

## STATEMENT OF HAZARDOUS NATURE

Hazardous according to criteria of Worksafe Australia.

## COMPANY DETAILS

Company: CIGWELD - Comweld Group Pty Ltd  
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## IDENTIFICATION

Product Name: Autocraft AL5183  
 Other Names: None  
 Manufacturer's Product Code: 720240, 720241  
 UN Number: None allocated  
 Dangerous Goods Class and Subsidiary Risk: None allocated  
 Hazchem Code: None allocated  
 Poisons Schedule Number: None allocated  
 Use: Aluminium-nominal 5% magnesium, 0.8% manganese alloy suitable for Gas Metal Arc Welding (GMAW) of a wide range of cast and wrought aluminium alloys eg suitable for a wide range of selected 3XXX, 5XXX, 6XXX and 5XX aluminium alloys. Recommended for the strength welding of 5XXX series of aluminium alloys, such as 5083, used in the fabrication of marine passenger and pleasure craft.

## Physical Description/Properties

Appearance: Solid, silvery, bright drawn metallic wire  
 Melting Point: 640°C  
 Vapour Pressure: Not applicable  
 Specific Gravity: Not applicable  
 Flashpoint: Not applicable  
 Flammability Limits: Not applicable  
 Solubility in Water: Insoluble

## Ingredients:

Chemical Name:	CAS Number:	Proportion
Aluminium	7429-90-5	Balance
Magnesium	7439-95-4	4.3-5.5%
Manganese	7439-96-5	0.5-1.0%
Iron	7439-89-6	0.4%
Silicon	7440-21-3	0.4%
Zinc	7440-66-6	0.25%
Copper	7440-50-8	0.1%
Titanium	7440-32-6	0.15%
Chromium	7440-47-3	0.05-0.25%
Others Each		0.05%
Others Total		0.15%

## HEALTH HAZARD INFORMATION

### Health Effects

Electric arc welding may create one or more of the following health hazards:

#### Acute:

Swallowed: Does not present an ingestion hazard.  
 Eye: Arc rays can injure eyes.  
 Welding fumes may be irritating to eyes.  
 Skin: Arc rays can harm skin.  
 Electric shock can kill.  
 Inhaled: Fumes and gases can be dangerous to the health of welders and those in the immediate vicinity.

Aggravation of pre-existing respiratory or allergic conditions may occur in some workers.

Over exposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat or eyes. Over exposure to magnesium oxide fumes can cause upper respiratory tract irritation and metal fume fever. Temporary symptoms can include fever, chills, nausea, vomiting and muscular pain. Exposure to magnesium metal or oxide dust is a low health risk by inhalation. Chromates present in the fume can cause irritation of the respiratory system, damage to lungs and asthma-like symptoms. Manganese fume may cause flu-like symptoms (metal fume fever).

Aluminium dust/fines and fumes are a low health risk by inhalation.

Shielding gases (eg carbon dioxide and inert gases, ie argon and helium) in high concentrations in confined spaces may reduce oxygen in the atmosphere to dangerous levels, resulting in possibly asphyxiation.

**Chronic:** Long term overexposure to welding fumes can lead to siderosis (iron deposits in the lung) and affect pulmonary function.

Long term overexposure to manganese compounds may affect the central nervous system. Symptoms include muscular weakness and tremors similar to Parkinson's Disease. Behavioural changes and changes in handwriting may also appear. May also be associated with pneumonitis (inflammation of lung tissue) and fibrosis (scarring) of lung tissue.

Long term exposure to Chromium and Chromium III Oxide dust can cause scaling, redness, itchiness and a burning sensation on the skin. Exposure to fume containing high concentrations of water-soluble chromium (VI) during the welding of stainless steel in confined spaces has been reported to result in both acute and chronic chrome intoxication, dermatitis and asthma (NOHSC - Welding: Fumes and Gases). Certain insoluble chromium (VI) compounds have been named as established human carcinogens (ACGIH, NOHSC), determined from non-welding occupations.

Chronic exposure to inert dusts of silicon may cause increased airways resistance and contribute to chronic bronchitis.

Chronic overexposure to copper dust/mists may result in blood disorders (anaemia).

#### First Aid

Swallowed: Does not present an ingestion hazard.  
 Eye: If in eyes, **act immediately**, hold eyes open, flood with water for at least 15 minutes - retract eyelids often to ensure adequate irrigation. Immediately transport to a hospital or doctor.  
 Skin: Wash thoroughly with soap and water. Seek medical attention if irritation persists.  
 Inhaled: Remove from exposure and give fresh air. Loosen tight clothing at the neck and waist. Keep patient warm and at rest. Check for clear airway, breathing and presence of pulse. If breathing is weak or has ceased, provide artificial respiration. Immediately transport to a hospital or doctor.

