



## SILBRAZE SILVER BRAZING ALLOYS

Chemwatch Independent Material Safety Data Sheet

Issue Date: 5-Mar-2013

X9317SP

CHEMWATCH 4797-76

Version No:2.1.1.1

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### Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

#### PRODUCT NAME

SILBRAZE SILVER BRAZING ALLOYS

#### SYNONYMS

JM403030, "JM 45", "SILBRAZE (30, 34, 39, 45, 55, 56)"

#### PRODUCT USE

Silver brazing alloy.

#### SUPPLIER

Company: Silbraze - (Division of Johnson Matthey

Noble Metals Australia)

Address:

64 Lillie Crescent

Tullamarine

VIC, 3043

Australia

Telephone: 1 800 009 580

Fax: 1 800 068 335

Website: <http://www.silbraze.com/>

### Section 2 - HAZARDS IDENTIFICATION

#### STATEMENT OF HAZARDOUS NATURE

**HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS.** According to the Criteria of NOHSC, and the ADG Code.

#### RISK

Risk Codes

R40(3)

R43

R48/20

R50/53

Risk Phrases

• Limited evidence of a carcinogenic effect.

• May cause SENSITISATION by skin contact.

• Harmful: danger of serious damage to health by prolonged exposure through inhalation.

• Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### SAFETY

Safety Codes

S02

S24

S36

S37

S51

S09

S29

S401

Safety Phrases

• Keep out of reach of children.

• Avoid contact with skin.

• Wear suitable protective clothing.

• Wear suitable gloves.

• Use only in well ventilated areas.

• Keep container in a well ventilated place.

• Do not empty into drains.

• To clean the floor and all objects contaminated by this material, use water and detergent.

• This material and its container must be disposed of in a safe way.

• Keep away from food, drink and animal feeding stuffs.

• If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre. (show this container or label).

• Use appropriate container to avoid environmental contamination.

• Avoid release to the environment. Refer to special instructions/Safety data sheets.

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## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
alloy comprising		
copper	7440-50-8	10-60
zinc	7440-66-6	10-60
silver	7440-22-4	10-60
tin	7440-31-5	0-20
nickel	7440-02-0	<10
silicon	7440-21-3	0-1
in use generates		
welding fumes	Not avail.	
copper fume	7440-50-8.	
zinc oxide fume	1314-13-2	
nickel fume	7440-02-0	

## Section 4 - FIRST AID MEASURES

### SWALLOWED

- If swallowed do NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious.

### EYE

- Generally not applicable.

### SKIN

- In case of burns:
  - Quickly immerse affected area in cold running water for 10 to 15 minutes.
  - Bandage lightly with a sterile dressing. Treat for shock if required.
  - Lay patient down. Keep warm and rested.
  - Transport to hospital, or doctor.

### INHALED

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.

### NOTES TO PHYSICIAN

- Absorption of zinc compounds occurs in the small intestine.
- The metal is heavily protein bound.
- Elimination results primarily from faecal excretion.
- The usual measures for decontamination (Ipecac Syrup, lavage, charcoal or cathartics) may be administered, although patients usually have sufficient vomiting not to require them.

## Section 5 - FIRE FIGHTING MEASURES

### EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.
- Use extinguishing media suitable for surrounding area.

### FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
  - Wear breathing apparatus plus protective gloves in the event of a fire.
  - Prevent, by any means available, spillage from entering drains or water courses.
  - Use fire fighting procedures suitable for surrounding area.
- Slight hazard when exposed to heat, flame and oxidisers.

### FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.

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Section 5 - FIRE FIGHTING MEASURES

- In a fire may decompose on heating and produce toxic / corrosive fumes. Decomposition may produce toxic fumes of: nitrogen oxides (NOx), metal oxides, silicon dioxide (SiO<sub>2</sub>).

## FIRE INCOMPATIBILITY

- None known.

## HAZCHEM

None

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

- Clean up all spills immediately.
- Secure load if safe to do so.
- Bundle/collect recoverable product.
- Collect remaining material in containers with covers for disposal.

### MAJOR SPILLS

- Clean up all spills immediately.
- Wear protective clothing, safety glasses, dust mask, gloves.
- Secure load if safe to do so. Bundle/collect recoverable product.
- Use dry clean up procedures and avoid generating dust.

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

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.

