

# SAFETY DATA SHEET

**ULTRAMAG S6**

Infosafe No.: HXED9  
ISSUED Date : 20/10/2020  
ISSUED by: THE LINCOLN ELECTRIC CO.  
(AUSTRALIA) PTY. LTD.

## 1. IDENTIFICATION

### GHS Product Identifier

ULTRAMAG S6

### Company Name

THE LINCOLN ELECTRIC CO. (AUSTRALIA) PTY. LTD.

### Address

35 Bryant Street Padstow  
NSW AUSTRALIA

### Telephone/Fax Number

Tel: (02) 9772 7240

### Emergency phone number

1300 728 720

### Recommended use of the chemical and restrictions on use

Carbon Steel Welding Wire

### Other Names

Name	Product Code
LINCOLN ER70S-6	

## 2. HAZARD IDENTIFICATION

### GHS classification of the substance/mixture

Not classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) including Work, Health and Safety Regulations, Australia.

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail. (7th edition)

### IMPORTANT NOTE(S)

#### EXPOSURE DURING USE

As shipped, these electrodes have no known toxicological properties other than causing allergic reactions to individuals sensitive to the metal(s) contained in these welding products.

When this product is used in a welding process the following hazards are most important:

#### Heat:

Splatter, hot, or molten metals can cause burns and start fires. Welding arc and sparks can ignite combustible and flammable materials.

#### Radiation:

Arc rays can damage skin and eyes.

#### Electrical:

Electric shock can kill.

#### Fumes:

Welding can generate fumes, mists, dust, vapours and gases, including metallic oxides, carbon dioxide, carbon monoxide, nitrogen

dioxide, ozone, as well as solid particles, or other constituents from the consumables, base metal, or base metal coating. The amounts and types of fumes produced vary greatly depending on the process involved and the materials being used such as: metals, solvents, flux, paint and plastics.

The health effects of exposure to fumes, dust, vapour and gases can vary. Effects can include irritation of the upper respiratory tract (nose and throat), tightness in the chest, asphyxiation, asthma, wheezing, metal fume fever, lung damage, bronchitis, cancer, pneumonia or emphysema.

The short-term overexposure to fume and gases from welding may result in: metal fume fever, dizziness, nausea or dryness or irritant to the respiratory systems or eyes. May aggravate pre-existing respiratory problems.

The long-term overexposure to fume and gases from welding can lead to: siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects.

Welding fumes may contain substances that are suspected of being carcinogenic.

Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.

#### Other Information

This product contains Ototoxic substances. Combination with noise exposure, even at safe levels, could still cause auditory injuries and hearing loss.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

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#### Ingredients

Name	CAS	Proportion
Iron	7439-89-6	90-100 %
Manganese	7439-96-5	1 %
Copper	7440-50-8	<0.5 %

#### Preparation Description

The electrode is 100% carbon steel wire consisting of the above ingredients.

### 4. FIRST-AID MEASURES

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#### Inhalation

Remove from dust or fume exposure. Keep at rest until recovered. If symptoms persist seek medical attention. Employ CPR (Cardiopulmonary Resuscitation technique) if the patient is not breathing. Seek immediate medical attention.

#### Ingestion

Not considered a potential route of exposure for intact product, when used as intended. Ingestion may occur when food or drinks are in contact with metal fume or powder and during hand-to-mouth activities such as drinking, eating and smoking, etc. If ingested, do not induce vomiting. Wash out mouth thoroughly with water. If symptoms develop seek medical attention.

#### Skin

Wash hands after contact with material. In the event of severe arc radiation exposure seek immediate medical attention.

#### Eye contact

If dust in eyes, hold eyelids apart and flush the eyes continuously with running water. Continue flushing for several minutes until all contaminants are washed out completely. If symptoms develop and persist seek medical attention. In the event of severe arc radiation exposure seek immediate medical attention.

#### First Aid Facilities

Eyewash and normal washroom facilities.

#### Advice to Doctor

Treat symptomatically.

#### Other Information

For advice, contact a Poisons Information Centre (Phone eg Australia 131 126).

In addition to standard training, first-aid responders in welding situations should know about the symptoms of electric shock, arc flash and the consequences of exposure to heated coatings on metals.

## 5. FIRE-FIGHTING MEASURES

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### Suitable Extinguishing Media

Use extinguishing media that are suitable for the materials in the surrounding environment.

### Hazards from Combustion Products

Carbon monoxide, carbon dioxide, ozone, oxides of nitrogen as well as solid particles may be released during decomposition whilst in use.

