



AN ESAB BRAND

# Comweld 308L, 309L and 316L Stainless Steel Gas/TIG Rods

## Cigweld Pty Ltd

Chemwatch: 47589

Version No: 8.1

Safety Data Sheet according to WHS Regulations (Hazardous Chemicals) Amendment 2020 and ADG requirements

Chemwatch Hazard Alert Code: 4

Issue Date: 23/12/2022

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S.GHS.AUS.EN.E

### SECTION 1 Identification of the substance / mixture and of the company / undertaking

#### Product Identifier

Product name	Comweld 308L, 309L and 316L Stainless Steel Gas/TIG Rods
Chemical Name	Not Applicable
Synonyms	Comweld 308L, 309L, 316L, 2209 Duplex; Stainless Steel Gas or Gas Tungsten Arc (TIG) Welding Rods
Chemical formula	Not Applicable
Other means of identification	321393, 321394, 321400, 321401, 321403, 321404, 321406, 321407, 322054

#### Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	Consumable stainless steel filler rods used for Gas or Gas Tungsten Arc Welding (GTAW) of stainless steels.
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#### Details of the manufacturer or supplier of the safety data sheet

Registered company name	Cigweld Pty Ltd
Address	71 Gower Street Victoria 3072 Australia
Telephone	+613 9474 7400   +1 1300 654 674
Fax	Not Available
Website	<a href="http://www.cigweld.com.au">www.cigweld.com.au</a>
Email	Not Available

#### Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	Not Available
Other emergency telephone numbers	Not Available

### SECTION 2 Hazards identification

#### Classification of the substance or mixture

**HAZARDOUS CHEMICAL. NON-DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.**


#### Chemwatch Hazard Ratings

	Min	Max
Flammability	0	
Toxicity	2	
Body Contact	1	
Reactivity	0	
Chronic	4	

0 = Minimum  
1 = Low  
2 = Moderate  
3 = High  
4 = Extreme

Poisons Schedule	Not Applicable
Classification <sup>[1]</sup>	Acute Toxicity (Inhalation) Category 4, Carcinogenicity Category 1A
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

## Label elements

Hazard pictogram(s)	
Signal word	<b>Danger</b>

## Hazard statement(s)

<b>H332</b>	Harmful if inhaled.
<b>H350</b>	May cause cancer.

## Precautionary statement(s) Prevention

<b>P201</b>	Obtain special instructions before use.
<b>P271</b>	Use only outdoors or in a well-ventilated area.
<b>P280</b>	Wear protective gloves and protective clothing.
<b>P261</b>	Avoid breathing dust/fumes.

## Precautionary statement(s) Response

<b>P308+P313</b>	IF exposed or concerned: Get medical advice/ attention.
<b>P312</b>	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
<b>P304+P340</b>	IF INHALED: Remove person to fresh air and keep comfortable for breathing.

## Precautionary statement(s) Storage

<b>P405</b>	Store locked up.
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## Precautionary statement(s) Disposal

<b>P501</b>	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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## SECTION 3 Composition / information on ingredients

### Substances

See section below for composition of Mixtures

### Mixtures

CAS No	%[weight]	Name
Not Available		stainlesss steel rod which upon use generates
Not Available	>60	<u>welding fumes</u>
Not Available		including
7440-47-3		<u>chromium fume</u>
7440-02-0		<u>nickel fume</u>
1309-37-1.		<u>iron oxide fume</u>
7439-98-7		<u>molybdenum fume</u>
7439-96-5.		<u>manganese fume</u>
69012-64-2	^	<u>silica welding fumes</u>

**Legend:** 1. Classified by Chemwatch; 2. Classification drawn from HCIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 4. Classification drawn from C&L; \* EU IOELVs available

