Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME
CIGWELD Tin/Lead Solder Wire

SYNONYMS
"Comweld 50/50 soft solder", "40/60 soft solder"

PRODUCT NUMBERS
322305, 322306, 322310, 322317, 322319, 322220, 322313, 322318, 322222

PRODUCT USE
General purpose solder for general sheetmetal work, plumbing and auto radiator repairs.

SUPPLIER
Company: Cigweld Pty Ltd
Address:
71 Gower Street
Preston
VIC, 3072
Australia
Telephone: +61 3 9474 7400
Telephone: +1 1300 654 674
Emergency Tel: +61 3 9474 7400
Email: cigweldsales@cigweld.com.au
Website: http://www.cigweld.com.au/

Section 2 - HAZARDS IDENTIFICATION

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

CHEMWATCH HAZARD RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Flammability</th>
<th>Toxicity</th>
<th>Body Contact</th>
<th>Reactivity</th>
<th>Chronic</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCALE</td>
<td>Min/Nil=0</td>
<td>Low=1</td>
<td>Moderate=2</td>
<td>High=3</td>
<td>Extreme=4</td>
</tr>
</tbody>
</table>

RISK
- Harmful by inhalation and if swallowed.
- Danger of cumulative effects.

SAFETY
- Keep locked up.
- Avoid contact with skin.

continued...
Section 2 - HAZARDS IDENTIFICATION

- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- May cause harm to the unborn child.
- Possible risk of impaired fertility.
- Possible respiratory and skin sensitiser*.
  * (limited evidence).

- Wear suitable protective clothing.
- In case of insufficient ventilation, wear suitable respiratory equipment.
- Wear suitable gloves.
- Wear eye/face protection.

* (limited evidence).
- Use only in well ventilated areas.
- Keep container in a well ventilated area.
- Avoid exposure - obtain special instructions before use.
- 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.
- Use appropriate container to avoid environmental contamination.
- Avoid release to the environment. Refer to special instructions/Safety data sheets.
- In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>NAME</th>
<th>CAS</th>
<th>RN</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>solder wire alloy consisting of</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>tin</td>
<td>7440-31-5</td>
<td>40-50</td>
<td>^</td>
</tr>
<tr>
<td>lead</td>
<td>7439-92-1</td>
<td>50-60</td>
<td>^</td>
</tr>
<tr>
<td>Resin- cored wire contains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rosin- colophony</td>
<td>8050-09-7</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>Acid cored wire, in addition, contains</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zinc chloride</td>
<td>7646-85-7</td>
<td>^</td>
<td></td>
</tr>
<tr>
<td>In use produces soldering volatiles as</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>zinc chloride fume</td>
<td>7646-85-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tin fume</td>
<td>7440-31-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>lead fumes</td>
<td>7439-92-1.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 4 - FIRST AID MEASURES

SWALLOWED
- Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract.

EYE
- If this product comes in contact with the eyes:
  - Immediately hold eyelids apart and flush the eye continuously with running water.
  - Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes.
  - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
  - Seek medical attention without delay.

SKIN
- If skin contact occurs:
  - Immediately remove all contaminated clothing, including footwear.
  - Flush skin and hair with running water (and soap if available).
  - Seek medical attention in event of irritation.

In case of burns:
Section 4 - FIRST AID MEASURES

• 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
• Gastric acids solubilise lead and its salts and lead absorption occurs in the small bowel.
• Particles of less than 1 um diameter are substantially absorbed by the alveoli following inhalation.
• Lead is distributed to the red blood cells and has a half-life of 35 days. It is subsequently redistributed to soft tissue & bone-stores or eliminated. The kidney accounts for 75% of daily lead loss; integumentary and alimentary losses account for the remainder.
• Neuropsychiatric symptoms are the most common symptoms of intoxication. Lead toxicity produces a classic motor neuropathy. Acute encephalopathy appears infrequently in adults. Diazepam is the best drug for seizures.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA
• There is no restriction on the type of extinguisher which may be used.

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.

FIRE/EXPLOSION HAZARD
• Non combustible.
• Not considered to be a significant fire risk, however containers may burn.
• In a fire may decompose on heating and produce toxic / corrosive fumes.

FIRE INCOMPATIBILITY
• No known incompatibility with normal range of industrial materials.

HAZCHEM
None

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS
Sweep up.
Place in suitable containers for disposal.

MAJOR 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.

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

continued...
Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING
• Limit all unnecessary personal contact.
• Wear protective clothing when risk of exposure occurs.
• Use in a well-ventilated area.
• When handling DO NOT eat, drink or smoke.

SUITABLE CONTAINER
• Check that containers are clearly labelled.
• Packaging as recommended by manufacturer.
Multi-wall paper container NOTE: Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.

STORAGE INCOMPATIBILITY
None known.

STORAGE REQUIREMENTS
• Keep dry.
• Store under cover.
• Protect containers against physical damage.
• Observe manufacturer's storage and handling recommendations contained within this MSDS.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

<table>
<thead>
<tr>
<th>Source</th>
<th>Material</th>
<th>TWA ppm</th>
<th>TWA mg/m³</th>
<th>STEL ppm</th>
<th>STEL mg/m³</th>
<th>Peak ppm</th>
<th>Peak mg/m³</th>
<th>TWA F/C</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia Exposure</td>
<td>zinc chloride</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exposure Standards</td>
<td>(Zinc chloride fume)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following materials had no OELs on our records
• rosin- colophony: CAS:8050- 09- 7

MATERIAL DATA
CIGWELD TIN/LEAD SOLDER WIRE:
Not available

ZINC CHLORIDE FUME:
For zinc chloride:
Additional to effects produced by inhalation of the relatively inert zinc oxide, exposure to the chloride produces irritancy as a result of hydrolysis to hydrogen chloride in the pulmonary fluids.
Zinc chloride fume has caused death, chemical pneumonitis, alveolar and bronchiolar obliteration, and ulcerative damage to the mucous membranes of both the nasopharynx and respiratory tract.

