



WIA AUSTARC 12P

Chemwatch Material Safety Data Sheet
Issue Date: 30-Mar-2006
C317SC

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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

WIA AUSTARC 12P

SYNONYMS

"Product Number 12P20", 12P20M, 12P25, 12P25M, 12P32, 12P32M, 12P40, 12P50, "Welding Industries", "W.I.A. 12P", "rutile type flux coated welding electrode", MMAW, "rutile coated welding rod", "general purpose electrode"

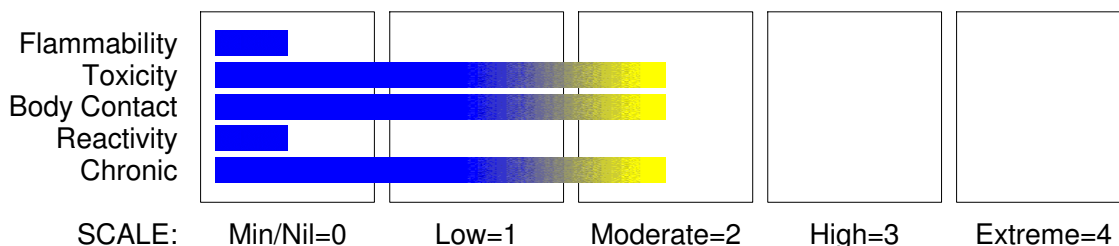
PRODUCT USE

General purpose, rutile type manual metal arc electrode for mild steel. Typical applications include the all positional welding of galvanized gates/fences, steel furniture, trailers and wrought iron work.

SUPPLIER

Company: Welding Industries Of Australia
Address:
5 Allen Street
Melrose Park
SA, 5039
AUS
Telephone: +61 8 8276 6494
Telephone: 1300 300 884
Fax: 1300 301 884

HAZARD RATINGS



Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

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

POISONS SCHEDULE

None

RISK

Inhalation and/or ingestion may produce health damage*.
Cumulative effects may result following exposure*.

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Section 2 - HAZARDS IDENTIFICATION

May produce discomfort of the respiratory system*.

Limited evidence of a carcinogenic effect*.

* (limited evidence).

SAFETY

Use only in well ventilated areas.

Keep container in a well ventilated place.

Take off immediately all contaminated clothing.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
consumable electrode which on use generates welding fumes as iron oxide fume	Not avail.	
manganese fume	1309-37-1	43.5
silica welding fumes	7439-96-5	8
titanium, potassium & aluminium oxides fume	69012-64-2	24
action of arc on air may generate ozone		10-30
nitrogen oxides	10028-15-6	Mixture

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

- Particulate bodies from welding spatter may be removed carefully.
- DO NOT attempt to remove particles attached to or embedded in eye.
- Lay victim down, on stretcher if available and pad BOTH eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.
- Seek urgent medical assistance, or transport to hospital.
- For "arc eye", i.e. welding flash or UV light burns to the eye:
- Place eye pads or light clean dressings over both eyes.
- Seek medical assistance.

SKIN

If skin or hair contact occurs:

- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.

INHALED

Fumes evolved during welding operations may be irritating to the upper-respiratory tract and may be harmful if inhaled.

- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

Copper, magnesium, aluminium, antimony, iron, manganese, nickel, zinc (and their compounds) in welding, brazing, galvanising or smelting operations all give rise to thermally produced particulates of smaller dimension than may be produced if the metals are divided mechanically. Where insufficient ventilation or

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Section 4 - FIRST AID MEASURES

respiratory protection is available these particulates may produce "metal fume fever" in workers from an acute or long term exposure.

- Onset occurs in 4-6 hours generally on the evening following exposure. Tolerance develops in workers but may be lost over the weekend. (Monday Morning Fever)
- Pulmonary function tests may indicate reduced lung volumes, small airway obstruction and decreased carbon monoxide diffusing capacity but these abnormalities resolve after several months.
- Although mildly elevated urinary levels of heavy metal may occur they do not correlate with clinical effects.
- The general approach to treatment is recognition of the disease, supportive care and prevention of exposure.
- Seriously symptomatic patients should receive chest x-rays, have arterial blood gases determined and be observed for the development of tracheobronchitis and pulmonary edema.

