

## Material Safety Data Sheet

### PACWELD 71 - Silver Brazing

Identity	Supplier's Name	Supplier's Address	Date	Telephone No.	Facsimile No.
Pacweld Welding Consumable	3D Safety Services Pty Ltd	27 Sir Joseph Banks Street Botany, NSW 2019	01-10-2004	1300 663 195	1300 663 495

This product is hazardous according to Worksafe Australia Criteria

#### Section 1 - Pacweld Numbers For Grouping

Group A: 71  
Group B: 72B, 73  
Group C: 72F, 74F

#### Section 2 – Fire & Explosion Hazard

These alloys are not pyrophoric. However, if involved in a fire generated by other means, resulting in temperatures in excess 600°C, toxic fumes of Zinc and especially Cadmium Oxide will be evolved. Fire extinguisher selection should be governed by the source of the fire and other materials involved. Subject to the presence of electrical shock risks, use of water fog is preferred.

#### Section 3 - Health Hazard Information

**HEALTH EFFECTS:** Brazing alloys in general are not dangerous in the form in which they are supplied to the market. However, they are dangerous preparations in that health hazards do occur during use, especially if subjected to overheating, resulting in evolution of metal and oxide fume. The absence of effective ventilation magnifies the exposure risk. This applies particularly to the Copper, Cadmium & Phosphorus components of these alloys.

**INHALATION:** Exposure to fumes of Phosphorus Pentoxide can result in severe local irritation as it is corrosive to mucous membranes. Zinc and Copper Oxide fume results in shortness of breath, cough and aching muscles with general symptoms similar to influenza – hence “metal fume fever”. Symptoms of metal fume fever are often delayed for 3 - 10 hours and usually disappear after 24 hours rest. Ulceration of the respiratory tract and perforation of the nasal septum can occur. Short exposure to high levels of Cadmium Oxide fume can lead to pulmonary oedema and may be fatal. Deaths have occurred due to Cadmium poisoning.

**SKIN:** Prolonged exposure to Copper may cause skin irritation or discolouration of the skin or hair, and Zinc Oxide is moderately irritating to the skin.

**EYES:** Moderate local irritation due to Zinc Oxide component and Flux coating can occur. Severe local irritation due to the Phosphorus Pentoxide components can occur.

**INGESTION:** There is no oral toxicological data available for Zinc Oxide LD50 240 mg/kg (intraperitoneal – Rat).

**CHRONIC EXPOSURE:** Chronic absorption of Silver can cause Argyria, a bluish-grey discolouration of various tissues, but this is unlikely to occur when handling Silver alloys.

#### Section 4 – Chemical Composition

Chemical Entity	CAS No.	Proportion
Potassium Bifluoride	7789-29-9	30% – 60%
Balance borates and other non dangerous/hazardous classified additives		

### Section 5 - Health Hazard Information

Product is a mixture and is considered that it maybe toxic if swallowed. Symptoms of fluoride over exposure may include salivation, nausea, vomiting abdominal pain, fever and laboured breathing. This is not considered relevant to normal industrial use by emphasises the need for care in handling and use.

#### Acute

Swallowed: May be fatal if swallowed, may cause irritation

Eye: May cause irritation

Skin: May cause irritation

Inhaled: May cause irritation of the respiratory tract. Symptoms may include sore throat, coughing, shortness of breath

**Chronic:** No data available

### Section 6 – First Aid Treatment

Inhalation: Remove casualty from exposure. Sit in half upright position and allow to rest. Seek medical attention.

Eyes: Irrigate thoroughly with water. Seek medical attention.

Skin: Wash off contamination with soap and water.

Advice to Doctor: Contact Poisons Information Centre.

### Section 7 - Precautions For Use

Ventilation: Adequate air flows and respiratory protection are required to ensure fume concentrations do not exceed TLV values. In outdoor or open work space conditions, this could consist of mechanical dilution ventilation. However, under high work loads, or limited work spaces, ventilation by a local exhaust system will be required. The latter should be supplemented by personal respiratory protection when working in confined spaces.

