

**BERNZOMATIC LEAD FREE SILVER BEARING SOLDER -
TIN/COPPER/SILVER ROSIN CORE SOLDER ALLOYS (TCI-107-2)**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	Bernzomatic Lead Free Silver Bearing Solder - Tin/Copper/Silver Rosin Core Solder Alloys (TCI-107- 2)
Product Code	-
Other Names	-
Product Use	Soldering applications
Company Name	Bromic Group
Address	1 Suttor Street Silverwater NSW 2128
Telephone Number	02 9748 3900
Emergency Telephone	1300 276 642

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

This product consists of silver to silver grey metal wire which contains core of yellow rosin. There is no immediate health hazard associated with the wire product and it is not reactive under normal circumstances of use. Though the wire is not flammable, if involved in a fire and exposed to extremely high temperatures, harmful fumes of metal oxides may be generated. During soldering operations, the most significant routes of exposure are inhalation, and contact of the skin and eyes. Molten solder can cause thermal burns. Prolonged or repeated exposure to tin fumes can result in benign pneumoconiosis, which causes inflammation of the lungs, but there is no distinct fibrosis or evidence of disability.

POTENTIAL HEALTH EFFECTS INFORMATION

Inhalation: The fumes generated during soldering operations may cause respiratory irritation.

Ingestion: Ingestion is not expected to occur in normal use.

Eye Contact: Contact with the wire form of this product can be physically damaging to the eye. Contact with the molten core solder will cause burn to the eyes. Fumes generated during soldering operations can be irritating to the eyes.

Skin Contact: Contact of the wire form of this product with skin is not anticipated to be irritating. Contact with the molten core solder will burn contaminated skin. Fumes generated during soldering operations can be irritating to the skin.

HAZARDOUS SUBSTANCE. NON DANGEROUS GOODS.

Classified as hazardous according to the criteria of Safe Work Australia.

Hazards Xi - Irritant

Risk Phrases R36/37/38 - Irritating to eyes, respiratory system and skin.

Safety Phrases S2 - Keep out of reach of children.
S23 - Do not breathe fumes/vapour.
S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Characterisation	Mixture	
Ingredient (common name)	CAS Number	Proportion
Tin	7440-31-5	>97%
Copper	7440-50-8	3-4%
Silver	7440-22-4	<1%
Rosin, hydrogenated (core)	65997-06-0	1-6%

4. FIRST AID MEASURES

Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.
Ingestion	Give water to drink. Induce vomiting only to a conscious, non-convulsing individual. Never give anything by mouth to an unconscious person. Seek immediate medical attention.
Skin	In case of skin contact, wash affected areas with water and soap. In case of skin contact with molten solder, immediately flush with cold running water for at least 15 minutes. Seek medical attention if symptoms develop.
Eyes	In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if symptoms develop.

5. FIRE FIGHTING MEASURES

	For major fires call the Fire Brigade. Ensure that an escape path is available from any fire.
Suitable Extinguishing Media	Water spray, dry chemical, carbon dioxide or foam.
Hazardous Combustion Products	Metal oxide fumes may be evolved at temperatures above 250°C (melting point).
Special Protective Actions for Firefighters	Evacuate all unnecessary personnel from the area. Allow only properly trained and protected emergency response personnel in area. If involved in a fire, use a Safe Work Australia approved self-contained breathing apparatus and full protective equipment.
Unusual Fire or Explosion Hazards	The solid metal form is not a fire hazard. However, dust generated from processing operations may present a moderate fire or explosion hazard. Accidental contaminants to a product such as moisture, ice, snow, grease or oil can cause an explosion when charged to a molten bath or melting furnace (preheating metal will remove moisture from product).
Hazchem Code	Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Minimum personal protective equipment should be gloves and

Protective Equipment and Emergency Procedures

goggles, as well as appropriate body protection. If dust/fume exposure exist respiratory protection should be worn. Evacuate all non-essential personnel from affected area. Do not breathe vapour and dust . Ventilate contaminated area thoroughly.

Environmental Precautions

In the event of a major spill, prevent spillage from entering drains or water courses.

