from town clothes. Launder separately. |

7.2. Conditions for safe storage, including any incompatibilities

| Technical measures | Ensure adequate ventilation, especially in confined areas. |
| Storage conditions | Store in a well-ventilated place. Keep cool. |
| Incompatible materials | Acetylene, ammonia, ammonium nitrate, aqua regia, dioxane, ethylene oxide, chlorine trifluoride, halogens, hydrogen peroxide, hydrazine, hydrazine, mononitrate, hydrazic acid, hydroxylamine, hydrogen sulfide, performic acid, phosphorus, selenium, sulfur, titanium plus potassium chloride. Bromates, chlorates and iodates of alkali and alkali earth metals. |
| Storage area | Store in a well-ventilated place. |
| Packaging materials | Keep only in original container. |

7.3. Specific end use(s)

| Other hot work operations with metals. |

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>EU Local name</th>
<th>Silver, metallic</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU IOELV TWA (mg/m³)</td>
<td>0.1 mg/m³</td>
</tr>
</tbody>
</table>
Distillates (petroleum), hydrotreated light, Kerosine - unspecified, [A complex combination of hydrocarbons obtained by treating a petroleum fraction with hydrogen in the presence of a catalyst. It consists of hydrocarbons having carbon numbers predominantly in the range of C9 through C16 and boiling in the range of approximately 150 °C to 290 °C (302 °F to 554 °F).] (64742-47-8)

<table>
<thead>
<tr>
<th>EU</th>
<th>IOELV TWA (mg/m³)</th>
<th>= 200 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU</td>
<td>IOELV TWA (ppm)</td>
<td>= 197 ppm</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Materials for protective clothing : Wear suitable protective clothing
Hand protection : Protective gloves
Eye protection : Wear tight fitting safety glasses or face shield
Skin and body protection : Wear suitable protective clothing
Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Appearance : Paste.
Colour : Silver.
Odour : odourless.
Odour threshold : No data available
pH : No data available
Relative evaporation rate (butylacetate=1) : No data available
Melting point : No data available
Freezing point : Not applicable
Boiling point : No data available
Flash point : Not applicable
Auto-ignition temperature : Not applicable
Decomposition temperature : No data available
Flammability (solid, gas) : Non flammable
Vapour pressure : No data available
Relative vapour density at 20 °C : No data available
Relative density : Not applicable
Solubility : insoluble in water.
Log Pow : No data available
Viscosity, kinematic : Not applicable
Viscosity, dynamic : No data available
Explosive properties : Product is not explosive.
Oxidising properties : Oxidising solids Not applicable.
Explosive limits : Not applicable

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
Acetylene, ammonia, ammonium nitrate, aqua regia, dioxane, ethylene oxide, chlorine trifluoride, halogens, hydrogen peroxide, hydrazine, hydrazine, mononitrate, hydrazodic acid, hydroxylamine, hydrogen sulfide, performic acid, phosphorus, selenium, sulfur, titanium plus potassium chlorate. Bromates, chlorates and iodates of alkali and alkali earth metals.

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 : Not classified (Based on available data, the classification criteria are not met)
Skin corrosion/irritation : Causes severe skin burns and eye damage.
Serious eye damage/irritation : Serious eye damage, category 1, implicit
Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity : Not classified (Based on available data, the classification criteria are not met)
Specific target organ toxicity (single exposure) : Not classified (Based on available data, the classification criteria are not met)
Specific target organ toxicity (repeated exposure) : Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

SECTION 12: Ecological information

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

12.2. Persistence and degradability
Silver Braze 45, 60Sn10, 56, 72 (V-HIAF Pastes) The product is not biodegradable.

12.3. Bioaccumulative potential
Silver Braze 45, 60Sn10, 56, 72 (V-HIAF Pastes) Not established.

12.4. Mobility in soil
Silver Braze 45, 60Sn10, 56, 72 (V-HIAF Pastes) Not established.

12.5. Results of PBT and vPvB assessment
Component | Boric acid (10043-35-3)
| This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
| This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects
Other adverse effects : None known.
Additional information : Avoid release to the environment

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Regional legislation (waste) : Disposal must be done according to official regulations.
Waste treatment methods : Dispose of contents/container in accordance with licensed collector’s sorting instructions.
Waste disposal recommendations : Avoid release to the environment. Dispose of contents/container to a hazardous or special waste collection point. Discharging into rivers and drains is forbidden.
### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

| UN-No. (ADR) | 1759 |
| UN-No. (IMDG) | 1759 |
| UN-No. (IATA) | 1759 |
| UN-No. (ADN) | 1759 |
| UN-No. (RID) | 1759 |

#### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | CORROSIVE SOLID, N.O.S. |
| Proper Shipping Name (IMDG) | CORROSIVE SOLID, N.O.S. |
| Proper Shipping Name (IATA) | Corrosive solid, n.o.s. |
| Proper Shipping Name (ADN) | CORROSIVE SOLID, N.O.S. |
| Proper Shipping Name (RID) | CORROSIVE SOLID, N.O.S. |