**Advice to Doctor: Treat symptomatically.**

## PRECAUTIONS FOR USE

Exposure Standards: Threshold Limit Values (TLV's):  
 Manganese Dust & compounds (as Mn) - 5mg/m<sup>3</sup> TWA  
 Fume (as Mn) - 1mg/m<sup>3</sup> TWA, 3mg/m<sup>3</sup> STEL

# MATERIAL SAFETY DATA SHEET

Product Type: Autocraft AL5183

Silicon	As fumed silica (SiO <sub>2</sub> ) 2mg/m <sup>3</sup> TWA (as Si) - 10mg/m <sup>3</sup> TWA
Iron	Iron oxide fume (as Fe) 5mg/m <sup>3</sup> TWA
Copper	Dust & Mists (as Cu) 1mg/m <sup>3</sup> TWA, fume 0.2mg/m <sup>3</sup> TWA
Zinc	5mg/m <sup>3</sup> as zinc oxide fume, TWA
Magnesium Oxide	Fume 10mg/m <sup>3</sup> TWA
Aluminium	Fume 5mg/m <sup>3</sup> TWA
Chromium	Dust and fume 0.5mg/m <sup>3</sup> TWA

In addition to complying with these individual exposure standards for specific contaminants where current manual welding processes are used, the fume concentration inside the welder's helmet should not exceed 5mg/m<sup>3</sup> when collected in accordance with the appropriate Australian Standard (AS3640 - Latest Edition).

The "National Exposure Standards [NOHSC:1003 (1991)]" recommended limit for welding fumes not otherwise classified (NOC) is 5mg/m<sup>3</sup>. TLV-TWA's should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

## Engineering Controls: Ventilation

Use enough ventilation and local exhaust to keep fume below the relevant exposure standards in the worker's breathing zone and the general area. The welder should be trained to keep his head out of the fumes. If welding in confined spaces ensure and maintain adequate air and oxygen to avoid asphyxiation from high concentration of shielding gases.

## Personal Protection:

### Respiratory Protection

Use a fume respirator or air supplied respirator when welding in a confined space or where local exhaust or ventilation does not keep exposure below the relevant exposure standards. Refer AS/NZS 1715 and AS/NZS 1716.

### Eye Protection

Wear a helmet or use a face shield with a filter lens. Use a shade which gives just sufficient arc brightness to allow weld pool control. Provide protective screens and flash goggles if necessary to shield others. Refer AS1336, AS1337 and AS1338.

### Clothing

Wear head, hand and body protection which help to prevent injury from UV radiation, sparks and electrical shock. At a minimum, this includes welder's gloves and protective face shield and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing.

Welders should not touch live electrical parts and should insulate themselves from the work and ground.

## Flammability:

**Non flammable.**

## SAFE HANDLING INFORMATION

Storage and Transport: Store in a dry area. No other special requirements.

Spills and Disposal: Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal, state and local regulations.

Fire/Explosion Hazard: This product is not flammable. However, the welding arc and sparks can ignite combustibles, therefore such materials should be kept away from areas where welding is taking place.

## OTHER INFORMATION

### Hazardous Decomposition Products: Welding fumes

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating or galvanising), the number of welders and the volume of work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapours from cleaning and degreasing activities).

When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in the ingredients section. Fume and gas decomposition products, and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode. Also, new compounds not in the electrodes may form. Decomposition products of normal operation include those originating from the volatilisation, reaction, or oxidation of the materials shown in the ingredients section, plus those from the base metal and coating, etc as noted above.

Reasonably expected decomposition products from normal use of these products include a complex of the oxides of the materials listed in the ingredients section as well as carbon monoxide, carbon dioxide, ozone and nitrogen oxides. The fume limit for manganese may be reached before the general limit for welding fumes (5mg/m<sup>3</sup>) is reached.

One recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample inside the welder's helmet if worn or in the worker's breathing zone. Refer AS3853 and also WTIA Technical Note 7.

The information set out here has been compiled from standard reference materials and from CIGWELD's test data for the exclusive purpose of providing information about its own products and CIGWELD believes it is accurate. CIGWELD does not represent that these hazard precautions or procedures are the only ones available. Each user should properly assess the information in the specific context of the intended application. Although care has been taken in compiling this information, CIGWELD will not be liable for any direct, indirect, special or consequential damage (including damage resulting from any negligence by CIGWELD), arising out of or connected with the use of or reliance on this information except for liability imposed by legislation (including the Trade Practices Act) that cannot be excluded. CIGWELD does not make or give any express or implied warranties or representations except for those that are implied by legislation (including the Trade Practices Act) that cannot be excluded.

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