

CIGWELD COMWELD AL4043

Chemwatch Material Safety Data Sheet
Issue Date: 12-Dec-2006
NC317ECP

CHEMWATCH 6599-22
Revision No:1
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Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

CIGWELD COMWELD AL4043

SYNONYMS

"Product Code: 321610, 321611, 321612", "Comweld Aluminium, 5% Silicon"

PRODUCT USE

Aluminium- nominal 5% & 10% silicon alloy rods suitable for Gas or Gas Tungsten Arc (GMAW/TIG) welding used extensively for the repair (fractures and blowholes etc) of selected aluminium alloy castings.

SUPPLIER

Company: CIGWELD Pty Ltd
Address:
71 Gower Street
Preston
VIC 3072
AUS
Telephone: (03) 9474 7400
Telephone: 1300 654 674
Emergency Tel: (03) 9474 7400

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

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

POISONS SCHEDULE

None

RISK

Limited evidence of a carcinogenic effect.

SAFETY

Wear suitable protective clothing.
To clean the floor and all objects contaminated by this material, use water and detergent.
Keep away from food, drink and animal feeding stuffs.
If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
aluminium alloy which during use generates welding fumes including aluminium fumes	Not avail.	>60
silica welding fumes	7429-90-5	
iron oxide fume	69012-64-2 1309-37-1	

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

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.

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

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prosthesis such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

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 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].

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

- There is no restriction on the type of extinguisher which may be used.

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Section 5 - FIRE FIGHTING MEASURES

FIRE FIGHTING

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear breathing apparatus plus protective gloves for fire only.
- Prevent, by any means available, spillage from entering drains or water courses.
- Use fire fighting procedures suitable for surrounding area.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

FIRE/EXPLOSION HAZARD

- Non combustible.
- Not considered to be a significant fire risk, however containers may burn.
- In a fire may decompose on heating and produce toxic / corrosive fumes.

FIRE INCOMPATIBILITY

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

Welding arc and metal sparks can ignite combustibles.

HAZCHEM: None

Section 6 - ACCIDENTAL RELEASE MEASURES

EMERGENCY PROCEDURES

MINOR SPILLS

Wear impervious gloves.

Clean up all spills immediately.

Avoid contact with skin and eyes.

Place in suitable containers for disposal.

MAJOR SPILLS

Clear area of personnel.

Wear impervious gloves.

Prevent, by any means available, spillage from entering drains or water courses.

Collect recoverable product into labelled containers for recycling.

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.

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Section 7 - HANDLING AND STORAGE

- 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

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.

STORAGE INCOMPATIBILITY

Segregate from strong acids.

STORAGE REQUIREMENTS

- Keep dry.
- Store under cover.
- Protect containers against physical damage.
- 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 mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC
Australia Exposure Standards	aluminium fumes (Aluminium, pyro powders (as Al))		5					
Australia Exposure Standards	aluminium fumes (Aluminium (welding fumes) (as Al))		5					
Australia Exposure Standards	aluminium fumes (Aluminium (metal dust))		10					
Australia Exposure Standards	iron oxide fume (Iron oxide fume (Fe ₂ O ₃) (as Fe))		5					
Australia Exposure Standards	iron oxide fume (Inspirable dust (Not specified))		10					

The following materials had no OELs on our record under the following CAS or Chemwatch (CW) numbers

- CIGWELD Comweld AL4043 CW:6599-22
- welding fumes: No data available for CW:35201
- silica welding fumes: No data available for CAS:69012-64-2 CW:27313

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
iron oxide fume	2, 500	

ODOUR SAFETY FACTOR (OSF)

Not available. Refer to individual constituents.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

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 comply with AS 2985 (for example).

For each of the following

ALUMINIUM FUMES:

SILICA WELDING FUMES:

IRON OXIDE FUME:

Not 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 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.

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.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required.

For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

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Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Special ventilation requirements apply for processes which result in the generation of aluminium, copper, fluoride, manganese or zinc fume.

- For work conducted outdoors and in open work spaces, the use of mechanical (general exhaust or plenum) ventilation is required as a minimum. (Open work spaces exceed 300 cubic meters per welder)

- For indoor work, conducted in limited or confined work spaces, use of mechanical ventilation by local exhaust systems is mandatory. (In confined spaces always check that oxygen has not been depleted by excessive rusting of steel or snowflake corrosion of aluminium)

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

Solid, silvery, bright drawn metallic wire.

