



# Johnson Matthey

## Silbraz Silver Brazing Alloys Bearing Phosphorus

Johnson Matthey

Chemwatch Hazard Alert Code: 2

Chemwatch: 7140-01

Version No: 8.1.1.1

Safety Data Sheet according to WHS and ADG requirements

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L.GHS.AUS.EN

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

#### Product Identifier

|                               |   |
|-------------------------------|---|
| Product name                  | Silbraz Silver Brazing Alloys Bearing Phosphorus                        |
| Synonyms                      | brazing alloy, JM2L, SILBRAZE 15P, SILBRAZE 2P, SILBRAZE 5P, SILBRAZE P |
| Other means of identification | Not Available   |

#### Relevant identified uses of the substance or mixture and uses advised against

|                          |  |
|--------------------------|--|
| Relevant identified uses | <p>for welding fume:</p> <p>In addition to complying with any individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet <b>should not</b> exceed 5 mg/m<sup>3</sup>, when collected in accordance with the appropriate standard (AS 3640, for example).<br/> ES* TWA: 5 mg/m<sup>3</sup><br/> TLV* TWA: 5 mg/m<sup>3</sup>, B2 (a substance of variable composition)<br/> OES* TWA: 5 mg/m<sup>3</sup></p> <p>Most welding, even with primitive ventilation, does not produce exposures inside the welding helmet above 5 mg/m<sup>3</sup>. That which does should be controlled (ACGIH). Inspirable dust concentrations in a worker's breathing zone shall be collected and measured in accordance with AS 3640, for example.<br/> Brazing alloy.</p> |
|--------------------------|--|

#### Details of the supplier of the safety data sheet

|                         |                                       |
|-------------------------|---------------------------------------|
| Registered company name | Johnson Matthey                       |
| Address                 | 64 Lillee Crescent vic 3043 Australia |
| Telephone               | 1800009580                            |
| Fax                     | 1800068335                            |
| Website                 | www.matthey.com.au                    |
| Email                   | Not Available                         |

#### Emergency telephone number

|                                   |                  |
|-----------------------------------|------------------|
| Association / Organisation        | Poisons helpline |
| Emergency telephone numbers       | 131126           |
| Other emergency telephone numbers | Not Available    |

### SECTION 2 HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

**HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS.** According to the WHS Regulations and the ADG Code.

#### CHEMWATCH HAZARD RATINGS


|              | Min | Max |
|--------------|-----|-----|
| Flammability | 0   |     |
| Toxicity     | 1   |     |
| Body Contact | 1   |     |
| Reactivity   | 0   |     |
| Chronic      | 2   |     |

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

|                               |  |
|-------------------------------|--|
| Poisons Schedule              | Not Applicable   |
| Classification <sup>[1]</sup> | Carcinogenicity Category 2, Acute Aquatic Hazard Category 3  |
| Legend:                       | 1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI |

#### Label elements

Silbraze Silver Brazing Alloys Bearing Phosphorus

|                     |   |
|---------------------|---|
| Hazard pictogram(s) |  |
|---------------------|---|

|             |                |
|-------------|----------------|
| SIGNAL WORD | <b>WARNING</b> |
|-------------|----------------|

**Hazard statement(s)**

|      |                              |
|------|------------------------------|
| H351 | Suspected of causing cancer. |
| H402 | Harmful to aquatic life      |

**Precautionary statement(s) Prevention**

|      |  |
|------|--|
| P201 | Obtain special instructions before use.        |
| P281 | Use personal protective equipment as required. |
| P273 | Avoid release to the environment.              |

**Precautionary statement(s) Response**

|           |  |
|-----------|--|
| P308+P313 | IF exposed or concerned: Get medical advice/attention. |
|-----------|--|

**Precautionary statement(s) Storage**

|      |                  |
|------|------------------|
| P405 | Store locked up. |
|------|------------------|

**Precautionary statement(s) Disposal**

|      |   |
|------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|------|---|

**SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**

**Substances**

See section below for composition of Mixtures

**Mixtures**

| CAS No     | %[weight] | Name                   |
|------------|-----------|------------------------|
|            |           | wire, rod or strip of  |
| 7440-50-8  | 10-93     | <u>copper</u>          |
| 7440-22-4  | 0-20      | <u>silver</u>          |
| 7723-14-0  | 1-10      | <u>phosphorus, red</u> |
|            |           | in use may generate    |
| 7440-50-8. |           | <u>copper fume</u>     |
|            |           | phosphorus fume        |

**SECTION 4 FIRST AID MEASURES**

**Description of first aid measures**

|                     |   |
|---------------------|---|
| <b>Eye Contact</b>  | <ul style="list-style-type: none"> <li>▶ <b>DO NOT attempt to remove particles attached to or embedded in eye .</b></li> <li>▶ Lay victim down, on stretcher if available and pad <b>BOTH</b> eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.</li> <li>▶ Seek urgent medical assistance, or transport to hospital.</li> <li>▶ Particulate bodies from welding spatter may be removed carefully.</li> <li>▶ <b>DO NOT attempt to remove particles attached to or embedded in eye.</b></li> <li>▶ Lay victim down, on stretcher if available and pad <b>BOTH</b> eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.</li> <li>▶ Seek urgent medical assistance, or transport to hospital.</li> <li>▶ For "arc eye", i.e. welding flash or UV light burns to the eye:</li> <li>▶ Place eye pads or light clean dressings over both eyes.</li> <li>▶ Seek medical assistance.</li> </ul> <p>For THERMAL burns:</p> <ul style="list-style-type: none"> <li>▶ <b>Do NOT remove contact lens</b></li> <li>▶ Lay victim down, on stretcher if available and pad <b>BOTH</b> eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.</li> <li>▶ Seek urgent medical assistance, or transport to hospital.</li> </ul> |
| <b>Skin Contact</b> | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> <li>▶ Immediately remove all contaminated clothing, including footwear.</li> <li>▶ Flush skin and hair with running water (and soap if available).</li> <li>▶ Seek medical attention in event of irritation.</li> </ul> <p>For thermal burns:</p> <ul style="list-style-type: none"> <li>▶ Decontaminate area around burn.</li> <li>▶ Consider the use of cold packs and topical antibiotics.</li> </ul> <p>For first-degree burns (affecting top layer of skin)</p> <ul style="list-style-type: none"> <li>▶ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides.</li> <li>▶ Use compresses if running water is not available.</li> <li>▶ Cover with sterile non-adhesive bandage or clean cloth.</li> </ul>   |