## SECTION 4 First aid measures

### Description of first aid measures

<b>Eye Contact</b>	<ul style="list-style-type: none"><li>▸ Particulate bodies from welding spatter may be removed carefully.</li><li>▸ <b>DO NOT</b> attempt to remove particles attached to or embedded in eye.</li><li>▸ Lay victim down, on stretcher if available and pad <b>BOTH</b> eyes, make sure dressing does not press on the injured eye by placing thick pads under dressing, above and below the eye.</li><li>▸ Seek urgent medical assistance, or transport to hospital.</li><li>▸ For "arc eye", i.e. welding flash or UV light burns to the eye:</li><li>▸ Place eye pads or light clean dressings over both eyes.</li><li>▸ Seek medical assistance.</li></ul>
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<b>Skin Contact</b>	If skin or hair contact occurs: <ul style="list-style-type: none"> <li>▸ Flush skin and hair with running water (and soap if available).</li> <li>▸ Seek medical attention in event of irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>▸ If fumes or combustion products are inhaled remove from contaminated area.</li> <li>▸ Lay patient down. Keep warm and rested.</li> <li>▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.</li> <li>▸ 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.</li> <li>▸ Transport to hospital, or doctor.</li> </ul>
<b>Ingestion</b>	Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract

## Indication of any immediate medical attention and special treatment needed

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 Firefighting measures

### Extinguishing media

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

### Special hazards arising from the substrate or mixture

<b>Fire Incompatibility</b>	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.
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### Advice for firefighters

<b>Fire Fighting</b>	<ul style="list-style-type: none"> <li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▸ Wear breathing apparatus plus protective gloves in the event of a fire.</li> <li>▸ Prevent, by any means available, spillage from entering drains or water courses.</li> <li>▸ Use fire fighting procedures suitable for surrounding area.</li> </ul>
<b>Fire/Explosion Hazard</b>	<ul style="list-style-type: none"> <li>▸ Non combustible.</li> <li>▸ Not considered to be a significant fire risk, however containers may burn.</li> <li>▸ In a fire may decompose on heating and produce toxic / corrosive fumes.</li> </ul>
<b>HAZCHEM</b>	Not Applicable

## SECTION 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

See section 8

### Environmental precautions

See section 12

### Methods and material for containment and cleaning up

<b>Minor Spills</b>	Clean up all spills immediately. Avoid contact with skin and eyes. Wear impervious gloves and safety glasses. Use dry clean up procedures and avoid generating dust. Place spilled material in clean, dry, sealable, labelled container.
<b>Major Spills</b>	Minor hazard. <ul style="list-style-type: none"> <li>▸ Clear area of personnel.</li> <li>▸ Alert Fire Brigade and tell them location and nature of hazard.</li> <li>▸ Control personal contact with the substance, by using protective equipment if risk of overexposure exists.</li> </ul>

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling	<div><div>▸ Limit all unnecessary personal contact.</div><div>▸ Wear protective clothing when risk of exposure occurs.</div><div>▸ Use in a well-ventilated area.</div><div>▸ Avoid contact with incompatible materials.</div></div>
Other information	<div><div>▸ Keep dry.</div><div>▸ Store under cover.</div><div>▸ Protect containers against physical damage.</div><div>▸ Observe manufacturer's storage and handling recommendations contained within this SDS.</div></div>

Conditions for safe storage, including any incompatibilities

Suitable container	<div><div>▸ Packaging as recommended by manufacturer.</div><div>▸ Check that containers are clearly labelled</div></div> <div>Multi-wall paper container <b>NOTE:</b> Bags should be stacked, blocked, interlocked, and limited in height so that they are stable and secure against sliding or collapse.</div>
Storage incompatibility	Segregate from strong acids

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	welding fumes	Welding fumes (not otherwise classified)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	chromium fume	Chromium (metal)	0.5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	nickel fume	Nickel, powder	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	nickel fume	Nickel, metal	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	iron oxide fume	Iron oxide fume (Fe2O3) (as Fe)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	iron oxide fume	Rouge dust	10 mg/m3	Not Available	Not Available	(a) This value is for inhalable dust containing no asbestos and < 1% crystalline silica.
Australia Exposure Standards	manganese fume	Manganese, fume (as Mn)	1 mg/m3	3 mg/m3	Not Available	Not Available