[Ellenhorn and Barceloux: Medical Toxicology].

For acute or short term repeated exposures to iron and its derivatives:

- Always treat symptoms rather than history.
- In general, however, toxic doses exceed 20 mg/kg of ingested material (as elemental iron) with lethal doses exceeding 180 mg/kg.
- Control of iron stores depend on variation in absorption rather than excretion. Absorption occurs through aspiration, ingestion and burned skin.
- Hepatic damage may progress to failure with hypoprothrombinaemia and hypoglycaemia. Hepatorenal syndrome may occur.
- Iron intoxication may also result in decreased cardiac output and increased cardiac pooling which subsequently produces hypotension.
- Serum iron should be analysed in symptomatic patients. Serum iron levels (2-4 hrs post-ingestion) greater than 100 ug/dL indicate poisoning with levels, in excess of 350 ug/dL, being potentially serious. Emesis or lavage (for obtunded patients with no gag reflex) are the usual means of decontamination.
- Activated charcoal does not effectively bind iron.
- Catharsis (using sodium sulfate or magnesium sulfate) may only be used if the patient already has diarrhoea.
- Deferoxamine is a specific chelator of ferric (3+) iron and is currently the antidote of choice. It should be administered parenterally. [Ellenhorn and Barceloux: Medical Toxicology].

Both dermal and oral toxicity of manganese salts is low because of limited solubility of manganese. No known permanent pulmonary sequelae develop after acute manganese exposure. Treatment is supportive.

[Ellenhorn and Barceloux: Medical Toxicology]

In clinical trials with miners exposed to manganese-containing dusts, L-dopa relieved extrapyramidal symptoms of both hypo kinetic and dystonic patients. For short periods of time symptoms could also be controlled with scopolamine and amphetamine. BAL and calcium EDTA prove ineffective.

[Gosselin et al: Clinical Toxicology of Commercial Products.].

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.

Product is not combustible. No special firefighting procedures required.

FIRE/EXPLOSION HAZARD

Non combustible.

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Section 5 - FIRE FIGHTING MEASURES

Welding arc and metal sparks can ignite combustibles.

FIRE INCOMPATIBILITY

None known.

HAZCHEM

None

Personal Protective Equipment

Breathing apparatus.

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Wear impervious gloves and safety glasses.
Use dry clean up procedures and avoid generating dust.
Place in suitable containers for disposal.

MAJOR SPILLS

Minor hazard.

- Clear area of personnel.
- Alert Fire Brigade and tell them location and nature of hazard.
- Control personal contact by using protective equipment if risk of overexposure exists.
- Prevent, by any means available, spillage from entering drains or water courses.
- Contain spill/secure load if safe to do so.
- Bundle/collect recoverable product and label for recycling.
- Collect remaining product and place in appropriate containers for disposal.
- Clean up/sweep up area. Water may be required.
- If contamination of drains or waterways occurs, advise emergency services.

EMERGENCY RESPONSE PLANNING GUIDELINES (ERPG)

The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour WITHOUT experiencing or developing

life-threatening health effects is:

iron oxide fume	500 mg/m ³
silica welding fumes	50 mg/m ³

irreversible or other serious effects or symptoms which could impair an individual's ability to take protective action is:

iron oxide fume	25 mg/m ³
silica welding fumes	10 mg/m ³

other than mild, transient adverse effects without perceiving a clearly defined odour is:

iron oxide fume	15 mg/m ³
silica welding fumes	6 mg/m ³

The threshold concentration below which most people will experience no appreciable risk of health effects:

iron oxide fume	10 mg/m ³
silica welding fumes	2 mg/m ³

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Section 6 - ACCIDENTAL RELEASE MEASURES

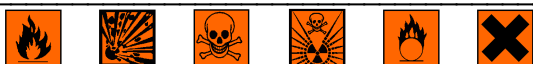
American Industrial Hygiene Association (AIHA)

Ingredients considered according to the following cutoffs

Very Toxic (T+)	$\geq 0.1\%$	Toxic (T)	$\geq 3.0\%$
R50	$\geq 0.25\%$	Corrosive (C)	$\geq 5.0\%$
R51	$\geq 2.5\%$		
else	$\geq 10\%$		

where percentage is percentage of ingredient found in the mixture

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



+ + + + + +

+: May be stored together

O: May be stored together with specific precautions

X: Must not be stored together

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

Earth all lines and equipment.

- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

Packaging as recommended by manufacturer.

- Check that containers are clearly labelled.

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.
carton

STORAGE INCOMPATIBILITY

Keep dry.

Welding electrodes should not be allowed to come into contact with strong acids or other substances which are corrosive to metals.

STORAGE REQUIREMENTS

- Store in original containers.

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Section 7 - HANDLING AND STORAGE

- Keep containers securely sealed.
- Store in a cool, dry, well-ventilated area.
- Store away from incompatible materials and foodstuff containers.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storing and handling recommendations.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL m5/m ³	Peak ppm	Peak mg/m ³
Australia Exposure Standards	iron oxide fume		5				
Australia Exposure Standards	iron oxide fume		10				
Australia Exposure Standards	manganese fume		1		3		
Australia Exposure Standards	manganese fume		1				
Australia Exposure Standards	ozone					0.1	0.2

The following materials had no OELs on our record under the following CAS or Chemwatch (CW) numbers
WIA Austarc 12P: No data available for CW:25231
welding fumes: No data available for CW:35201
manganese fume: No data available for CAS:7439-96-5
silica welding fumes: No data available for CAS:69012-64-2
nitrogen oxides: No data available for
Mixture: No data available for

EMERGENCY EXPOSURE LIMITS

Material	Original IDLH Value (ppm)	Original IDLH Value (mg/m ³)	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
iron oxide fume	N.E.	N.E.	2,500	
manganese fume	N.E.	N.E.	500	
ozone	10			5

None assigned. Refer to individual constituents.

INGREDIENT DATA

WELDING FUMES:

In addition to complying with any individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet should not exceed 5 mg/m³, when collected in accordance with the appropriate standard (AS 3640, for example).

ES* TWA: 5 mg/m³

TLV* TWA: 5 mg/m³, B2 (a substance of variable composition)

OES* TWA: 5 mg/m³

Most welding, even with primitive ventilation, does not produce exposures inside the welding helmet above 5 mg/m³. That which does should be controlled (ACGIH).

Inspirable dust concentrations in a workers breathing zone shall be collected and measured in accordance with AS 3640, for example. Metal content can be analytically determined by OSHA Method ID25 (ICP-AES) after total digestion of filters and dissolution of captured metals. Sampling of the Respirable Dust fraction requires cyclone separator devices (elutriators) and procedures to

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

comply with AS 2985 (for example).

IRON OXIDE FUME:

ES* TWA: 5 mg/m³ (as Fe in fumes and gases from welding and cutting)

TLV* TWA: 5 mg/m³ (as Fe) A4

NOTE: This substance has been classified by the ACGIH as A4 NOT classifiable as causing Cancer in humans.

OES* TWA: 5 mg/m³; STEL: 10 mg/m³ (as Fe)

MANGANESE FUME:

ES* TWA: 1 mg/m³ STEL: 3 mg/m³

OES* TWA: 1 mg/m³; STEL: 3 mg/m³ (as Mn)

SILICA WELDING FUMES:

Not available. Refer to individual constituents.

OZONE:

NOTE: Detector tubes for ozone, measuring in excess of 0.05 ppm, are commercially available.

Exposure at 0.2 ppm appears to produce mild acute but not cumulative effects. It is thought that exposures of the order of 0.1 ppm will be tolerated by most workers including asthmatics. Chronic exposure at 0.1 ppm or more can induce significant adverse effects in the lower respiratory tract of both normal and atopic individuals.

Human exposure for 2 hours at an average concentration of 1.5 ppm ozone resulted in a 20% reduction in timed vital capacity of the lung and other effects. Concentrations of ozone in excess of a few tenths ppm cause occasional discomfort to exposed individuals manifest as headache, dryness of the throat and mucous membranes of the eyes and nose following exposures of short duration.