### Specific Hazards Arising From The Chemical

This product is not combustible. Welding arcs can ignite surrounding combustible and flammable material.

### Decomposition Temperature

Not available

### Precautions in connection with Fire

Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

## 6. ACCIDENTAL RELEASE MEASURES

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### Emergency Procedures

If airborne dust/fume(s) are present, use adequate engineering controls. Wear appropriate personal protective equipment and clothing to prevent exposure. Collect the material immediately and place into a suitable labelled container. Dispose of waste according to the applicable local and national regulations. If contamination of sewers or waterways occurs inform the local water and waste management authorities in accordance with local regulations.

## 7. HANDLING AND STORAGE

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### Precautions for Safe Handling

Ensure that the product is undamaged and in its original packaging. Ensure correct lifting posture when handling packages that are heavier than 15 kgs. Limit handling and movement of the product and unnecessary personal contact. When handling, do not eat, drink or smoke and wash hands with a suitable hand sanitizer when finished.

### Conditions for safe storage, including any incompatibilities

Store the product in its original sealed package or container in a cool, dry, low humidity environment and in compliance with any local or national regulations. Ensure that the original product labels and warning labels are intact and clearly visible. Do not store with incompatible materials and ensure that the product is protected from physical damage while in storage.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Occupational exposure limit values

No exposure value assigned for this material. However, the available exposure limits for ingredients are listed below:

Manganese (as Mn)

TWA : 1 mg/m<sup>3</sup> (dust/fume)

STEL: 3 mg/m<sup>3</sup> (fume)

Copper

TWA: 1 mg/m<sup>3</sup> (dust and mist)

TWA: 0.2 mg/m<sup>3</sup> (fume)

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

Source: Safe Work Australia

### Biological Limit Values

No biological limits allocated.

### Appropriate Engineering Controls

Provide sufficient ventilation to keep airborne levels below the exposure limits. Where fumes/dusts are generated, particularly in enclosed areas, and natural ventilation is inadequate, a local exhaust ventilation system/forced dilution ventilation is required. Use fully insulated electrode holders. Install non-flammable screens and partitions. Use signs to warn that welding is occurring. Workers directly involved in the welding process are at greatest risk, however, other workers in the workplace and passers-by could also be exposed to radiation. If welding is being carried out, entry into the work area is not permitted unless safeguards are used such as PPE.

Provide PPE including filter shades for goggles and face shields to protect the eyes from radiation. Gloves and other protective clothing should be worn to cover exposed skin.

Avoid work being carried out in oxygen-enriched (over 23 per cent) or oxygen-depleted (under 19.5 per cent) atmospheres.

### **Respiratory Protection**

If engineering controls are not effective in controlling airborne exposure then an approved respirator (such as P3) with a replaceable dust/particulate/fume filter should be used.

Reference should be made to Australian Standards AS/NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

### **Eye Protection**

Use flash goggles or face shield with filter lens shade 10 or darker to avoid accidental arc radiation exposure. Final choice of appropriate eye/ face protection will vary according to individual circumstances i. e. methods of handling or engineering controls and according to risk assessments undertaken.

Eye protection should conform with Australian/New Zealand Standard AS/NZS 1338:(series) Filters for eye protectors, AS/NZS 1338.1: Filters for eye protectors - Filters for protection against radiation generated in welding and allied operations, AS/NZS 1336: Eye and face protection - Guidelines and Australian/New Zealand Standard AS/NZS 1337 (series) - Eye Protectors for Industrial Applications.

### **Hand Protection**

Wear gloves specifically made for welding purposes. Gloves should be fire resistant and protect exposed skin on the hands and wrists. Final choice of appropriate gloves will vary according to individual circumstances i.e. methods of handling or according to risk assessments undertaken.

Reference should be made to AS/NZS 2161.1: Occupational protective gloves - Selection, use and maintenance.

### **Personal Protective Equipment**

Welders should wear protective clothing and eye protection appropriate to electric arc welding. Under certain conditions, welding slag can detach and fly off. Those in close proximity to welds should protect themselves from flying slag.

### **Footwear**

Foot protection should be non-slip and heat and fire resistant. Avoid using foot protection that has the potential to capture hot sparks and metal debris, for example in laces or in open style shoes.

For further information refer to: AS/NZS 2210: (series) Occupational protective footwear and AS/NZS 2210.1: Safety, protective and occupational footwear - Guide to selection, care and use.