### SUITABLE CONTAINER

- Polyethylene or polypropylene container.
- Packing as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

### STORAGE INCOMPATIBILITY

- Reacts with acids producing flammable / explosive hydrogen (H<sub>2</sub>) gas.
- Many metals may incandesce, react violently, ignite or react explosively upon addition of concentrated nitric acid.
- Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.

### STORAGE REQUIREMENTS

- Store away from incompatible materials.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	Notes
Australia Exposure Standards	copper (Copper, dusts & mists (as Cu))	1		
Australia Exposure Standards	copper (Copper (fume))	0.2		
Australia Exposure Standards	copper (Inspirable dust (not otherwise classified))	10		
Australia Exposure Standards	silver (Silver, metal)	0.1		
Australia Exposure Standards	tin (Tin, metal)	2		
Australia Exposure Standards	silicon (Silicon (a))	10		(see Chapter 14)

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Source	Material	TWA mg/m <sup>3</sup>	STEL mg/m <sup>3</sup>	Notes
Australia Exposure Standards	welding fumes (Welding fumes (not otherwise classified))	5		(see Chapter 17)
Australia Exposure Standards	zinc oxide fume (Zinc oxide (fume))	5	10	

### MATERIAL DATA

NICKEL:

TIN:

ZINC:

■ It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience).

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

COPPER FUME:

COPPER:

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Not available

ZINC:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat.

Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations.

SILVER:

■ The adopted TLV-TWA for silver dust and fumes is 0.1 mg/m<sup>3</sup> and for the more toxic soluble silver compounds the adopted value is 0.01 mg/m<sup>3</sup>. Cases of argyria (a slate to blue-grey discolouration of epithelial tissues) have been recorded when workers were exposed to silver nitrate at concentrations of 0.1 mg/m<sup>3</sup> (as silver).

TIN:

■ A TLV-TWA is recommended so as to minimise the risk of stannosis. The STEL (4.0 mg/m<sup>3</sup>) has been eliminated (since 1986) so that additional toxicological data and industrial hygiene experience may become available to provide a better base for quantifying on a toxicological basis what the STEL should in fact be.

SILICON:

■ For silicon

CEL TWA: 5 mg/m<sup>3</sup>

(CEL = Chemwatch Exposure Limit)

NOTE: The CEL TWA is consistent with the value recommended in the Norwegian ferro-alloy industry (furnace room dust/mixed dust).

Silicon dust appears to have little adverse effect on the lungs and is not implicated in the genesis of organic disease or in the production of toxic effects.

For aluminium oxide and pyrophoric grades of aluminium:

Twenty seven year experience with aluminium oxide dust (particle size 96% 1,2 µm) without adverse effects either systemically or on the lung, and at a calculated concentration equivalent to 2 mg/m<sup>3</sup> over an 8-hour shift has lead to the current recommendation of the TLV-TWA.

The limit should also apply to aluminium pyro powders whose toxicity is reportedly greater than aluminium dusts and should be protective against lung changes.

For aluminium oxide:

The experimental and clinical data indicate that aluminium oxide acts as an "inert" material when inhaled and seems to have little effect on the lungs nor does it produce significant organic disease or toxic effects when exposures are kept under reasonable control.

[Documentation of the Threshold Limit Values], ACGIH, Sixth Edition.

The concentration of dust, for application of respirable dust limits, is to be determined from the fraction that penetrates a separator whose size collection efficiency is described by a cumulative log-normal function with a median aerodynamic diameter of 4.0 µm (+-) 0.3 µm and with a geometric standard deviation of 1.5 µm (+-) 0.1 µm, i.e..generally less than 5 µm.

WELDING FUMES:

■ for ozone:

NOTE: Detector tubes for ozone, measuring in excess of 0.05 ppm, are commercially available.

Exposure at 0.2 ppm appears to produce mild acute but not cumulative effects.

For nitric oxide:

Odour Threshold: 0.3 to 1 ppm.

NOTE: Detector tubes for nitrogen oxide, measuring in excess of 10 ppm, are commercially available.<</>.

NOTE: Detector tubes for carbon monoxide, measuring in excess of 2 ppm, are commercially available for detection of carbon

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## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

monoxide.

200 ppm carbon monoxide in air will produce headache, mental dullness and dizziness in a few hours; 600 ppm will produce identical symptoms in less than half an hour and may produce unconsciousness in 1.5 hours; 4000 ppm is fatal in less than an hour.<</>

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/m<sup>3</sup>, when collected in accordance with the appropriate standard (AS 3640, for example).