Refer to the Australian Standard AS 1674.3 and the Welding Technology Institute of Australia (WTIA) Technical Note 7.

Personal Protection: Tests to determine whether or not TLV's are being exceeded can be performed using lapel samplers, with sample filters analysed for Copper. Appropriate ventilation should be used but additional operator protection can be achieved using half-face cartridge respirator suitable for metal oxide fume.

Wear protective clothing when brazing, including heat resistant gloves and chemical goggles. Do not eat, drink or smoke in the working area.

### Section 8 – Safe Handling Information

Storage & Transport: Copper and some Copper alloys can form explosive acetylides when exposed to Acetylene. As with many metals and alloys, contact with mineral acids liberates hydrogen, a flammable and explosive gas.

Spills & Disposal: Disposal should comply with local and national waste disposal procedures.

### Section 9 - Group A

Entity	CAS No.	Proportion
Silver	7440-22-4	42% - 45%
Copper	7440-50-8	Medium content (10% - 60%)
Zinc	7440-66-6	Medium content (10% - 60%)
Cadmium	7440-43-9	22% - 27%
<b>Exposure Limits</b>		
<b>Entity</b>	<b>THRESHOLD LIMIT VALUES (TLVS)</b>	

Silver	0.1 mg/m <sup>3</sup> as fume	
Copper	0.2 mg/m <sup>3</sup> as fume	
Zinc	5.0 mg/m <sup>3</sup> as zinc oxide	
Cadmium	0.05 mg/m <sup>3</sup> as cadmium oxide fume	

Section 10 – Group B		
Entity	CAS No.	Proportion
Silver	7440-22-4	56% approx. (1)
Copper	7440-50-8	High content
Phosphorus	7723-14-0	Low content (2)
Zinc	7440-66-6	High content (3)
Tin	7440-31-5	Low content
Exposure Limits		
Entity	THRESHOLD LIMIT VALUES (TLVS)	
Silver	0.1 mg/m <sup>3</sup> as fume TWA	
Copper	0.2 mg/m <sup>3</sup> as fume TWA and LTEL	
Phosphorus	1 mg/m <sup>3</sup> as Phosphoric Acid TWA (2)	
Zinc Oxide fume	5.0mg/m <sup>3</sup> (TWA) and 10mg/m <sup>3</sup> (STEL) (3)	
Tin	2.0mg/m <sup>3</sup> (TWA) 4mg/m <sup>3</sup> (STEL)	

Section 11 - Group C		
Entity	CAS No.	Proportion
Silver	7440-22-4	Medium content (10% - 60%)
Copper	7440-50-8	Medium content (10% - 60%)
Zinc	7440-66-6	Medium content (10% - 60%)
Cadmium	7440-43-9	Medium content (10% - 60%) (4)
Tin	7440-31-5	Low content < 10% (5)
Potassium	7440-09-7	Medium content (10% - 60%)
Fluorine (as Fluoroborates)	16984-48-8	Medium content (10% - 60%)
Boron (as Borates & Fluoroborates)	7440-42-8	Low content < 10%
Exposure Limits		
Entity	THRESHOLD LIMIT VALUES (TLVS)	
Silver	0.1 mg/m <sup>3</sup> as fume TWA	
Copper	0.2 mg/m <sup>3</sup> as fume TWA and LTEL	
Zinc Oxide fume	5.0mg/m <sup>3</sup> as zinc oxide	
Cadmium Oxide pure	0.05mg/m <sup>3</sup> (4)	
Tin Oxide	2.0mg/m <sup>3</sup> (TWA) (5)	
Hydrogen Fluoride	2.5mg/m <sup>3</sup> as fluoride (TLV)	

Boron Trifluoride	3.0mg/m <sup>3</sup> ceiling limit (TLV)	
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**Legend**

- (1) 56% in Pacweld 72B and low content in Pacweld 73
- (2) Phosphorus in Pacweld 73 only
- (3) Zinc in Pacweld 74F only
- (4) Cadmium in Pacweld 74F only
- (5) Tin in Pacweld 72B only

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