Emergency Limits


Ingredient	TEEL-1	TEEL-2	TEEL-3
chromium fume	1.5 mg/m3	17 mg/m3	99 mg/m3
nickel fume	4.5 mg/m3	50 mg/m3	99 mg/m3
iron oxide fume	15 mg/m3	360 mg/m3	2,200 mg/m3
molybdenum fume	30 mg/m3	330 mg/m3	2,000 mg/m3
manganese fume	3 mg/m3	5 mg/m3	1,800 mg/m3
silica welding fumes	45 mg/m3	500 mg/m3	3,000 mg/m3

Ingredient	Original IDLH	Revised IDLH
welding fumes	Not Available	Not Available
chromium fume	250 mg/m3	Not Available
nickel fume	10 mg/m3	Not Available
iron oxide fume	2,500 mg/m3	Not Available
molybdenum fume	Not Available	Not Available
manganese fume	500 mg/m3	Not Available
silica welding fumes	Not Available	Not Available

## Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
molybdenum fume	E	$\leq 0.01 \text{ mg/m}^3$
<b>Notes:</b>	Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.	

## Exposure controls

<b>Appropriate engineering controls</b>	<p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <p>Process controls which involve changing the way a job activity or process is done to reduce the risk.</p> <p>Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment.</p> <p>If risk of inhalation or overexposure exists, wear SAA approved respirator or work in fume hood.</p>
<b>Personal protection</b>	
<b>Eye and face protection</b>	<p>Welding helmet with suitable filter. Welding hand shield with suitable filter.</p> <ul style="list-style-type: none"> <li>▸ 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.</li> <li>▸ Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.</li> <li>▸ 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 EN 175, ANSI Z49:12005, AS 1336 and AS 1338 which provide the maximum possible facial protection from flying particles and fragments.</li> </ul>
<b>Skin protection</b>	See Hand protection below
<b>Hands/feet protection</b>	<p>Welding Gloves</p> <p>Safety footwear</p>
<b>Body protection</b>	See Other protection below
<b>Other protection</b>	<p>Overalls</p> <ul style="list-style-type: none"> <li>▸ Eyewash unit.</li> </ul> <p>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.</p>

## SECTION 9 Physical and chemical properties

### Information on basic physical and chemical properties

<b>Appearance</b>	Bright drawn stainless steel rod.		
<b>Physical state</b>	Manufactured	<b>Relative density (Water = 1)</b>	7.9
<b>Odour</b>	Not Available	<b>Partition coefficient n-octanol / water</b>	Not Available
<b>Odour threshold</b>	Not Available	<b>Auto-ignition temperature (°C)</b>	Not Applicable
<b>pH (as supplied)</b>	Not Applicable	<b>Decomposition temperature (°C)</b>	Not Available
<b>Melting point / freezing point (°C)</b>	1400	<b>Viscosity (cSt)</b>	Not Applicable
<b>Initial boiling point and boiling range (°C)</b>	Not Available	<b>Molecular weight (g/mol)</b>	Not Applicable
<b>Flash point (°C)</b>	Not Applicable	<b>Taste</b>	Not Available
<b>Evaporation rate</b>	Not Applicable	<b>Explosive properties</b>	Not Available
<b>Flammability</b>	Not Applicable	<b>Oxidising properties</b>	Not Available
<b>Upper Explosive Limit (%)</b>	Not Applicable	<b>Surface Tension (dyn/cm or mN/m)</b>	Not Applicable
<b>Lower Explosive Limit (%)</b>	Not Applicable	<b>Volatile Component (%vol)</b>	Not Applicable
<b>Vapour pressure (kPa)</b>	Not Applicable	<b>Gas group</b>	Not Available

<b>Solubility in water</b>	Immiscible	<b>pH as a solution (1%)</b>	Not Applicable
<b>Vapour density (Air = 1)</b>	Not Applicable	<b>VOC g/L</b>	Not Available

## SECTION 10 Stability and reactivity

<b>Reactivity</b>	See section 7
<b>Chemical stability</b>	<ul style="list-style-type: none"> <li>▶ Unstable in the presence of incompatible materials.</li> <li>▶ Product is considered stable.</li> <li>▶ Hazardous polymerisation will not occur.</li> </ul>
<b>Possibility of hazardous reactions</b>	See section 7
<b>Conditions to avoid</b>	See section 7
<b>Incompatible materials</b>	See section 7
<b>Hazardous decomposition products</b>	See section 5