### **Body Protection**

Wear approved body protection during arc welding which help to prevent injury from UV radiation, sparks and electrical shock. This may include arm protectors, apron, hats, shoulder protection, as well as dark substantial clothing. It is advisable that a local supplier of personal protective clothing is consulted regarding the choice of material.

For further information refer to: AS/NZS 4502: (series) Methods for evaluating clothing for protection against heat and fire.

### **Electric Shock**

Electric shock may result in serious burns or death by electrocution. Special attention should be paid to the condition of the electrical connections, cable and electrode holder insulation and the presence of humid, damp and wet environments.

Before welding be familiar with the emergency procedures should a person suffer an electric shock. Inspect the condition of the welding equipment including, the proper operation of power switches, that connections and terminals are tight and properly insulated and ensure the insulation on power and welding cables is in good condition. Ensure that circuit protection components such as fuses, circuit breakers and residual current devices (RSD) are in place and operating correctly. Where manual arc welding power supplies have a voltage reduction device (VRD) fitted ensure that it is turned on. Use fully insulated electrode holders. Prevent electrode holders coming in contact with conductive surfaces connected to welding machine earth causing unexpected arcing. Do not connect or change welding cables before switching off the power at the mains.

During welding, electrodes or welding wires should not be handled with bare hands and the electrode holder is not be held under the armpit. Where practical, stand, lie or sit on non-conducting material while welding. In humid conditions minimise wet clothing by allowing time to dry during breaks, change clothing and gloves frequently. Minimise perspiration by using a fan or an air fed welding mask.

### **Welding Arc Radiation**

The welding arc emits intense UV radiation that can cause eye irritation and burns to exposed skin. UV rays may travel significant distances and reflect from white and shiny surfaces. Both the welding operator, workers in the work place and passers-by need to adopt the appropriate personal protective equipment (PPE).

### **Fumes and Gases**

Fumes and gases generated from the welding process can be dangerous. The level of fume generated will vary depending on the welding process and the welding parameters used. In addition gases such as helium, argon, and carbon dioxide can displace oxygen in the air and lead to suffocation, particularly when welding in confined spaces. Carbon monoxide gas can form posing another asphyxiation hazard.

Workers should position themselves to avoid breathing welding fumes and gases and adopt ventilation, natural or forced fresh air movement, to reduce exposure to fume and gas emissions to acceptable levels. Portable welding helmet mounted air fed ventilation systems can be used to remove fumes and gases from the welder's breathing zone. Keep fume hoods, fume extractor guns and vacuum nozzles as close as possible to the fume source to minimise emission levels in the surrounding work area.

Working outdoors or in open spaces does not guarantee adequate ventilation. Respiration protection may be required if work practices and ventilation do not reduce the emissions to safe levels. Alternatively consider using a lower fume generating welding consumable or welding process.

### **Fire and Explosions**

Do not weld on containers which have held combustible or flammable materials unless procedures for the safe welding and cutting of such containers are carefully followed. Remove flammable materials from welding area or shield from sparks and heat. Keep a fire extinguisher in the welding area. Wear flame resistant clothing and headgear. Purge all traces of flammable or combustible materials from drums, vessels and tanks which are to be welded prior to welding, and preferably filled with an inert substance such as nitrogen gas or water. Use fire resistant barriers to prevent welding sparks accidentally reaching flammable and combustible materials. Check work areas are well ventilated to prevent accumulation of flammable vapours.

### **Hearing Protection**

Ear plugs or ear muffs may be required to minimise the risks of noise. For further information refer to: AS/NZS 1270: Acoustics - Hearing protectors and AS/NZS 1269.3: Occupational noise management – Hearing protector program.

### **Screens**

Avoid exposure to the rays of an arc during electric welding operations. Opaque or appropriate translucent screens can be used to protect the health and safety of people within the vicinity of welding. For further information refer to: AS/NZS 3957: Light-transmitting screens and curtains for welding operations.

### **General Welding Safety Precautions**

Read and understand the manufacturer's instructions and the precautionary label on the product. According to Safe Work Australia Welding Processes Code of Practice refer to Health and Safety in Welding WTIA Technical Note No.7 for more details on precautions such as ventilation, respiratory protection and protective clothing.