Methods and Materials for Containment and Cleaning Up

Material in dust form clean up using dustless methods (HEPA vacuum). Do not use compressed air. If the material is molten, allow it to cool and solidify, then scrap-up the product. Decontaminate the area thoroughly. Place all spilled residues in a suitable container for consequent disposal.

7. HANDLING AND STORAGE

Precautions for Safe Handling

Use of safe work practices are recommended to avoid eye or skin contact and inhalation of fumes during soldering operations. Use only with adequate ventilation.

Food, beverages and tobacco products should not be stored or consumed where this material is in use. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use. Provide eyewash fountains and safety showers in close proximity to points of potential exposure.

Conditions for Safe Storage

Store in a dry, well ventilated area. Keep material dry. Prevent dust accumulation. Keep away from incompatible materials.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters - Exposure Standards (Safe Work Australia)

Tin (metal):

TWA: - ppm / 2 mg/m³

STEL: - ppm / - mg/m³

Tin, organic compounds (as Sn):

TWA: - ppm / 0.1 mg/m³

STEL: - ppm / 0.2 mg/m³

Copper (fume):

TWA: - ppm / 0.2 mg/m³

STEL: - ppm / - mg/m³

Copper, dusts & mists (as Cu):

TWA: - ppm / 1 mg/m³

STEL: - ppm / - mg/m³

Silver (metal):

TWA: - ppm / 0.1 mg/m³

STEL: - ppm / - mg/m³

Formaldehyde:

TWA: 1.2 ppm / 2 mg/m³

STEL: 2.5 ppm / 2 mg/m³

Engineering Controls

Adequate mechanical ventilation to control airborne concentrations below the exposure guidelines/limits.

Personal Protective Equipment (PPE)

Respiratory Protection	If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, use a Safe Work Australia approved respiratory protection (weld fume respirator or air line respirator). Respiratory protection is recommended to be worn during welding operations. See Australian Standards AS/NZS 1715 and 1716 for more information.
Eye/Face Protection	Safety glasses with top and side shields or goggles. See Australian Standards AS 1336 and AS/NZS 1337 for more information. Contact lenses should not be worn when working with this chemical.
Skin Protection	Wear gloves that protect from sparks and flame and protective clothing. See Australian Standards AS 2161 and 2919 and AS/NZS 2210 for more information.
Thermal Hazards	The molten material can present a significant thermal hazard. Wear safety glasses with top and side shields or goggles and protective equipment. Keep melting/soldering temperatures as low as possible to minimize generation of fumes.

9. PHYSICAL AND CHEMICAL PROPERTIES
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Appearance	Solid – Silver to silver grey metal. Contains core of yellow rosin
Odour	No information available
Odour Threshold	No information available
pH	No information available
Melting Point / Freezing Point	227-250°C
Initial Boiling Point / Range	No information available
Flash Point	Not applicable
Evaporation Rate	Not applicable
Flammability	Not flammable
Lower Flammability or Explosive Limit	Not applicable
Upper Flammability or Explosive Limit	Not applicable
Vapour Pressure	Not volatile
Vapour Density	Not volatile
Relative Density (Specific Gravity)	No information available
Solubility in Water	No information available
Partition coefficient: n-octanol/water	No information available
Auto-ignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	No information available
Percent Volatile by Weight	Not volatile

10. STABILITY AND REACTIVITY

Chemical Stability	Stable at ambient temperature and under normal conditions of use
Hazardous Polymerization	Will not occur.
Conditions to Avoid	No information available.
Incompatible Materials	Chlorine, turpentine, magnesium and acetylene gas.
Hazardous Decomposition Products	Metal oxide fumes may be evolved at temperatures above 250°C (melting point).