Transport document description (ADR): UN 1759 CORROSIVE SOLID, N.O.S. (potassium bifluoride, potassium hydrogen difluoride (7789-29-9)), 8, II, (E)

Transport document description (IMDG): UN 1759 CORROSIVE SOLID, N.O.S., 8, II

#### 14.3. Transport hazard class(es)

- **ADR**
  
  | Transport hazard class(es) (ADR) | 8 |
  
  | Danger labels (ADR) | 8 |

- **IMDG**
  
  | Transport hazard class(es) (IMDG) | 8 |
  
  | Danger labels (IMDG) | 8 |

- **IATA**
  
  | Transport hazard class(es) (IATA) | 8 |
  
  | Hazard labels (IATA) | 8 |

- **ADN**
  
  | Transport hazard class(es) (ADN) | 8 |
  
  | Danger labels (ADN) | 8 |
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RID
Transport hazard class(es) (RID) : 8
Danger labels (RID) : 8

14.4. Packing group
Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards
Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user
- Overland transport
Classification code (ADR) : C10
Special provisions (ADR) : 274
Limited quantities (ADR) : 1 kg
Excepted quantities (ADR) : E2
Packing instructions (ADR) : P002, IBC08
Special packing provisions (ADR) : B4
Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T3
Portable tank and bulk container special provisions (ADR) : TP33
Tank code (ADR) : SGAN, L4BN
Vehicle for tank carriage : AT
Transport category (ADR) : 2
Special provisions for carriage - Packages (ADR) : V11
Hazard identification number (Kemler No.) : 80
Orange plates : 80
Tunnel restriction code (ADR) : E

- Transport by sea
Special provisions (IMDG) : 274
Limited quantities (IMDG) : 1 kg
Excepted quantities (IMDG) : E2
Packing instructions (IMDG) : P002
IBC packing instructions (IMDG) : IBC08
IBC special provisions (IMDG) : B2, B4
Tank instructions (IMDG) : T3
Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B
Stowage category (IMDG) : A
Properties and observations (IMDG) : Causes burns to skin, eyes and mucous membranes.
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MFAG-No : 154

- Air transport
  PCA Excepted quantities (IATA) : E2
  PCA Limited quantities (IATA) : Y844
  PCA limited quantity max net quantity (IATA) : 5kg
  PCA packing instructions (IATA) : 859
  PCA max net quantity (IATA) : 15kg
  CAO packing instructions (IATA) : 863
  CAO max net quantity (IATA) : 50kg
  Special provisions (IATA) : A3
  ERG code (IATA) : 8L

- Inland waterway transport
  Classification code (ADN) : C10
  Special provisions (ADN) : 274
  Limited quantities (ADN) : 1 kg
  Excepted quantities (ADN) : E2
  Equipment required (ADN) : PP, EP
  Number of blue cones/light (ADN) : 0

- Rail transport
  Classification code (RID) : C10
  Special provisions (RID) : 274
  Limited quantities (RID) : 1kg
  Excepted quantities (RID) : E2
  Packing instructions (RID) : P002, IBC08
  Special packing provisions (RID) : B4
  Mixed packing provisions (RID) : MP10
  Portable tank and bulk container instructions (RID) : T3
  Portable tank and bulk container special provisions (RID) : TP33
  Tank codes for RID tanks (RID) : SGAN, L4BN
  Transport category (RID) : 2
  Special provisions for carriage – Packages (RID) : W11
  Colis express (express parcels) (RID) : CE10
  Hazard identification number (RID) : 80

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. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
Contains no REACH substances with Annex XVII restrictions
Contains a substance on the REACH candidate list in concentration ≥ 0.1% or with a lower specific limit: Boric acid (EC 233-139-2, CAS 10043-35-3).
Contains no REACH Annex XIV substances

15.1.2. National regulations
No additional information available

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Full text of H- and EUH-statements:
Acute Tox. 3 (Oral) Acute toxicity (oral), Category 3
### Silver Braze 45, 60Sn10, 56, 72 (V-HIAF Pastes)

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<table>
<thead>
<tr>
<th>Hazard Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asp. Tox. 1</td>
<td>Aspiration hazard, Category 1</td>
</tr>
<tr>
<td>Repr. 1B</td>
<td>Reproductive toxicity, Category 1B</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation, Category 1B</td>
</tr>
<tr>
<td>H301</td>
<td>Toxic if swallowed</td>
</tr>
<tr>
<td>H304</td>
<td>May be fatal if swallowed and enters airways</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H360FD</td>
<td>May damage fertility. May damage the unborn child</td>
</tr>
</tbody>
</table>

**SDS EU (REACH Annex II)**

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.