ES\* TWA: 5 mg/m<sup>3</sup>

TLV\* TWA: 5 mg/m<sup>3</sup>, B2 (a substance of variable composition)

OES\* TWA: 5 mg/m<sup>3</sup>

Most welding, even with primitive ventilation, does not produce exposures inside the welding helmet above 5 mg/m<sup>3</sup>.

### ZINC OXIDE FUME:

■ for zinc oxide:

Zinc oxide intoxication (intoxication zincale) is characterised by general depression, shivering, headache, thirst, colic and diarrhoea.

Exposure to the fume may produce metal fume fever characterised by chills, muscular pain, nausea and vomiting.

### NICKEL FUME:

NOTE: Detector tubes for nickel, measuring in excess of 0.25 mg/m<sup>3</sup> (as Ni), are commercially available.

## PERSONAL PROTECTION

### EYE

- Welding helmet with suitable filter. Welding hand shield with suitable filter.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lens or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59], [AS/NZS 1336 or national equivalent].

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 AS 1336 and AS 1338 which provide the maximum possible facial protection from flying particles and fragments.

### HANDS/FEET

- Welding Gloves
- Safety footwear.

NOTE:

- The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact.
- Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed.

### OTHER

- Overalls.
- P.V.C. apron.
- Barrier cream.
- Skin cleansing cream.

Aprons, sleeves, shoulder covers, leggings or spats of pliable flame resistant leather or other suitable materials may also be required in positions where these areas of the body will encounter hot metal.

### ENGINEERING CONTROLS

■ Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

Process controls which involve changing the way a job activity or process is done to reduce the risk.

Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.

If risk of inhalation or overexposure exists, wear SAA approved respirator or work in fume hood.

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## Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

### APPEARANCE

Rod, strip, sheet, foil, press parts, wire or rings; does not mix with water.

### PHYSICAL PROPERTIES

Does not mix with water.

State	Manufactured	Molecular Weight	Not Applicable
Melting Range (°C)	618- 830	Viscosity	Not Applicable
Boiling Range (°C)	Not Applicable	Solubility in water (g/L)	Immiscible
Flash Point (°C)	Not Applicable	pH (1% solution)	Not Applicable
Decomposition Temp (°C)	Not Available	pH (as supplied)	Not Applicable
Autoignition Temp (°C)	Not Applicable	Vapour Pressure (kPa)	Not Applicable
Upper Explosive Limit (%)	Not Applicable	Specific Gravity (water=1)	Not Available
Lower Explosive Limit (%)	Not Applicable	Relative Vapour Density (air=1)	Not Applicable
Volatile Component (%vol)	Not Applicable	Evaporation Rate	Not Applicable

## Section 10 - STABILITY AND REACTIVITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.

Product is considered stable and hazardous polymerisation will not occur.

*For incompatible materials - refer to Section 7 - Handling and Storage.*

## Section 11 - TOXICOLOGICAL INFORMATION

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

##### SWALLOWED

■ Soluble zinc salts produce irritation and corrosion of the alimentary tract with pain, and vomiting. Death can occur due to insufficiency of food intake due to severe narrowing of the oesophagus and pylorus.

A metallic taste, nausea, vomiting and burning feeling in the upper stomach region occur after ingestion of copper and its derivatives. The vomitus is usually green/blue and discolours contaminated skin. Acute poisonings from ingestion are rare due to their prompt removal by vomiting. Should vomiting not occur or is delayed, systemic poisoning may occur producing kidney and liver damage, wide-spread capillary damage, and be fatal; death may occur after relapse from an apparent recovery. Anaemia may occur in acute poisoning.

Accidental ingestion of the material may be damaging to the health of the individual.

##### EYE

■ Copper salts, in contact with the eye, may produce inflammation of the conjunctiva, or even ulceration and cloudiness of the cornea.

If applied to the eyes, this material causes severe eye damage.

##### SKIN

■ Exposure to copper, by skin, has come from its use in pigments, ointments, ornaments, jewellery, dental amalgams and IUDs (intra-uterine devices), and in killing fungi and algae. Although copper is used in the treatment of water in swimming pools and reservoirs, there are no reports of toxicity from these applications. Reports of allergic contact dermatitis following contact with copper and its salts have appeared in the literature, however the exposure concentrations leading to any effect have been poorly characterized. In studies, the possible contamination with nickel (which causes allergies definitely) has been raised as a reason for any reactions observed.

Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.

Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

There is some evidence to suggest that the material may cause mild but significant inflammation of the skin either following direct contact or after a delay of some time. Repeated exposure can cause contact dermatitis which is characterised by redness, swelling and blistering.

Skin contact with the material may be harmful; systemic effects may result following absorption.

##### INHALED

■ Inhalation of fume may aggravate a pre-existing respiratory condition such as asthma, bronchitis, emphysema.

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.

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## Section 11 - TOXICOLOGICAL INFORMATION

Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

There is some evidence to suggest that the material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.

Inhalation hazard is increased at higher temperatures.

Inhalation of freshly formed zinc oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever", with symptoms resembling influenza. 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.

Regular exposure to nickel fume, as the oxide, may result in "metal fume fever" a sometimes debilitating upper respiratory tract condition resembling influenza.

Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in closed or poorly ventilated areas.

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".

### CHRONIC HEALTH EFFECTS

■ Principal routes of exposure include accidental contact with the molten metal and inhalation of fume arising as a consequence of the action of the flame on the rod / wire. Although fume generation rates are generally low, excessive heating of the material, well above its quoted melting point, may result in over-exposure.

Harmful: danger of serious damage to health by prolonged exposure through inhalation.

There has been concern that this material can cause cancer or mutations, but there is not enough data to make an assessment.

Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population.

Copper has fairly low toxicity. Some rare hereditary conditions (Wilson disease or hepatolenticular degeneration) can lead to accumulation of copper on exposure, causing irreversible damage to a variety of organs (liver, kidney, CNS, bone, vision) and lead to death. There may be anaemia and cirrhosis of the liver.

Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants. Smaller particles however, 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.

### TOXICITY AND IRRITATION

■ Not available. Refer to individual constituents.

### REPROTOXIN

nickel	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	A
nickel fume	ILO Chemicals in the electronics industry that have toxic effects on reproduction	Reduced fertility or sterility	A

### SKIN

tin	Australia Exposure Standards - Skin	Notes	Sk
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## Section 12 - ECOLOGICAL INFORMATION

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Avoid release to the environment.

Refer to special instructions/ safety data sheets.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
copper	No Data Available	No Data Available	LOW	No Data Available
zinc	No Data Available	No Data Available	LOW	No Data Available
silver	No Data Available	No Data Available	LOW	No Data Available
tin	No Data Available	No Data Available	No Data Available	No Data Available
nickel	No Data Available	No Data Available	LOW	No Data Available
silicon	No Data Available	No Data Available	No Data Available	No Data Available
welding fumes	No Data Available	No Data Available	No Data Available	No Data Available

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## Section 12 - ECOLOGICAL INFORMATION

copper fume	No Data Available	No Data Available	LOW	No Data Available
zinc oxide fume	No Data Available	No Data Available	LOW	No Data Available
nickel fume	No Data Available	No Data Available	LOW	No Data Available

## Section 13 - DISPOSAL CONSIDERATIONS

- Recycle wherever possible or consult manufacturer for recycling options.
- Consult State Land Waste Management Authority for disposal.
- Bury residue in an authorised landfill.
- Recycle containers if possible, or dispose of in an authorised landfill.

## Section 14 - TRANSPORTATION INFORMATION



### HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: ADG7, IATA, IMDG

## Section 15 - REGULATORY INFORMATION

### Indications of Danger:

N Dangerous for the environment  
Xn Harmful

POISONS SCHEDULE None

### REGULATIONS

#### Regulations for ingredients

#### copper (CAS: 7440-50-8) is found on the following regulatory lists;

"Acros Transport Information", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (IRRIG - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)", "Australia ADI list - Acceptable daily intakes for agricultural and veterinary chemicals", "Australia Drinking Water Guideline Values For Physical and Chemical Characteristics", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "International Maritime Dangerous Goods Requirements (IMDG Code) - Marine Pollutants", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "OECD List of High Production Volume (HPV) Chemicals", "OSPAR National List of Candidates for Substitution - Norway", "Sigma-Aldrich Transport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

#### zinc (CAS: 7440-66-6) is found on the following regulatory lists;

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (IRRIG - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory - Environment Protection

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### Section 15 - REGULATORY INFORMATION

Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG),"Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK),"Australia Drinking Water Guideline Values For Physical and Chemical Characteristics","Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","FisherTransport Information","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established"

#### **silver (CAS: 7440-22-4) is found on the following regulatory lists;**

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)","Australia Drinking Water Guideline Values For Physical and Chemical Characteristics","Australia Exposure Standards","Australia Hazardous Substances","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 2","FisherTransport Information","International Numbering System for Food Additives","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information","WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established"

#### **tin (CAS: 7440-31-5) is found on the following regulatory lists;**

"Australia - Queensland Work Health and Safety Regulation - Restricted hazardous chemicals","Australia - Western Australia Hazardous Substances Prohibited for Specified Uses or Methods of Handling","Australia Drinking Water Guideline Values For Physical and Chemical Characteristics","Australia Exposure Standards","Australia Hazardous Substances","Australia Inventory of Chemical Substances (AICS)","Australia Work Health and Safety Regulations 2011 - Restricted hazardous chemicals","FisherTransport Information","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments"

#### **nickel (CAS: 7440-02-0) is found on the following regulatory lists;**

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (IRRIG - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)","Australia - Queensland Work Health and Safety Regulation - Restricted hazardous chemicals","Australia - Victoria Drugs, Poisons and Controlled Substances (Precursor Chemicals) Regs 2007 - Schedule 1 - Precursor Chemicals and Quantities","Australia - Western Australia Hazardous Substances Prohibited for Specified Uses or Methods of Handling","Australia Criteria for the export and import of used electronic equipment - Hazardous constituents","Australia Drinking Water Guideline Values For Physical and Chemical Characteristics","Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","Australia Work Health and Safety Regulations 2011 - Restricted hazardous chemicals","FisherTransport Information","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

#### **silicon (CAS: 7440-21-3) is found on the following regulatory lists;**

"Australia Exposure Standards","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","FisherTransport Information","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information"

#### **copper fume (CAS: 7440-50-8) is found on the following regulatory lists;**

"Acros Transport Information","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (IRRIG - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)","Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)","Australia ADI list - Acceptable daily intakes for agricultural and veterinary chemicals","Australia Drinking Water Guideline Values For Physical and Chemical Characteristics","Australia Exposure Standards","Australia Hazardous Substances","Australia High Volume Industrial Chemical List (HVICL)","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","International Maritime Dangerous Goods Requirements (IMDG Code) - Marine Pollutants","International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index","OECD List of High Production Volume (HPV) Chemicals","OSPAR National List of Candidates for Substitution - Norway","Sigma-AldrichTransport Information","United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments","WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

#### **zinc oxide fume (CAS: 1314-13-2) is found on the following regulatory lists;**

"Australia Exposure Standards","Australia Hazardous Substances","Australia Inventory of Chemical Substances (AICS)","Australia National Pollutant Inventory","Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4","Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines","Australia Therapeutic Goods Administration (TGA) Sunscreening agents permitted as active ingredients in listed products","FisherTransport Information","International Fragrance Association (IFRA) Survey: Transparency List","OECD List of High Production Volume (HPV) Chemicals","Sigma-AldrichTransport Information"

continued...

# SILBRAZE SILVER BRAZING ALLOYS

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Section 15 - REGULATORY INFORMATION

## nickel fume (CAS: 7440-02-0) is found on the following regulatory lists;

"Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (IRRIG - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIG)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)", "Australia - Queensland Work Health and Safety Regulation - Restricted hazardous chemicals", "Australia - Victoria Drugs, Poisons and Controlled Substances (Precursor Chemicals) Regs 2007 - Schedule 1 - Precursor Chemicals and Quantities", "Australia - Western Australia Hazardous Substances Prohibited for Specified Uses or Methods of Handling", "Australia Criteria for the export and import of used electronic equipment - Hazardous constituents", "Australia Drinking Water Guideline Values For Physical and Chemical Characteristics", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia National Pollutant Inventory", "Australia Work Health and Safety Regulations 2011 - Restricted hazardous chemicals", "FisherTransport Information", "OECD List of High Production Volume (HPV) Chemicals", "Sigma-AldrichTransport Information", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water"

## No data for Silbraze Silver Brazing Alloys (CW: 4797-76)

No data for welding fumes (CAS: , Not avail)

## Section 16 - OTHER INFORMATION

■ 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.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

■ The (M)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 settings.

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*This is the end of the MSDS.*