### **Other Information**

The available exposure limits for gases/fumes that may be formed during welding are listed below:

#### Ozone

TWA: 0.1ppm, 0.2mg/m<sup>3</sup> peak limitation

#### Nitrogen dioxide

TWA: 3 ppm, 5.6 mg/m<sup>3</sup>

STEL: 5 ppm, 9.4 mg/m<sup>3</sup>

#### Carbon dioxide

TWA: 5000 ppm, 9000 mg/m<sup>3</sup>

STEL: 30,000 ppm, 54,000 mg/m<sup>3</sup>

#### Carbon monoxide

TWA: 30 ppm, 34 mg/m<sup>3</sup>

#### Iron oxide (fume)

TWA: 5 mg/m<sup>3</sup>

#### Welding fumes (not otherwise classified)

TWA: 5 mg/m<sup>3</sup>

TWA (Time Weighted Average): The average airborne concentration of a particular substance when calculated over a normal eight-hour working day, for a five-day week.

STEL (Short Term Exposure Limit): The average airborne concentration over a 15 minute period which should not be exceeded at any time during a normal eight-hour workday.

Peak Limitation: A ceiling concentration which should not be exceeded over a measurement period which should be as short as possible but not exceeding 15 minutes.

Source: Safe Work Australia

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Properties	Description	Properties	Description
Form	Welding Electrode	Appearance	Solid welding wire
Odour	Not available	Decomposition Temperature	Not available
Melting Point	Not available	Boiling Point	Not available
Solubility in Water	Insoluble	Specific Gravity	Not available
pH	Not applicable	Vapour Pressure	Not available
Vapour Density (Air=1)	Not available	Evaporation Rate	Not available
Odour Threshold	Not available	Viscosity	Not applicable
Partition Coefficient: n-octanol/water	Not available	Flash Point	Not applicable
Flammability	This product is not combustible. Welding arcs can ignite surrounding combustible material.	Auto-Ignition Temperature	Not applicable
Explosion Limit - Upper	Not applicable	Explosion Limit - Lower	Not applicable

## 10. STABILITY AND REACTIVITY

### Reactivity

Reacts with incompatible materials.

### Chemical Stability

Stable under normal conditions of storage and handling.

### Conditions to Avoid

Avoid heat or contamination.

### Incompatible materials

Strong acids. Strong oxidizing substances. Strong bases.

### Hazardous Decomposition Products

Welding fumes and gases cannot be classified straightforwardly. 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 the 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 will vary in proportion and form to the ingredients listed in section 3.

Fume from normal operation include those originating from the volatilisation, reaction, or oxidation of the materials shown in section 3, plus those from the base metal and coating etc., as noted above. Reasonably expected fume constituents produced during arc welding include: the oxides of iron, manganese and other metals present in the welding consumable or base metal.

Gaseous reaction products may include carbon monoxide and carbon dioxide, ozone and nitrogen oxides, which may be formed by the radiation from the arc.

Reasonably expected fume constituents of this product would include: Primarily iron oxide and fluorides; secondarily complex oxides of aluminum, calcium, chromium, magnesium, manganese, nickel, potassium, silicon, sodium and zirconium when used with recommended Lincolnweld fluxes. Primarily iron oxide, manganese oxide, and complex chromium oxides; secondarily complex oxides of molybdenum (316 types) and nickel when used with gas shielding.

#### **Possibility of hazardous reactions**

Contact with chemical substances like acids or bases could cause generation of gas.

## **11. TOXICOLOGICAL INFORMATION**

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### **Toxicology Information**

No toxicity data is available for this specific product. During welding, this product will emit potentially irritating fumes and dusts including metal oxides.

#### **Ingestion**

Ingestion is unlikely due to the form of the product. Ingestion of food or drink contaminated by welding fume(s) may irritate the gastric tract causing nausea and vomiting.

#### **Inhalation**

Short-term (acute) overexposure to welding fumes may result in: metal fume fever, dizziness, nausea and dryness or irritation of nose, throat, or eyes. May aggravate pre-existing respiratory problems (eg. asthma, emphysema). Long-term overexposure to welding fumes can lead to siderosis (iron deposits in lung), central nervous system effects, bronchitis and other pulmonary effects.

#### **Skin**

Skin contact may cause irritation resulting in redness and itching. Arc rays can burn skin. Skin cancer has been reported.

#### **Eye**

Eye contact may cause irritation and result in mild abrasion. Arc rays from arc welding can injure eyes. Eye disorders may be caused by exposure to intense UV and infra-red radiation while welding. Exposure to the eyes causes 'arc eye' or 'welders' flash' which is a painful inflammation of the cornea. The cornea can repair itself in one to two days, however, if the cornea becomes infected it may lead to some loss of vision.

#### **Respiratory sensitisation**

Not expected to be a respiratory sensitiser.

#### **Skin Sensitisation**

Not expected to be a skin sensitiser.

#### **Germ cell mutagenicity**

Not considered to be a mutagenic hazard.