## Silbraz Silver Brazing Alloys Bearing Phosphorus

|            |   |
|------------|---|
|            | <ul style="list-style-type: none"> <li>▶ Do NOT apply butter or ointments; this may cause infection.</li> <li>▶ Give over-the counter pain relievers if pain increases or swelling, redness, fever occur.</li> </ul> <p>For second-degree burns (affecting top two layers of skin)</p> <ul style="list-style-type: none"> <li>▶ Cool the burn by immerse in cold running water for 10-15 minutes.</li> <li>▶ Use compresses if running water is not available.</li> <li>▶ Do NOT apply ice as this may lower body temperature and cause further damage.</li> <li>▶ Do NOT break blisters or apply butter or ointments; this may cause infection.</li> <li>▶ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape.</li> </ul> <p>To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):</p> <ul style="list-style-type: none"> <li>▶ Lay the person flat.</li> <li>▶ Elevate feet about 12 inches.</li> <li>▶ Elevate burn area above heart level, if possible.</li> <li>▶ Cover the person with coat or blanket.</li> <li>▶ Seek medical assistance.</li> </ul> <p>For third-degree burns<br/>Seek immediate medical or emergency assistance.</p> <p>In the mean time:</p> <ul style="list-style-type: none"> <li>▶ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound.</li> <li>▶ Separate burned toes and fingers with dry, sterile dressings.</li> <li>▶ Do not soak burn in water or apply ointments or butter; this may cause infection.</li> <li>▶ To prevent shock see above.</li> <li>▶ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway.</li> <li>▶ Have a person with a facial burn sit up.</li> <li>▶ Check pulse and breathing to monitor for shock until emergency help arrives.</li> </ul>  |
| Inhalation | <ul style="list-style-type: none"> <li>▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area.</li> <li>▶ Other measures are usually unnecessary.</li> </ul> <p>For thermal burns:</p> <ul style="list-style-type: none"> <li>▶ Decontaminate area around burn.</li> <li>▶ Consider the use of cold packs and topical antibiotics.</li> </ul> <p>For first-degree burns (affecting top layer of skin)</p> <ul style="list-style-type: none"> <li>▶ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides.</li> <li>▶ Use compresses if running water is not available.</li> <li>▶ Cover with sterile non-adhesive bandage or clean cloth.</li> <li>▶ Do NOT apply butter or ointments; this may cause infection.</li> <li>▶ Give over-the counter pain relievers if pain increases or swelling, redness, fever occur.</li> </ul> <p>For second-degree burns (affecting top two layers of skin)</p> <ul style="list-style-type: none"> <li>▶ Cool the burn by immerse in cold running water for 10-15 minutes.</li> <li>▶ Use compresses if running water is not available.</li> <li>▶ Do NOT apply ice as this may lower body temperature and cause further damage.</li> <li>▶ Do NOT break blisters or apply butter or ointments; this may cause infection.</li> <li>▶ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape.</li> </ul> <p>To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):</p> <ul style="list-style-type: none"> <li>▶ Lay the person flat.</li> <li>▶ Elevate feet about 12 inches.</li> <li>▶ Elevate burn area above heart level, if possible.</li> <li>▶ Cover the person with coat or blanket.</li> <li>▶ Seek medical assistance.</li> </ul> <p>For third-degree burns<br/>Seek immediate medical or emergency assistance.</p> <p>In the mean time:</p> <ul style="list-style-type: none"> <li>▶ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound.</li> <li>▶ Separate burned toes and fingers with dry, sterile dressings.</li> <li>▶ Do not soak burn in water or apply ointments or butter; this may cause infection.</li> <li>▶ To prevent shock see above.</li> <li>▶ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway.</li> <li>▶ Have a person with a facial burn sit up.</li> <li>▶ Check pulse and breathing to monitor for shock until emergency help arrives.</li> </ul> |
| Ingestion  | <ul style="list-style-type: none"> <li>▶ <b>If swallowed do NOT induce vomiting.</b></li> <li>▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.</li> <li>▶ Observe the patient carefully.</li> <li>▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.</li> <li>▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink.</li> <li>▶ Seek medical advice.</li> <li>▶ Generally not applicable.</li> </ul>   |

### Indication of any immediate medical attention and special treatment needed

for copper intoxication:

- ▶ Unless extensive vomiting has occurred empty the stomach by lavage with water, milk, sodium bicarbonate solution or a 0.1% solution of potassium ferrocyanide (the resulting copper ferrocyanide is insoluble).
- ▶ Administer egg white and other demulcents.
- ▶ Maintain electrolyte and fluid balances.
- ▶ Morphine or meperidine (Demerol) may be necessary for control of pain.
- ▶ If symptoms persist or intensify (especially circulatory collapse or cerebral disturbances, try BAL intramuscularly or penicillamine in accordance with the supplier's recommendations.
- ▶ Treat shock vigorously with blood transfusions and perhaps vasopressor amines.
- ▶ If intravascular haemolysis becomes evident protect the kidneys by maintaining a diuresis with mannitol and perhaps by alkalinising the urine with sodium bicarbonate.
- ▶ It is unlikely that methylene blue would be effective against the occasional methaemoglobinemia and it might exacerbate the subsequent haemolytic episode.
- ▶ Institute measures for impending renal and hepatic failure.