Exposure to ozone during moderate to heavy work loads results in significantly decreased forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) at 0.12 ppm; this effect is greater at higher concentrations.

NITROGEN OXIDES:

Data for nitrogen dioxide:

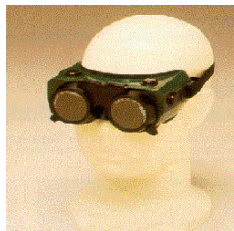
TLV TWA: 3 ppm 6 mg/m³ STEL: 5 ppm 10 mg/m³

ES TWA: 3 ppm 5.6 mg/m³ STEL: 5 ppm 9.4 mg/m³

IDLH Level: 50 ppm

NOTE: Detector tubes for nitrogen dioxide, measuring in excess of 0.5 ppm, are commercially available.

PERSONAL PROTECTION



EYE

Welding helmet with suitable filter. Welding hand shield with suitable filter.

- 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

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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].

For most open welding/brazing operations, goggles, even with appropriate filters, will not afford sufficient facial protection for operators. Where possible use welding helmets or handshields corresponding to AS 1336 and AS 1338 which provide the maximum possible facial protection from flying particles and fragments. [WRIA-WTIA Technical Note 7].

HANDS/FEET

Welding Gloves
Safety footwear.

RESPIRATOR

Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
10 x ES	P2 Air-line*	-	-
50 x ES	Air-line**	P2 Air-line*	PAPR-P2
100 x ES	-	Air-line**	PAPR-P3

* - Negative pressure demand ** - Continuous flow.

OTHER

Overalls.

- Eyewash unit.

Aprons, sleeves, shoulder covers, leggings or spats of pliable flame resistant leather or other suitable materials may also be required in positions where these areas of the body will encounter hot metal.

ENGINEERING CONTROLS

For manual arc welding operations the nature of ventilation is determined by the location of the work.

- For outdoor work, natural ventilation is generally sufficient.
- For indoor work, conducted in open spaces, use mechanical (general exhaust or plenum) ventilation. (Open work spaces exceed 300 cubic metres per welder)
- For work conducted in limited or confined spaces, mechanical ventilation, using local exhaust systems, is required. (In confined spaces always check that oxygen has not been depleted by excessive rusting of steel or snowflake corrosion of aluminium)

Mechanical or local exhaust ventilation may not be required where the process working time does not exceed 24 mins. (in an 8 hr. shift) provided the work is intermittent (a maximum of 5 mins. every hour). Local exhaust systems must be designed to provide a minimum capture velocity at the fume source, away from the worker, of 0.5 metre/sec.

If risk of inhalation or overexposure exists, wear SAA approved respirator or work in fume hood.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Electrode consisting of a rutile type coating of powdered flux extruded

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Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

around a steel wire. Grey coloured flux with red tip. Cold electrodes are odourless. Insoluble in water.

Weld metal tensile strength 500 MPa; CVN impact value 70J @ 0°C.

PHYSICAL PROPERTIES

Does not mix with water.

Sinks in water.

Molecular Weight: Not applicable.

Melting Range (°C): >1500

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable.

Volatile Component (%vol): Negligible

Relative Vapour Density (air=1): Not available

Lower Explosive Limit (%): Not available

Autoignition Temp (°C): Not available.

State: Manufactured

Boiling Range (°C): Not applicable

Specific Gravity (water=1): >5

pH (as supplied): Not applicable

Vapour Pressure (kPa): Negligible

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not available

Decomposition Temp (°C): Not available.

Section 10 - CHEMICAL STABILITY AND REACTIVITY INFORMATION

CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

Not normally a hazard due to physical form of product.

Considered an unlikely route of entry in commercial/industrial environments.

EYE

Fumes from welding/brazing operations may be irritating to the eyes.

SKIN

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

Fumes evolved during welding operations may be irritating to the upper-respiratory tract and may be harmful if inhaled.