TIN FUME:
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.

LEAD FUMES:
The lead concentration in air is to be maintained so that the lead concentration in workers' blood remains below 0.060 mg/100 g of whole blood. The recommended TLV-TWA has been derived following a review of reports of adverse effects on reproduction, blood-pressure and other end-points of toxicity.

continued...
CIGWELD Tin/Lead Solder Wire

Chemwatch Material Safety Data Sheet
Issue Date: 25-Oct-2011
X9317SP

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTION

RESPIRATOR
• Type ABE-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

EYE
• Safety glasses with side shields; or as required,
• Chemical goggles.
• 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].

HANDS/FEET
■ Wear physical protective gloves, e.g. leather.

OTHER
• Overalls.
• Eyewash unit.
  Ensure ready access to a burns first aid kit.

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.

  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.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Silver white alloy wires.

PHYSICAL PROPERTIES
Does not mix with water.
Sinks in water.

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Manufactured</td>
</tr>
<tr>
<td>Melting Range (°C)</td>
<td>212 50/50; 234 40/60</td>
</tr>
<tr>
<td>Boiling Range (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Flash Point (°C)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition Temp (°C)</td>
<td>Not available</td>
</tr>
<tr>
<td>Autoignition Temp (°C)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Upper Explosive Limit (%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Molecular Weight</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in water (g/L)</td>
<td>Immiscible</td>
</tr>
<tr>
<td>pH (1% solution)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH (as supplied)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour Pressure (kPa)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity (water=1)</td>
<td>8.9- 9.3</td>
</tr>
</tbody>
</table>
Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Explosive Limit (%)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Volatile Component (%vol)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative Vapour Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

Section 10 - STABILITY AND REACTIVITY

CONDITIONS CONTRIBUTING TO INSTABILITY

- 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
- Not normally a hazard due to physical form of product.

EYE
- Molten material is capable of causing severe burns.
  The vapour from heated material is discomforting if exposure is prolonged.

SKIN
- Molten material is capable of causing severe thermal burns.
  Skin contact does not normally present a hazard, though it is always possible that occasionally individuals may be found who react to substances usually regarded as inert.

INHALED
- Lead fume is toxic and acts as a cumulative poison. Regular blood testing should be considered for workers who are regularly exposed.

CHRONIC HEALTH EFFECTS

- Excessive exposure to lead can affect the blood, the nervous system, heart, endocrine organs and the immune system and the digestive system. The synthesis of haemoglobin is inhibited and can result in anaemia.
- 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.
- Pulmonary sensitisation, resulting in hyperactive airway dysfunction and pulmonary allergy may be accompanied by fatigue, malaise and aching.
- There exists limited evidence that shows that skin contact with the material is capable either of inducing a sensitisation reaction in a significant number of individuals, and/or of producing positive response in experimental animals.

TOXICITY AND IRRITATION

- Not available. Refer to individual constituents.

CARCINOGEN

- **lead fumes**
  - International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs
  - Group 2B
  - Possibly carcinogenic to humans

REPROTOXIN

- **lead fumes**
  - ILO Chemicals in the electronics industry that have toxic effects on reproduction
  - Reduced fertility or sterility
  - H A si
SKIN

zinc chloride fume GESAMP/EHS Composite List - GESAMP Hazard Profiles D1: skin irritation/corrosion (3)

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

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Persistence: Water/Soil</th>
<th>Persistence: Air Available</th>
<th>Bioaccumulation</th>
<th>Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>zinc chloride fume</td>
<td>HIGH</td>
<td>No Data</td>
<td>LOW</td>
<td>HIGH</td>
</tr>
<tr>
<td>tin fume</td>
<td>No Data</td>
<td>Available</td>
<td>No Data</td>
<td>No Data</td>
</tr>
<tr>
<td>lead fumes</td>
<td>No Data</td>
<td>Available</td>
<td>LOW</td>
<td>No Data</td>
</tr>
</tbody>
</table>

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
- T Toxic

POISONS SCHEDULE
None

REGULATIONS
Regulations for ingredients

continued...
zinc chloride fume (CAS: 7646-85-7) is found on the following regulatory lists:

*Australia - Australia Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)*, *Australia - Australia Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)*, *Australia - Australia Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality*, *Australia - Australia Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)*, *Australia - Victoria Drugs, Poisons and Controlled Substances (Precursor Chemicals) Regs 2007 - Schedule 1 - Precursor Chemicals and Quantities*, *Australia Drinking Water Guideline Values For Physical and Chemical Characteristics*, *Australia Exposure Standards*, *Australia Hazardous Substances Information System - Consolidated Lists*, *Australia Inventory of Chemical Substances (AICS)*, *Australia National Pollutant Inventory*, *Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)*, *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*, *Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4*, *Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6*, *Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines*, *FisherTransport Information*, *GESAMP/EHS Composite List - GESAMP Hazard Profiles*, *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 fume (CAS: 7440-31-5) is found on the following regulatory lists:


lead fumes (CAS: 7439-92-1) is found on the following regulatory lists:

Section 16 - OTHER INFORMATION

INGREDIENTS WITH MULTIPLE CAS NUMBERS

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>zinc chloride</td>
<td>7646-85-7, 21351-91-7</td>
</tr>
</tbody>
</table>

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.

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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Print Date: 2-Jun-2014

This is the end of the MSDS.