## SECTION 11 Toxicological information

### Information on toxicological effects

<b>Inhaled</b>	<p>Chrome fume is irritating to the respiratory tract and lungs. Exposure to chromium at certain oxidation levels (eg. Cr-VI) may cause irritation to mucous membranes with symptoms such as sneezing, rhinorrhoea, lesions of the nasal septum, irritation and redness of the throat and generalised bronchospasm.</p> <p>Inhalation of chromium fumes may cause metal fume fever' characterised by flu-like symptoms, fever, chill, nausea, weakness and body aches.</p> <p>Toxic effects result from over-exposure.</p> <p>Regular exposure to nickel fume, as the oxide, may result in "metal fume fever" a sometimes debilitating upper respiratory tract condition resembling influenza.</p> <p>Symptoms include malaise, fever, weakness, nausea and may appear quickly if operations occur in closed or poorly ventilated areas. Pulmonary oedema, pulmonary fibrosis and asthma has been reported in welders using nickel alloys; level of exposure are generally not available and case reports are often confounded by mixed exposures to other agents.</p> <p>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".</p> <p>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".</p> <p>Bronchial and alveolar exudate are apparent in animals exposed to molybdenum by inhalation. Molybdenum fume may produce bronchial irritation and moderate fatty changes in liver and kidney.</p> <p>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.</p> <p>If prior damage to the circulatory or nervous systems has occurred or if kidney damage has been sustained, proper screenings should be conducted on individuals who may be exposed to further risk if handling and use of the material result in excessive exposures.</p>
<b>Ingestion</b>	Not normally a hazard due to physical form of product.
<b>Skin Contact</b>	<p>Skin contact does <b>not</b> normally present a hazard, though it is always possible that occasionally individuals may be found who react to substances usually regarded as inert.</p> <p>Chrome fume, as the chrome VI oxide, is corrosive to the skin and may aggravate pre-existing skin conditions such as dermatitis and eczema. As a potential skin sensitiser, the fume may cause dermatoses to appear suddenly and without warning. Absorption of chrome VI compounds through the skin can cause systemic poisoning affecting the kidneys and liver.</p> <p>Nickel dusts, fumes and salts are potent contact allergens and sensitisers producing a dermatitis known as "nickel" rash.</p> <p>In the absence of properly designed ventilation systems or where respiratory protective devices are inadequate, up to 10% of exposed workers are expected to be symptomatic.</p> <p>Arc rays can burn skin</p>
<b>Eye</b>	<p>Fumes from welding/brazing operations may be irritating to the eyes.</p> <p>Arc rays can injure eyes</p>
<b>Chronic</b>	<p>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.</p> <p>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.</p> <p>Long term exposures to manganese compounds may effect the central nervous system. Symptoms include muscular weakness and tremors similar to Parkinson's disease.</p>

<b>Comweld 308L, 309L and 316L Stainless Steel Gas/TIG Rods</b>	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available

welding fumes	<b>TOXICITY</b>	<b>IRRITATION</b>
	Not Available	Not Available
chromium fume	<b>TOXICITY</b>	<b>IRRITATION</b>
	Inhalation(Rat) LC50: >5.41 mg/l4h <sup>[1]</sup>	Not Available
	Oral (Rat) LD50: >5000 mg/kg <sup>[1]</sup>	
nickel fume	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (Rat) LD50: 5000 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
iron oxide fume	<b>TOXICITY</b>	<b>IRRITATION</b>
	Oral (Rat) LD50: >5000 mg/kg <sup>[1]</sup>	Not Available
molybdenum fume	<b>TOXICITY</b>	<b>IRRITATION</b>
	dermal (rat) LD50: >2000 mg/kg <sup>[1]</sup>	Not Available
	Inhalation(Rat) LC50: >1.93 mg/l4h <sup>[1]</sup>	
	Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>	
manganese fume	<b>TOXICITY</b>	<b>IRRITATION</b>
	Inhalation(Rat) LC50: >5.14 mg/l4h <sup>[1]</sup>	Eye (rabbit) 500mg/24H Mild
	Oral (Rat) LD50: >2000 mg/kg <sup>[1]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
		Skin (rabbit) 500mg/24H Mild
		Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
silica welding fumes	<b>TOXICITY</b>	<b>IRRITATION</b>
	Dermal (rabbit) LD50: >5000 mg/kg <sup>[2]</sup>	Eye: no adverse effect observed (not irritating) <sup>[1]</sup>
	Oral (Rat) LD50: 3160 mg/kg <sup>[2]</sup>	Skin: no adverse effect observed (not irritating) <sup>[1]</sup>
<b>Legend:</b>	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