#### **Carcinogenicity**

Not considered to be a carcinogenic hazard.

Welding fumes are listed as a Group 1: Carcinogenic to humans according to International Agency for Research on Cancer (IARC).

Iron fumes are listed as a Group 3: Not classifiable as to carcinogenicity to humans according to International Agency for Research on Cancer (IARC).

#### **Reproductive Toxicity**

Not considered to be toxic to reproduction.

#### **STOT-single exposure**

Not expected to cause toxicity to a specific target organ.

#### **STOT-repeated exposure**

Not expected to cause toxicity to a specific target organ.

#### **Aspiration Hazard**

Not expected to be an aspiration hazard.

#### **Other Information**

Source and Health Effects of Welding Fumes:

Carbon monoxide is formed in the arc and is absorbed readily into the bloodstream, causing headaches, dizziness or muscular weakness, as well as ototoxicity which produces a risk of hearing loss. High concentrations may result in unconsciousness and death.

Nitrogen oxides are formed in the arc and may cause eye, nose and throat irritation in low concentrations. Abnormal fluid in the lung and other serious effects can occur at higher concentrations. Chronic effects include lung problems such as emphysema. Oxygen deficiency if welding in confined spaces, and air displacement by shielding gas may cause dizziness, mental confusion, asphyxiation and death.

Ozone formed in the welding arc during open arc welding processes include: Manual Metal Arc Welding (MMAW), Flux Cored Arc Welding (FCAW), Metal Inert Gas (MIG) and Tungsten Inert Gas (TIG) processes. This may cause acute effects such as fluid in the lungs. Very low concentrations (e.g., one part per million) cause headaches and dryness of the eyes. Chronic effects include significant changes in lung function.

Iron oxides will be produced in all iron or steel welding processes which can result in siderosis. Siderosis is a benign form of lung disease caused by particles deposited in the lungs. Acute symptoms include irritation of the nose and lungs. Tends to clear up when exposure stops.

Overexposure to manganese fumes may affect the brain and central nervous system, resulting in poor coordination, difficulty in speaking and arm or leg tremor. This condition can be irreversible. Manganese fumes can cause "Metal Fume Fever". Chronic effects may include central nervous system problems as well as ototoxicity which may result in hearing loss.

This product contains Ototoxic substances. Combination with noise exposure, even at safe levels, could still cause auditory injuries and hearing loss.

## 12. ECOLOGICAL INFORMATION

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### **Ecotoxicity**

No toxicity data available for this material.

### **Persistence and degradability**

Not available

### **Mobility**

Not available

### **Bioaccumulative Potential**

Not available

### **Other Adverse Effects**

Not available

### **Environmental Protection**

Prevent this material entering waterways, drains and sewers.

## 13. DISPOSAL CONSIDERATIONS

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### **Disposal considerations**

The disposal of the spilled or waste material must be done in accordance with applicable local and national regulations.

## 14. TRANSPORT INFORMATION

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### **Transport Information**

Road and Rail Transport (ADG Code):

Not classified as Dangerous Goods according to the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code) (7th edition).

Marine Transport (IMO/IMDG):

Not classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea.

Air Transport (ICAO/IATA):

Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air.



**U.N. Number**

None Allocated

**UN proper shipping name**

None Allocated

**Transport hazard class(es)**

None Allocated

**IMDG Marine pollutant**

No

**Transport in Bulk**

Not available

**Special Precautions for User**

Not available

## 15. REGULATORY INFORMATION

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**Regulatory information**

Not classified as Hazardous according to the Globally Harmonised System of Classification and Labelling of Chemicals (GHS) including Work, Health and Safety Regulations, Australia.

Not classified as a Scheduled Poison according to the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

**Poisons Schedule**

Not Scheduled

## 16. OTHER INFORMATION

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**Date of preparation or last revision of SDS**

SDS Reviewed: October 2020

Supersedes: July 2016

**References**

Preparation of Safety Data Sheets for Hazardous Chemicals Code of Practice.

Standard for the Uniform Scheduling of Medicines and Poisons.

Australian Code for the Transport of Dangerous Goods by Road & Rail.

Model Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants.

Adopted biological exposure determinants, American Conference of Industrial Hygienists (ACGIH).

Globally Harmonised System of Classification and Labelling of Chemicals.

Welding Processes Code of Practice.

OSHA Fact Sheet - Controlling Hazardous Fume and Gases during Welding.

Code of Practice: Managing Noise and Preventing Hearing Loss at Work.

**Contact Person/Point**

(02) 9772 7240

## END OF SDS

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