[GOSSELIN, SMITH & HODGE: Commercial Toxicology of Commercial Products]

- ▶ A role for activated for charcoals or emesis is, as yet, unproven.
- ▶ In severe poisoning CaNa2EDTA has been proposed.

[ELLENHORN & BARCELOUX: Medical Toxicology]

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Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or respiratory protection is available these particulates may produce

Continued...

"metal fume fever" in workers from an acute or long term exposure.

- ▶ Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
- ▶ Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
- ▶ Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
- ▶ The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
- ▶ Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

[Ellenhorn and Barceloux: Medical Toxicology]

## SECTION 5 FIREFIGHTING MEASURES

### Extinguishing media

- ▶ Do NOT direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.
- ▶ There is no restriction on the type of extinguisher which may be used.

### Special hazards arising from the substrate or mixture

|                             |  |
|-----------------------------|--|
| <b>Fire Incompatibility</b> | ▶ Reacts with acids producing flammable / explosive hydrogen (H <sub>2</sub> ) gas |
|-----------------------------|--|

### Advice for firefighters

|                              |  |
|------------------------------|--|
| <b>Fire Fighting</b>         | <ul style="list-style-type: none"> <li>▶ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▶ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▶ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▶ Use fire fighting procedures suitable for surrounding area.</li> </ul> <p>Slight hazard when exposed to heat, flame and oxidisers.</p>  |
| <b>Fire/Explosion Hazard</b> | <ul style="list-style-type: none"> <li>▶ Non combustible.</li> <li>▶ Not considered a significant fire risk, however containers may burn.</li> </ul> <p>Decomposition may produce toxic fumes of:</p> <p>nitrogen oxides (NO<sub>x</sub>)<br/>May emit poisonous fumes.<br/>May emit corrosive fumes.<br/>Welding arc and metal sparks can ignite combustibles.</p> <p><b>CARE:</b> Contamination of heated / molten liquid with water may cause violent steam explosion, with scattering of hot contents.</p> |
| <b>HAZCHEM</b>               | Not Applicable   |

## SECTION 6 ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

|                     |  |
|---------------------|--|
| <b>Minor Spills</b> | <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Secure load if safe to do so.</li> <li>▶ Bundle/collect recoverable product.</li> <li>▶ Collect remaining material in containers with covers for disposal.</li> </ul> |
| <b>Major Spills</b> | <ul style="list-style-type: none"> <li>▶ Clean up all spills immediately.</li> <li>▶ Wear protective clothing, safety glasses, dust mask, gloves.</li> <li>▶ Secure load if safe to do so. Bundle/collect recoverable product.</li> </ul>                  |

Personal Protective Equipment advice is contained in Section 8 of the SDS.

## SECTION 7 HANDLING AND STORAGE

### Precautions for safe handling

|                          |  |
|--------------------------|--|
| <b>Safe handling</b>     | <ul style="list-style-type: none"> <li>▶ Develop work practices and procedures that prevent particulate from coming in contact with worker skin, hair, or personal clothing.</li> <li>▶ If work practices and/or procedures are ineffective in controlling airborne exposure or visual particulate from deposition on skin, hair, or clothing, provide appropriate cleaning/washing facilities.</li> <li>▶ Procedures should be written that clearly communicate the facility's requirements for protective clothing and personal hygiene. These clothing and personal hygiene requirements help keep particulate from being spread to non-production areas or from being taken home by the worker.</li> </ul> <p>For molten metals:</p> <ul style="list-style-type: none"> <li>• Molten metal and water can be an explosive combination. The risk is greatest when there is sufficient molten metal to entrap or seal off water. Water and other forms of contamination on or contained in scrap or remelt ingot are known to have caused explosions in melting operations. While the products may have minimal surface roughness and internal voids, there remains the possibility of moisture contamination or entrapment.</li> </ul> |
| <b>Other information</b> | <p>Store in the dark.</p> <ul style="list-style-type: none"> <li>▶ Store away from incompatible materials.</li> </ul>  |

### Conditions for safe storage, including any incompatibilities

|                                |  |
|--------------------------------|--|
| <b>Suitable container</b>      | No restriction on the type of containers. Packing as recommended by manufacturer. Check all material is clearly labelled.  |
| <b>Storage incompatibility</b> | <ul style="list-style-type: none"> <li>▶ Silver or silver salts readily form explosive silver fulminate in the presence of both nitric acid and ethanol. The resulting fulminate is much more sensitive and a more powerful detonator than mercuric fulminate.</li> <li>▶ Silver and its compounds and salts may also form explosive compounds in the presence of acetylene and nitromethane.</li> </ul> <p>Welding electrodes should not be allowed to come into contact with strong acids or other substances which are corrosive to metals.</p> |

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▶ Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.

### SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Control parameters

##### OCCUPATIONAL EXPOSURE LIMITS (OEL)

##### INGREDIENT DATA

| Source                       | Ingredient      | Material name                 | TWA       | STEL          | Peak          | Notes         |
|------------------------------|-----------------|-------------------------------|-----------|---------------|---------------|---------------|
| Australia Exposure Standards | copper          | Copper (fume)                 | 0.2 mg/m3 | Not Available | Not Available | Not Available |
| Australia Exposure Standards | copper          | Copper, dusts & mists (as Cu) | 1 mg/m3   | Not Available | Not Available | Not Available |
| Australia Exposure Standards | silver          | Silver, metal                 | 0.1 mg/m3 | Not Available | Not Available | Not Available |
| Australia Exposure Standards | phosphorus, red | Phosphorus (yellow)           | 0.1 mg/m3 | Not Available | Not Available | Not Available |
| Australia Exposure Standards | copper fume     | Copper (fume)                 | 0.2 mg/m3 | Not Available | Not Available | Not Available |
| Australia Exposure Standards | copper fume     | Copper, dusts & mists (as Cu) | 1 mg/m3   | Not Available | Not Available | Not Available |

##### EMERGENCY LIMITS

| Ingredient      | Material name    | TEEL-1     | TEEL-2    | TEEL-3    |
|-----------------|------------------|------------|-----------|-----------|
| copper          | Copper           | 3 mg/m3    | 33 mg/m3  | 200 mg/m3 |
| silver          | Silver           | 0.3 mg/m3  | 170 mg/m3 | 990 mg/m3 |
| phosphorus, red | Phosphorus (red) | 0.27 mg/m3 | 3 mg/m3   | 18 mg/m3  |
| copper fume     | Copper           | 3 mg/m3    | 33 mg/m3  | 200 mg/m3 |

| Ingredient      | Original IDLH         | Revised IDLH  |
|-----------------|-----------------------|---------------|
| copper          | N.E. mg/m3 / N.E. ppm | 100 mg/m3     |
| silver          | N.E. mg/m3 / N.E. ppm | 10 mg/m3      |
| phosphorus, red | Not Available         | Not Available |
| copper fume     | N.E. mg/m3 / N.E. ppm | 100 mg/m3     |

##### MATERIAL DATA

for welding fume:

In addition to complying with any individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet **should not** exceed 5 mg/m3, when collected in accordance with the appropriate standard (AS 3640, for example).

ES\* TWA: 5 mg/m3


TLV\* TWA: 5 mg/m3, B2 (a substance of variable composition)

OES\* TWA: 5 mg/m3

Most welding, even with primitive ventilation, does not produce exposures inside the welding helmet above 5 mg/m3. That which does should be controlled (ACGIH). Inspirable dust concentrations in a worker's breathing zone shall be collected and measured in accordance with AS 3640, for example.

During use the gases nitric oxide, nitrogen peroxide and ozone may be produced by the consumption of the electrode or the action of the welding arc on the atmosphere.

#### Exposure controls

|   |   |
|---|---|
| <b>Appropriate engineering controls</b> | <p>For molten materials:<br/>Provide mechanical ventilation; in general such ventilation should be provided at compounding/ converting areas and at fabricating/ filling work stations where the material is heated. Local exhaust ventilation should be used over and in the vicinity of machinery involved in handling the molten material.<br/>Keep dry!!<br/>Processing temperatures may be well above boiling point of water, so wet or damp material may cause a serious steam explosion if used in unvented equipment.</p> <p>For manual arc welding operations the nature of ventilation is determined by the location of the work.</p> <ul style="list-style-type: none"> <li>▶ For outdoor work, natural ventilation is generally sufficient.</li> <li>▶ For indoor work, conducted in open spaces, use mechanical (general exhaust or plenum) ventilation. (Open work spaces exceed 300 cubic metres per welder)</li> <li>▶ For work conducted in limited or confined spaces, mechanical ventilation, using local exhaust systems, is required.</li> </ul> |
| <b>Personal protection</b>              |    |
| <b>Eye and face protection</b>          | <ul style="list-style-type: none"> <li>▶ Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.</li> <li>▶ For most open welding/brazing operations, goggles, even with appropriate filters, will not afford sufficient facial protection for operators. Where possible use welding helmets or handshields corresponding to EN 175, ANSI Z49:12005, AS 1336 and AS 1338 which provide the maximum possible facial protection from flying particles and fragments.</li> </ul> <p>For submerged arc welding use a lens shade which gives just sufficient arc brightness to allow weld pool control.</p>   |
| <b>Skin protection</b>                  | See Hand protection below   |
| <b>Hands/feet protection</b>            | <ul style="list-style-type: none"> <li>▶ Wear chemical protective gloves, e.g. PVC.</li> <li>▶ Wear safety footwear or safety gumboots, e.g. Rubber</li> <li>▶ Welding gloves conforming to Standards such as EN 12477:2001, ANSI Z49.1, AS/NZS 2161:2008 produced from leather, rubber, treated cotton, or aluminised</li> <li>▶ These gloves protect against mechanical risk caused by abrasion, blade cut, tear and puncture</li> <li>▶ Other gloves which protect against thermal risks (heat and fire) might also be considered - these comply with different standards to those mentioned above.</li> <li>▶ One pair of gloves may not be suitable for all processes. For example, gloves that are suitable for low current Gas Tungsten Arc Welding (GTAW) (thin and flexible) would not be proper for high-current Air Carbon Arc Cutting (CAC-A) (insulated, tough, and durable)</li> </ul>  |

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|                         |  |
|-------------------------|--|
|                         | <ul style="list-style-type: none"> <li>▶ When handling hot materials wear heat resistant, elbow length gloves.</li> <li>▶ Rubber gloves are not recommended when handling hot objects, materials</li> <li>▶ Protective gloves eg. Leather gloves or gloves with Leather facing</li> </ul>  |
| <b>Body protection</b>  | See Other protection below   |
| <b>Other protection</b> | <p>Before starting; consider that protection should be provided for all personnel within 10 metres of any open arc welding operation. Welding sites must be adequately shielded with screens of non flammable materials. Screens should permit ventilation at floor and ceiling levels.</p> <ul style="list-style-type: none"> <li>• During repair or maintenance activities the potential exists for exposures to toxic metal particulate in excess of the occupational standards. Under these circumstances, protecting workers can require the use of specific work practices or procedures involving the combined use of ventilation, wet and vacuum cleaning methods, respiratory protection, decontamination, special protective clothing, and when necessary, restricted work zones.</li> <li>• Protective over-garments or work clothing must be worn by persons who may become contaminated with particulate during activities such as machining, furnace rebuilding, air cleaning equipment filter changes, maintenance, furnace tending, etc. Contaminated work clothing and over-garments must be managed in a controlled manner to prevent secondary exposure to workers of third parties, to prevent the spread of particulate to other areas, and to prevent particulate from being taken home by workers.</li> <li>• Personnel who handle and work with molten metal should utilise primary protective clothing like polycarbonate face shields, fire resistant tapper's jackets, neck shades (snoods), leggings, spats and similar equipment to prevent burn injuries.</li> </ul> |
| <b>Thermal hazards</b>  | Not Available  |