11. TOXICOLOGICAL INFORMATION

Toxicity	<p>Tin: Acute, short term exposure to tin fumes can cause irritation of the eyes, skin, mucous membranes and respiratory system. Prolonged or repeated exposure to tin can result in benign pneumoconiosis (stannosis), which causes inflammation of the lungs, but there is no distinct fibrosis or evidence of disability.</p> <p>Copper: Oral TD_{Lo} (human) = 120 µg/m³ – gastrointestinal tract effects Acute, short term exposure to copper fumes can cause irritation of the eyes, skin, mucous membranes and respiratory system. Severe fume exposure may cause metal fume fever with flu-like symptoms such as sweet metal taste, dry throat, coughing, fever, tightness in chest, blurred vision, back pain, nausea, vomiting and fatigue. Symptoms usually disappear in 24 hours. Copper may cause skin and hair discoloration.</p> <p>Silver: Inhalation TC_{Lo} (human) = 1mg/m³ Chronic skin contact or ingestion of dusts, salts, or fumes of silver can result in a condition known as argyria. This condition is marked by a bluish appearance of the skin and eyes.</p> <p>Rosin: Acute exposure to rosin pyrolysis products (formaldehyde), may cause irritation of the eyes, nose and throat.</p>
Acute Health Effects	
Skin Corrosion/Irritation	Yes
Serious Eye Damage/Irritation	Yes
Sensitization	No information available.
Mutagenicity	No information available.
Carcinogenicity	This product does NOT contain any IARC listed chemicals.
Reproductive Toxicity	No information available.
STOT-Single Exposure	No information available.
STOT-Repeated Exposure	No information available.
Aspiration Hazard	No information available.
Routes of Exposure	<p>Inhalation: The fumes generated during soldering operations may cause respiratory irritation.</p> <p>Ingestion: Ingestion is not expected to occur in normal use.</p> <p>Eye: Contact with the wire form of this product can be</p>

	physically damaging to the eye. Contact with the molten core solder will cause burn to the eyes. Fumes generated during soldering operations can be irritating to the eyes.
Skin:	Contact of the wire form of this product with skin is not anticipated to be irritating. Contact with the molten core solder will burn contaminated skin. Fumes generated during soldering operations can be irritating to the skin.
Chronic Health Effects	Prolonged or repeated exposure to tin fumes can result in benign pneumoconiosis, which causes inflammation of the lungs, but there is no distinct fibrosis or evidence of disability.
Existing Conditions Aggravated by Exposure	Wilson's disease.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Silver: 0.1 ppm is toxic to bacteria and aquatic life. Discharge into marine waters should not exceed 1/20 of 96 hour LC ₅₀ , 0.25-0.025 mg/kg/day.
Bioaccumulation, Persistence and Degradability	Silver: Insoluble in water. Many silver salts are only slightly soluble. The biological half-life for silver is a few days for animals and up to 50 days for humans. Tin: Insoluble in water.

13. DISPOSAL CONSIDERATIONS

Disposal methods and containers	Dispose according to applicable local and state government regulations.
Special precautions for landfill or incineration	Please consult your state Land Waste Management Authority for more information.

14. TRANSPORT INFORMATION

Not classified as a dangerous good according to the Australian Code for the Transport of Dangerous goods by road or rail.

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Subsidiary Risk	Not applicable
Hazchem Code	Not applicable
Packing Group	Not applicable
Special Provisions	Not applicable
Limited Quantities	Not applicable
Packagings & IBCs - Packing Instruction	Not applicable
Packagings & IBCs - Special Packing Provision	Not applicable
Portable Tanks & Bulk Containers – Instruction	Not applicable
Portable Tanks & Bulk Containers – Special Provisions	Not applicable

SEA TRANSPORT – IMDG

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Packing Group	Not applicable

AIR TRANSPORT – ICAO / IATA

UN Number	Not applicable
Proper Shipping Name	Not applicable
Dangerous Goods Class	Not applicable
Packing Group	Not applicable

15. REGULATORY INFORMATION

Tin, copper, silver and rosin are listed in the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

Last Revision of MSDS	Rev 1.0 (14/02/2012)
Prepared by	MSDS.COM.AU Pty Ltd www.msds.com.au

Abbreviations Used	IARC: International Agency for Research on Cancer ASCC: National Occupational Health and Safety Commission NTP: National Toxicology Program (U.S.) OSHA: Occupational Safety and Health Administration (U.S.) STEL: Short term exposure limit TWA: Time weighted average
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Emergency Contacts

Bromic Group	02 9748 3900
Bromic Group – Emergency Number	1300 276 642
Police and Fire Brigade	000
Poisons Information Centre	13 11 26

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Please read instructions / label before using product.

This MSDS is prepared in accord with the Safe Work Australia document “National Code of Practice for the Preparation of Material Safety Data Sheets” 2nd Edition [NOHSC:2011(2003)]