PHYSICAL PROPERTIES

Does not mix with water.

Molecular Weight: Not applicable.

Melting Range (°C): 630

Solubility in water (g/L): Immiscible

pH (1% solution): Not applicable.

Volatile Component (%vol): Not applicable

Relative Vapour Density (air=1): Not applicable

Lower Explosive Limit (%): Not applicable

Autoignition Temp (°C): Not available.

State: Manufactured

Boiling Range (°C): Not applicable

Specific Gravity (water=1): Not Applicable

pH (as supplied): Not applicable

Vapour Pressure (kPa): Not applicable

Evaporation Rate: Not applicable

Flash Point (°C): Not applicable

Upper Explosive Limit (%): Not applicable

Decomposition Temp (°C): Not available.

Viscosity: Not Applicable

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 the physical form of product. The material is a physical irritant to the gastro-intestinal tract.

EYE

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

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Section 11 - TOXICOLOGICAL INFORMATION

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.

Aluminium fume, as aluminium oxide, is a respiratory tract irritant. 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 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.

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.

TOXICITY AND IRRITATION

Not available. Refer to individual constituents.

unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

WELDING FUMES:

Not available. Refer to individual constituents.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

ALUMINIUM FUMES:

No toxicity or irritation data available.

SILICA WELDING FUMES:

TOXICITY

Oral (rat) LD50: 3160 mg/kg

[RTECS]

Reports indicate high/prolonged exposures to amorphous silicas induced lung fibrosis in experimental animals; in some experiments these effects were reversible. [PATTYS]

IRRITATION

No data

The substance is classified by IARC as Group 3:

NOT classifiable as to its carcinogenicity to humans.

Evidence of carcinogenicity may be inadequate or limited in animal testing.

IRON OXIDE FUME:

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The substance is classified by IARC as Group 3:
NOT classifiable as to its carcinogenicity to humans.
Evidence of carcinogenicity may be inadequate or limited in animal testing.
No oral toxicity data.
Substance has been investigated as a tumorigen;
found to be an equivocal tumorigenic agent by RTECS criteria.

MATERIAL	CARCINOGEN	REPROTOXIN	SENSITISER	SKIN
iron oxide fume	IARC:			

CARCINOGEN

IARC: International Agency for Research on Cancer (IARC) Carcinogens: iron oxide fume
Category:

Section 12 - ECOLOGICAL INFORMATION

No data for CIGWELD Comweld AL4043.
Refer to data for ingredients, which follows:

SILICA WELDING FUMES:
No data

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

aluminium fumes (CAS: 7429-90-5) is found on the following regulatory lists;
Australia - Australia New Zealand Food Standards Code - Food Additives - Schedule 1
Permitted uses of food additives by food type
Australia - Australian Capital Territory Environment Protection Regulation
Agricultural Uses (IRRIG) - Physical and chemical quality
Australia - Australian Capital Territory Environment Protection Regulation

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Section 15 - REGULATORY INFORMATION

Agricultural uses (STOCK) - Physical and chemical quality
Australia - Australian Capital Territory Environment Protection Regulation
Pollutants entering waterways - Agricultural uses (Irrig)
Australia - Australian Capital Territory Environment Protection Regulation
Pollutants entering waterways - Agricultural uses (Stock)
Australia - Australian Capital Territory Environment Protection Regulation
Pollutants entering waterways - Domestic water quality
Australia - Australian Capital Territory Environment Protection Regulation
Pollutants entering waterways - Ecosystem maintenance
Australia Exposure Standards
Australia High Volume Industrial Chemical List (HVICL)
Australia Inventory of Chemical Substances (AICS)
OECD Representative List of High Production Volume (HPV) Chemicals
WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established

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

Australia Inventory of Chemical Substances (AICS)
OECD Representative List of High Production Volume (HPV) Chemicals

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

Australia Exposure Standards
Australia High Volume Industrial Chemical List (HVICL)
Australia Inventory of Chemical Substances (AICS)
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule
2
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule
4
Australia Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP) - Schedule
6
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

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

Section 16 - OTHER INFORMATION

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