### Respiratory protection

Welding of powder coated metal requires good general area ventilation, and ventilated mask as local heat causes minor coating decomposition releasing highly discomforting fume which may be harmful if exposure is regular.

Welding or flame cutting of metals with chromate pigmented primers or coatings may result in inhalation of highly toxic chromate fumes. Exposures may be significant in enclosed or poorly ventilated areas

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

|   |   |  |                |
|---|---|--|----------------|
| <b>Appearance</b>                                   | <p>Light sensitive.<br/>Massive form of the metal.<br/>Massive or bulk metals (as opposed to dispersed or divided metals) are characterised by having a well-ordered infinite lattice of metal atoms. Massive metals exist in various forms, including sheets, rods, ingots, foils, pellets, wire or on occasion, dusts.<br/> Rod, strip, sheet, foil, press part, wire, ring or powder; does not mix with water.</p> |  |                |
| <b>Physical state</b>                               | Manufactured  | <b>Relative density (Water = 1)</b>            | Not Available  |
| <b>Odour</b>  | Not Available   | <b>Partition coefficient n-octanol / water</b> | Not Available  |
| <b>Odour threshold</b>                              | Not Available   | <b>Auto-ignition temperature (°C)</b>          | Not Applicable |
| <b>pH (as supplied)</b>                             | Not Applicable  | <b>Decomposition temperature</b>               | Not Available  |
| <b>Melting point / freezing point (°C)</b>          | 644-690   | <b>Viscosity (cSt)</b>                         | Not Available  |
| <b>Initial boiling point and boiling range (°C)</b> | Not Applicable  | <b>Molecular weight (g/mol)</b>                | Not Applicable |
| <b>Flash point (°C)</b>                             | Not Applicable  | <b>Taste</b>                                   | Not Available  |
| <b>Evaporation rate</b>                             | Not Available   | <b>Explosive properties</b>                    | Not Available  |
| <b>Flammability</b>                                 | Not Applicable  | <b>Oxidising properties</b>                    | Not Available  |
| <b>Upper Explosive Limit (%)</b>                    | Not Applicable  | <b>Surface Tension (dyn/cm or mN/m)</b>        | Not Applicable |
| <b>Lower Explosive Limit (%)</b>                    | Not Applicable  | <b>Volatile Component (%vol)</b>               | Not Available  |
| <b>Vapour pressure (kPa)</b>                        | Not Available   | <b>Gas group</b>                               | Not Available  |
| <b>Solubility in water (g/L)</b>                    | Immiscible  | <b>pH as a solution (1%)</b>                   | Not Applicable |
| <b>Vapour density (Air = 1)</b>                     | Not Available   | <b>VOC g/L</b>                                 | Not Available  |

## SECTION 10 STABILITY AND REACTIVITY

|   |   |
|---|---|
| <b>Reactivity</b>                         | See section 7   |
| <b>Chemical stability</b>                 | Product is considered stable and hazardous polymerisation will not occur. |
| <b>Possibility of hazardous reactions</b> | See section 7   |
| <b>Conditions to avoid</b>                | See section 7   |
| <b>Incompatible materials</b>             | See section 7   |
| <b>Hazardous decomposition products</b>   | See section 5   |

## SECTION 11 TOXICOLOGICAL INFORMATION

### Information on toxicological effects

|                |   |
|----------------|---|
| <b>Inhaled</b> | Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung |
|----------------|---|