Manganese fume is toxic and produces nervous system effects characterised by tiredness. Acute poisoning is rare although acute inflammation of the lungs may occur. A chemical pneumonia may also result from frequent exposure. Inhalation of freshly formed metal oxide particles sized below 1.5 microns and generally between 0.02 to 0.05 microns may result in "metal fume fever". Symptoms may be delayed for up to 12 hours and begin with the sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalised feeling of malaise. Mild to severe

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Section 11 - TOXICOLOGICAL INFORMATION

headache, nausea, occasional vomiting, fever or chills, exaggerated mental activity, profuse sweating, diarrhoea, excessive urination and prostration may also occur. Tolerance to the fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours following removal from exposure. Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

CHRONIC HEALTH EFFECTS

Principal route of exposure is inhalation of welding fumes from electrodes and workpiece. Reaction products arising from electrode core and flux appear as welding fume depending on welding conditions, relative volatilities of metal oxides and any coatings on the workpiece. Studies of lung cancer among welders indicate that they may experience a 30-40% increased risk compared to the general population. Since smoking and exposure to other cancer-causing agents, such as asbestos fibre, may influence these results, it is not clear whether welding, in fact, represents a significant lung cancer risk. Whilst mild steel welding represents little risk, the stainless steel welder, exposed to chromium and nickel fume, may be at risk and it is this factor which may account for the overall increase in lung cancer incidence among welders. Cold isolated electrodes are relatively harmless. Welding fume with high levels of ferrous materials may lead to particle deposition in the lungs (siderosis) after long exposure. This clears up when exposure stops. Chronic exposure to iron dusts may lead to eye disorders. severe disorders of the nervous system, has been reported in welders working on Mn steels in confined spaces. Silica and silicates in welding fumes are non-crystalline and believed to be non-harmful. Although they may irritate the upper respiratory tract no health disorders in welders are known to result from exposure to fumes of titanium. Other welding process exposures can arise from radiant energy UV flash burns, thermal burns or electric shock The welding arc emits ultraviolet radiation at wavelengths that have the potential to produce skin tumours in animals and in over-exposed individuals, however, no confirmatory studies of this effect in welders have been reported.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.

MATERIAL	CARCINOGEN	SENSITISER	SKIN	REPROTOXIN
iron oxide fume	IARC:Group 3: Not classifiable as to "carcinogenic ity" to humans			
manganese fume				ILOM ILOEI

CARCINOGEN

IARC: International Agency for Research on Cancer (IARC)

Carcinogens: iron oxide fume Category: Group 3: Not classifiable as to carcinogenicity to humans

REPROTOXIN

ILOM: ILO Agents toxic to the male reproductive system: manganese fume

REPROTOXIN

ILOEI: ILO Chemicals in the electronics industry that have toxic effects on reproduction: manganese fume

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Section 12 - ECOLOGICAL INFORMATION

No data

Refer to data for ingredients, which follows:

SILICA WELDING FUMES:

No data

OZONE:

The material is classified as an ecotoxin* because the Fish LC50 (96 hours) is less than or equal to 0.1 mg/l

* Classification of Substances as Ecotoxic (Dangerous to the Environment)

Appendix 8, Table 1

Compiler's Guide for the Preparation of International Chemical Safety Cards:
1993 Commission of the European Communities.

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

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS:UN,IATA,IMDG

Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

None

REGULATIONS

welding fumes (CAS No:Not avail):

No regulations applicable

iron oxide fume (CAS: 1309-37-1) is found on the following regulatory lists;

Australia High Volume Industrial Chemical List (HVICL)

Australia Inventory of Chemical Substances (AICS)

International Agency for Research on Cancer (IARC) Carcinogens

International Council of Chemical Associations (ICCA) - High Production Volume List

OECD Representative List of High Production Volume (HPV) Chemicals

manganese fume (CAS: 7439-96-5) is found on the following regulatory lists;

Australia Inventory of Chemical Substances (AICS)

OECD Representative List of High Production Volume (HPV) Chemicals

silica welding fumes (CAS: 69012-64-2) is found on the following regulatory

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Section 15 - REGULATORY INFORMATION

lists;

Australia Inventory of Chemical Substances (AICS)

OECD Representative List of High Production Volume (HPV) Chemicals

No data available for welding fumes as CAS: Not avail.

No data available for ozone as CAS: 10028-15-6.

No data available for nitrogen oxides as CAS: Mixture.

Section 16 - OTHER INFORMATION

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