

# MATERIAL SAFETY DATA SHEET

## Pro Silver 50 Silver Brazing Alloy

Material Safety Data Sheet **6018**

Rev 1 03/11/2005

### COMPANY DETAILS

Company: BOC Limited  
ABN 95 000 029 729  
Address: Riverside Corporate Park, 10 Julius Avenue,  
NORTH RYDE NSW 2113  
Telephone Number: 131 262 (Business Hours), (02) 8874 4400  
Emergency Telephone Number: 1800 653 572

### IDENTIFICATION

Product Name: Pro Silver 50  
UN Number: None allocated  
Dangerous Goods: None allocated  
HAZCHEM Code: 2R  
Poisons schedule: S.6 (NSW Poisons List 1987 – cadmium content only)  
Manufacturer's Code: 25205 series  
Use: Silver Brazing Alloy

| Part No. | Description                  | Pack     | Dimensions |
|----------|------------------------------|----------|------------|
| LTAC5011 | Pro Silver 50 Standard Pack  | 0.5kg    | 1.6x750    |
| LTAC5022 | Pro Silver 50 Standard Pack  | 0.5kg    | 2.5x750    |
| LTAC4090 | Pro Silver 50 Dispenser Pack | 20 rods  | 1.5x750    |
| LTAC5059 | Pro Silver 50 Coil           | 25g coil | 0.125x25   |

### Physical Description

Appearance: Rod, strip, sheet, foil, press parts, wire, rings, powder  
Melting Point: Solidus 620°C, Liquidus 640°C  
Australian Standard  
Colour Code: Light green  
Flammability Limits: Not applicable  
Solubility in Water: Insoluble  
Other Properties: Not applicable

### Composition

| Entity  | CAS Number | Proportion              |
|---------|------------|-------------------------|
| Silver  | 7440-22-4  | 50%                     |
| Copper  | 7440-50-8  | Medium content (10-60%) |
| Zinc    | 7440-66-6  | Medium content (10-60%) |
| Cadmium | 7440-43-9  | 16-20%                  |

### HEALTH HAZARD INFORMATION

Health Effects: Brazing alloys in general and cadmium alloys specifically 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 the alloy is subjected to overheating, resulting in evolution of metal and

# MATERIAL SAFETY DATA SHEET

metal oxide fume. The absence of effective ventilation magnifies the exposure risk. This applies particularly to the cadmium component. Special care is required, however, when handling Pro Silver 50, Pro Silver 42 and Pro Silver 35 powder as the risk of ingestion and inhalation in its "as supplied" form is considerable, when compared with the solid alloy.

## Inhalation:

Mild poisoning causes increased salivation, a cough, shortness of breath and general weakness.

Severe poisoning causes chest pain and severe shortness of breath due to congestion of the lungs. These symptoms often do not become apparent for several hours and are aggravated by physical effort.

Short exposures to high levels of cadmium oxide fume can lead to pulmonary oedema and may be fatal. Deaths have occurred due to cadmium poisoning.

Zinc oxide fumes, if excessive can be irritating to the upper respiratory tract and can cause metal fume fever.

## Skin:

There may be a red rash at the site of contact.

## Eyes:

There may be irritation and redness.

## Ingestion:

Mild poisoning causes nausea, vomiting and diarrhoea. Severe poisoning causes headache, muscular aches and abdominal pain.

## Chronic exposure when inhaled:

Continuous exposure to small quantities of cadmium oxide fume above the Threshold Limit Values (TLV) produces a loss of sense of smell, loss of weight, golden yellow staining of the teeth, chronic distension of the lungs (emphysema), pulmonary fibrosis and possible kidney damage. It has been suggested that there is an association between exposure to cadmium and cancer of the prostate gland. Cadmium and certain cadmium salts have been listed by the EPA as carcinogens.

## First Aid

### Inhaled:

- Remove casualty from exposure.
- Sit in half upright position and allow to rest.
- Urgently seek medical assistance.
- Transport to a hospital as soon as possible and show this MSDS to a medical practitioner.

### Skin:

Wash affected area with soap and water.

### Eyes:

Irrigate with water for at least 10 minutes and seek medical

# MATERIAL SAFETY DATA SHEET

assistance.

Ingestion: Rinse mouth, give plenty of water to drink.  
Transport to hospital immediately.

Advice to Doctor: Contact a Poisons Information Centre. Observation for 48 hours is necessary because there may be a latent period without symptoms, prior to a severe reaction.

# MATERIAL SAFETY DATA SHEET

## PRECAUTIONS FOR USE

Exposure Limits: Threshold Limit Values (TLV's)

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

The TLV for cadmium is a ceiling limit. The American Conference of Governmental Industrial Hygienists (ACGIH) handbook for 1989-90 proposes a TLV of 0.01 mg/m<sup>3</sup> for cadmium with a classification as an A2 carcinogen. This definition by the International Agency for Research on Cancer is for materials where there is limited evidence of carcinogenicity to humans. For A2 carcinogens, worker exposure by all routes should be carefully controlled.

Ventilation: Local fume extraction is necessary in all situations to ensure air concentrations of cadmium oxide are maintained below TLV levels.

Confined situations require the use of a half face airline respirator even where local exhaust systems are used.

Refer to Australian Welding Research Association and the Australian Welding Institute Technical Note 7 for further details.

## PERSONAL PROTECTION

Tests to determine whether or not TLV's are being exceeded can be performed using lapel samplers, with sample filters analysed for cadmium. Appropriate ventilation should be used but additional operator protection can be achieved using an approved 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. Avoid breathing powder, wear a face mask approved for particulate hazards whenever this material is handled.

## SAFE HANDLING GUIDELINES

Storage and 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. Store away from acids and acetylene.

Spills and Disposal: Disposal should comply with local and national waste

# MATERIAL SAFETY DATA SHEET

disposal procedures.

Fire/Explosion Hazard: The alloy is not pyrophoric. However, if involved in a fire generated by other means, resulting in temperatures in excess of 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 stock risks, use of water fog is preferred.

## CONTACT POINT

Technical Support: (02) 131 262 (B/Hrs)  
(02) 132 437 (Fax)

Further information may be obtained from any BOC Gas & Gear centre throughout Australia and New Zealand.

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