Silbraze Silver Brazing Alloys Bearing Phosphorus

|  |  |
|--|--|
|  | <p>damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.</p> <p>Metals which form part of massive metals and their alloys, are "locked" into a metal lattice; as a result they are not readily bioavailable following inhalation. Mechanical processing of massive metals (e.g. cutting, grinding) may cause irritation of the upper respiratory tract. Additional health effects from elevated temperature processing (e.g., welding) can cause metal fume fever (nausea, fever, chills, shortness of breath and malaise), reduced ability of the blood to carry oxygen (methaemoglobin) and the accumulation of fluid in the lungs (pulmonary oedema). Fumes evolved during welding operations may be irritating to the upper-respiratory tract and may be harmful if inhaled.</p> <p>Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever". Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalised feeling of malaise. Mild to severe headache, nausea, occasional vomiting, fever or chills, exaggerated mental activity, profuse sweating, diarrhoea, excessive urination and prostration may also occur.</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Acute carbon monoxide exposure can mimic acute gastroenteritis or food poisoning with accompanying nausea and vomiting. Rapidly fatal cases of poisoning are characterised by congestion and hemorrhages in all organs. The extent of the tissue and organ damage is related to the duration of the post-hypoxic unconsciousness. Exposure to carbon monoxide can result in immediate effects and, depending on the severity of the exposure, delayed effects.</p> <p>Inhalation of fume may aggravate a pre-existing respiratory condition such as asthma, bronchitis, emphysema</p> <p>Copper poisoning following exposure to copper dusts and fume may result in headache, cold sweat and weak pulse. Capillary, kidney, liver and brain damage are the longer term manifestations of such poisoning. Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever". Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth.</p> <ul style="list-style-type: none"> <li>▶ Usually handled as molten liquid which requires worker thermal protection and increases hazard of vapour exposure.</li> <li>▶ <b>CAUTION: Vapours may be irritating.</b></li> </ul>   |
| <p style="text-align: center;"><b>Ingestion</b></p>    | <p>Accidental ingestion of the material may be damaging to the health of the individual.</p> <p>Metals which form part of massive metals and their alloys, are "locked" into a metal lattice; as a result they are not readily bioavailable following ingestion. Secondary processes (e.g. change in pH or intervention by gastrointestinal microorganisms) may allow certain substances to be released in low concentrations.</p> <p>Not normally a hazard due to physical form of product.</p> <p>Considered an unlikely route of entry in commercial/industrial environments</p>  |
| <p style="text-align: center;"><b>Skin Contact</b></p> | <p>Limited evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant inflammation when applied to the healthy intact skin of animals, for up to four hours, such inflammation being present twenty-four hours or more after the end of the exposure period. Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.</p> <p>Particles and foreign bodies produced by high speed processes may penetrate the skin. Even after the wound heals persons with retained foreign bodies may experience sharp pain with movement or pressure over the site. Discolouration or a visible mass under the epidermis may be obvious.</p> <p>Numbness or tingling ("pins and needles"), with decreased sensation, may be the result of a foreign body pressing against nerves.</p> <p>Ultraviolet radiation (UV) is generated by the electric arc in the welding process. Skin exposure to UV can result in severe burns, in many cases without prior warning.</p> <p>Exposure to infrared radiation (IR), produced by the electric arc and other flame cutting equipment may heat the skin surface and the tissues immediately below the surface. Except for this effect, which can progress to thermal burns in some situations, infrared radiation is not dangerous to welders.</p> <p>Irritation and skin reactions are possible with sensitive skin</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p>   |
| <p style="text-align: center;"><b>Eye</b></p>          | <p>Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.</p> <p>Contact with the eye, by metal dusts, may produce mechanical abrasion or scratches on the cornea - these injuries usually are minor. However foreign body penetration of the eyeball may produce infection or result in permanent visual damage.</p> <p>High-speed machines (such as drills and saws) can produce white-hot particles of metal that resemble sparks. Any of these white-hot particles can enter the unprotected eye and become embedded deep within it.</p> <p>Ultraviolet (UV) radiation can also damage the lens of the eye. Many arc welders are aware of the condition known as "arc-eye," a sensation of sand in the eyes. This condition is caused by excessive eye exposure to UV. Exposure to ultraviolet rays may also increase the skin effects of some industrial chemicals (coal tar and cresol compounds, for example).</p> <p>Corneal abrasions caused by particles and foreign bodies usually cause pain, tearing, and a feeling that there is something in the eye. They may also cause redness (due to inflamed blood vessels on the surface of the eye) or, occasionally, swelling of the eye and eyelid. Vision may become blurred. Light may be a source of irritation or may cause the muscle that constricts the pupil to undergo a painful spasm.</p>   |
| <p style="text-align: center;"><b>Chronic</b></p>      | <p>On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.</p> <p>Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Limited evidence shows that inhalation of the material is capable of inducing a sensitisation reaction in a significant number of individuals at a greater frequency than would be expected from the response of a normal population.</p> <p>Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching. Significant symptoms of exposure may persist for extended periods, even after exposure ceases. Symptoms can be activated by a variety of nonspecific environmental stimuli such as automobile exhaust, perfumes and passive smoking.</p> <p>Silver is one of the most physically and physiologically cumulative of the elements. Chronic exposure to silver salts may cause argyria, a permanent ashen-grey discolouration of the skin, conjunctiva and internal organs (due to the deposit of an insoluble albuminate of silver).</p> <p>The respiratory tract may also be a site of local argyria (following chronic inhalation exposures) with a mild chronic bronchitis being the only obvious symptom. Chronic minor exposure may result in stomach pains, vomiting and diarrhoea. Chronic accidental minor ingestion may produce systemic poisoning characterised by cachexia (general ill-health and malnutrition), anaemia, bronchitis, and necrosis of the mandible and maxilla, the so-called "phossy" or "Lucifer's" jaw.</p> <p>Complaints of possible overexposure among phosphorus workers may be toothache and excessive salivation; there may be dull red appearance of the oral mucosa; one or more teeth may loosen, followed by pain and swelling of the jaw; healing may be delayed following dental processes such as extraction. With necrosis of the bone, sequestra may develop with sinus tract formation.</p> <p>Principal route of exposure is inhalation of welding fumes from electrodes and workpiece. Reaction products arising from electrode core and flux appear as welding fume depending on welding conditions, relative volatilities of metal oxides and any coatings on the workpiece. Studies of lung cancer among welders indicate that they may experience a 30-40% increased risk compared to the general population. Since smoking and exposure to other cancer-causing agents, such as asbestos fibre, may influence these results, it is not clear whether welding, in fact, represents a significant lung cancer risk.</p> <p>Long-term (chronic) exposure to low levels of carbon monoxide may produce heart disease and damage to the nervous system. Exposure of pregnant animals to carbon monoxide may cause low birthweight, increased foetal mortality and nervous system damage to the offspring.</p> <p>Carbon monoxide is a common cause of fatal poisoning in industry and homes. Non fatal poisoning may result in permanent nervous system damage.</p> <p>Metal oxides generated by industrial processes such as welding, give rise to a number of potential health problems. Particles smaller than 5 micron</p> |

Silbraz Silver Brazing Alloys Bearing Phosphorus

(respirables) articles may cause lung deterioration. Particles of less than 1.5 micron can be trapped in the lungs and, dependent on the nature of the particle, may give rise to further serious health consequences.

Exposure to fume containing high concentrations of water-soluble chromium (VI) during the welding of stainless steels in confined spaces has been reported to result in chronic chrome intoxication, dermatitis and asthma. Certain insoluble chromium (VI) compounds have been named as carcinogens (by the ACGIH) in other work environments. Chromium may also appear in welding fumes as Cr2O3 or double oxides with iron. These chromium (III) compounds are generally biologically inert.

Welding fume with high levels of ferrous materials may lead to particle deposition in the lungs (siderosis) after long exposure. This clears up when exposure stops. Chronic exposure to iron dusts may lead to eye disorders.

Silica and silicates in welding fumes are non-crystalline and believed to be non-harmful.

Other welding process exposures can arise from radiant energy UV flash burns, thermal burns or electric shock

The welding arc emits ultraviolet radiation at wavelengths that have the potential to produce skin tumours in animals and in over-exposed individuals, however, no confirmatory studies of this effect in welders have been reported.

| Silbraz Silver Brazing Alloys Bearing Phosphorus | TOXICITY   | IRRITATION    |
|--|--|---------------|
|  | Not Available  | Not Available |
| copper   | TOXICITY   | IRRITATION    |
|  | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>        | Not Available |
|  | Inhalation (rat) LC50: 0.733 mg/l/4hr <sup>[1]</sup> |               |
|  | Inhalation (rat) LC50: 1.03 mg/l/4hr <sup>[1]</sup>  |               |
|  | Oral (rat) LD50: 300-500 mg/kg <sup>[1]</sup>        |               |
| silver   | TOXICITY   | IRRITATION    |
|  | Oral (rat) LD50: >2000 mg/kg <sup>[1]</sup>          | Not Available |
| phosphorus, red                                  | TOXICITY   | IRRITATION    |
|  | Oral (rat) LD50: 11.5 mg/kg <sup>[2]</sup>           | Not Available |
| copper fume                                      | TOXICITY   | IRRITATION    |
|  | dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>        | Not Available |
|  | Inhalation (rat) LC50: 0.733 mg/l/4hr <sup>[1]</sup> |               |
|  | Inhalation (rat) LC50: 1.03 mg/l/4hr <sup>[1]</sup>  |               |
|  | Oral (rat) LD50: 300-500 mg/kg <sup>[1]</sup>        |               |

**Legend:** 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.\* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances

**Silbraz Silver Brazing Alloys Bearing Phosphorus**  
**WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

**COPPER**  
for copper and its compounds (typically copper chloride):  
**Acute toxicity:** There are no reliable acute oral toxicity results available. In an acute dermal toxicity study (OECD TG 402), one group of 5 male rats and 5 groups of 5 female rats received doses of 1000, 1500 and 2000 mg/kg bw via dermal application for 24 hours. The LD50 values of copper monochloride were 2,000 mg/kg bw or greater for male (no deaths observed) and 1,224 mg/kg bw for female. Four females died at both 1500 and 2000 mg/kg bw, and one at 1,000 mg/kg bw.  
**WARNING:** Inhalation of high concentrations of copper fume may cause "metal fume fever", an acute industrial disease of short duration. Symptoms are tiredness, influenza like respiratory tract irritation with fever.

|                                   |   |                          |   |
|-----------------------------------|---|--------------------------|---|
| Acute Toxicity                    | ☒ | Carcinogenicity          | ✓ |
| Skin Irritation/Corrosion         | ☒ | Reproductivity           | ☒ |
| Serious Eye Damage/Irritation     | ☒ | STOT - Single Exposure   | ☒ |
| Respiratory or Skin sensitisation | ☒ | STOT - Repeated Exposure | ☒ |
| Mutagenicity                      | ☒ | Aspiration Hazard        | ☒ |

**Legend:** ✗ – Data available but does not fill the criteria for classification  
✓ – Data available to make classification  
☒ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

| Silbraz Silver Brazing Alloys Bearing Phosphorus | ENDPOINT       | TEST DURATION (HR) | SPECIES        | VALUE          | SOURCE         |
|--|----------------|--------------------|----------------|----------------|----------------|
|  | Not Applicable | Not Applicable     | Not Applicable | Not Applicable | Not Applicable |



Silbraz Silver Brazing Alloys Bearing Phosphorus

|             | ENDPOINT        | TEST DURATION (HR) | SPECIES                       | VALUE           | SOURCE    |
|-------------|-----------------|--------------------|-------------------------------|-----------------|-----------|
| copper      | LC50            | 96                 | Fish                          | 0.0028mg/L      | 2         |
|             | EC50            | 48                 | Crustacea                     | 0.001mg/L       | 5         |
|             | EC50            | 72                 | Algae or other aquatic plants | 0.013335mg/L    | 4         |
|             | BCF             | 960                | Fish                          | 200mg/L         | 4         |
|             | EC25            | 6                  | Algae or other aquatic plants | 0.00150495mg/L  | 4         |
|             | NOEC            | 96                 | Crustacea                     | 0.0008mg/L      | 4         |
| silver      | LC50            | 96                 | Fish                          | 0.00148mg/L     | 2         |
|             | EC50            | 48                 | Crustacea                     | 0.00024mg/L     | 4         |
|             | EC50            | 96                 | Algae or other aquatic plants | 0.001628837mg/L | 4         |
|             | BCF             | 336                | Crustacea                     | 0.02mg/L        | 4         |
|             | NOEC            | 480                | Crustacea                     | 0.00031mg/L     | 2         |
|             | phosphorus, red | LC50               | 96                            | Fish            | 0.002mg/L |
| EC50        |                 | 48                 | Crustacea                     | >0.03mg/L       | 2         |
| EC50        |                 | 72                 | Algae or other aquatic plants | ca.1.3mg/L      | 2         |
| NOEC        |                 | 5784               | Fish                          | =0.0004mg/L     | 1         |
| copper fume | LC50            | 96                 | Fish                          | 0.0028mg/L      | 2         |
|             | EC50            | 48                 | Crustacea                     | 0.001mg/L       | 5         |
|             | EC50            | 72                 | Algae or other aquatic plants | 0.013335mg/L    | 4         |
|             | BCF             | 960                | Fish                          | 200mg/L         | 4         |
|             | EC25            | 6                  | Algae or other aquatic plants | 0.00150495mg/L  | 4         |
|             | NOEC            | 96                 | Crustacea                     | 0.0008mg/L      | 4         |

**Legend:** Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data

Harmful to aquatic organisms.

Metal-containing inorganic substances generally have negligible vapour pressure and are not expected to partition to air. Once released to surface waters and moist soils their fate depends on solubility and dissociation in water. Environmental processes (such as oxidation and the presence of acids or bases) may transform insoluble metals to more soluble ionic forms. Microbiological processes may also transform insoluble metals to more soluble forms.

Copper is unlikely to accumulate in the atmosphere due to a short residence time for airborne copper aerosols. Airborne coppers, however, may be transported over large distances. Copper accumulates significantly in the food chain.

Drinking Water Standards:

3000 ug/l (UK max)

2000 ug/l (WHO provisional Guideline)

1000 ug/l (WHO level where individuals complain)

Soil Guidelines: Dutch Criteria

36 mg/kg (target)

190 mg/kg (intervention)

Air Quality Standards: no data available.

For silver and its compounds:

**Environmental fate:**

Silver is a rare but naturally occurring metal, often found deposited as a mineral ore in association with other elements. Emissions from smelting operations, manufacture and disposal of certain photographic and electrical supplies, coal combustion, and cloud seeding are some of the anthropogenic sources of silver in the biosphere. The global biogeochemical movements of silver are characterized by releases to the atmosphere, water, and land by natural and anthropogenic sources, long-range transport of fine particles in the atmosphere, wet and dry deposition, and sorption to soils and sediments.

In general, accumulation of silver by terrestrial plants from soils is low, even if the soil is amended with silver-containing sewage sludge or the plants are grown on tailings from silver mines, where silver accumulates mainly in the root systems.

**DO NOT discharge into sewer or waterways.**

**Persistence and degradability**

| Ingredient | Persistence: Water/Soil               | Persistence: Air                      |
|------------|---------------------------------------|---------------------------------------|
|            | No Data available for all ingredients | No Data available for all ingredients |

**Bioaccumulative potential**

| Ingredient      | Bioaccumulation      |
|-----------------|----------------------|
| phosphorus, red | HIGH (BCF = 2310000) |

**Mobility in soil**

| Ingredient | Mobility                              |
|------------|---------------------------------------|
|            | No Data available for all ingredients |

**SECTION 13 DISPOSAL CONSIDERATIONS****Waste treatment methods**

|                                     |  |
|-------------------------------------|--|
| <b>Product / Packaging disposal</b> | <ul style="list-style-type: none"> <li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li> <li>▶ Consult State Land Waste Management Authority for disposal.</li> <li>▶ Bury residue in an authorised landfill.</li> <li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li> </ul> |
|-------------------------------------|--|

**SECTION 14 TRANSPORT INFORMATION****Labels Required**

|                         |                |
|-------------------------|----------------|
| <b>Marine Pollutant</b> | NO             |
| <b>HAZCHEM</b>          | Not Applicable |

**Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS**

**Transport in bulk according to Annex II of MARPOL and the IBC code**

Not Applicable

**SECTION 15 REGULATORY INFORMATION****Safety, health and environmental regulations / legislation specific for the substance or mixture****COPPER(7440-50-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

**SILVER(7440-22-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

**PHOSPHORUS, RED(7723-14-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

**COPPER FUME(7440-50-8.) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Australia Exposure Standards

Australia Hazardous Substances Information System - Consolidated Lists

Australia Inventory of Chemical Substances (AICS)

| National Inventory            | Status   |
|-------------------------------|--|
| Australia - AICS              | Y  |
| Canada - DSL                  | Y  |
| Canada - NDSL                 | N (copper fume; copper; phosphorus, red; silver)   |
| China - IECSC                 | Y  |
| Europe - EINEC / ELINCS / NLP | Y  |
| Japan - ENCS                  | N (copper fume; copper; phosphorus, red; silver)   |
| Korea - KECI                  | Y  |
| New Zealand - NZIoC           | Y  |
| Philippines - PICCS           | Y  |
| USA - TSCA                    | Y  |
| <b>Legend:</b>                | Y = All ingredients are on the inventory<br>N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets) |

**SECTION 16 OTHER INFORMATION****Other information****Ingredients with multiple cas numbers**

| Name   | CAS No   |
|--------|--|
| copper | 7440-50-8, 133353-46-5, 133353-47-6, 195161-80-9, 65555-90-0, 72514-83-1 |

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other

Continued...

## Silbraz Silver Brazing Alloys Bearing Phosphorus

settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average  
PC—STEL: Permissible Concentration-Short Term Exposure Limit  
IARC: International Agency for Research on Cancer  
ACGIH: American Conference of Governmental Industrial Hygienists  
STEL: Short Term Exposure Limit  
TEEL: Temporary Emergency Exposure Limit,  
IDLH: Immediately Dangerous to Life or Health Concentrations  
OSF: Odour Safety Factor  
NOAEL :No Observed Adverse Effect Level  
LOAEL: Lowest Observed Adverse Effect Level  
TLV: Threshold Limit Value  
LOD: Limit Of Detection  
OTV: Odour Threshold Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index

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TEL (+61 3) 9572 4700.