<b>WELDING FUMES</b>	<p>Most welding is performed using electric arc processes. There has been considerable evidence linking welding activities and cancer risk. Several case-control studies reported excess risk of melanoma of the eye in welders. This association may be due to the presence in some welding environments of fumes of thorium-232, which is used in tungsten welding rods.</p> <p><b>WARNING:</b> This substance has been classified by the IARC as Group 1: <b>CARCINOGENIC TO HUMANS</b>. Not available. Refer to individual constituents.</p>
<b>CHROMIUM FUME</b>	<p>On skin and inhalation exposure, chromium and its compounds (except hexavalent) can be a potent sensitiser, as particulates. Studies show that they have a complex toxicity mechanism with hexavalent chromium associated with an increased risk of lung damage and respiratory cancers (primarily bronchogenic and nose cancers). However, there is no evidence that elemental, divalent, or trivalent chromium compounds causes cancer or genetic toxicity.</p>
<b>NICKEL FUME</b>	<p>The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions.</p> <p><b>WARNING:</b> This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health &amp; Human Services 2002]</p>
<b>MOLYBDENUM FUME</b>	<p>Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia.</p>
<b>SILICA WELDING FUMES</b>	<p>For silica amorphous: Derived No Adverse Effects Level (NOAEL) in the range of 1000 mg/kg/d. In humans, synthetic amorphous silica (SAS) is essentially non-toxic by mouth, skin or eyes, and by inhalation. Epidemiology studies show little evidence of adverse health effects due to SAS. Repeated exposure (without personal protection) may cause mechanical irritation of the eye and drying/cracking of the skin. When experimental animals inhale synthetic amorphous silica (SAS) dust, it dissolves in the lung fluid and is rapidly eliminated. If swallowed, the vast majority of SAS is excreted in the faeces and there is little accumulation in the body. Reports indicate high/prolonged exposures to amorphous silicas induced lung fibrosis in experimental animals; in some experiments these effects were reversible. [PATTYS]</p>

<b>CHROMIUM FUME &amp; MOLYBDENUM FUME</b>	No significant acute toxicological data identified in literature search.		
<b>CHROMIUM FUME &amp; SILICA WELDING FUMES</b>	The substance is classified by IARC as Group 3: <b>NOT</b> classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.		
<b>Acute Toxicity</b>	✓	<b>Carcinogenicity</b>	✓
<b>Skin Irritation/Corrosion</b>	✗	<b>Reproductivity</b>	✗
<b>Serious Eye Damage/Irritation</b>	✗	<b>STOT - Single Exposure</b>	✗
<b>Respiratory or Skin sensitisation</b>	✗	<b>STOT - Repeated Exposure</b>	✗
<b>Mutagenicity</b>	✗	<b>Aspiration Hazard</b>	✗

**Legend:** ✗ – Data either not available or does not fill the criteria for classification  
✓ – Data available to make classification

## SECTION 12 Ecological information

### Toxicity

Comweld 308L, 309L and 316L Stainless Steel Gas/TIG Rods	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
welding fumes	Endpoint	Test Duration (hr)	Species	Value	Source
	Not Available	Not Available	Not Available	Not Available	Not Available
chromium fume	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	672h	Fish	0.00019mg/l	4
	EC50	96h	Algae or other aquatic plants	36mg/L	4
	EC50	72h	Algae or other aquatic plants	0.026-0.208mg/L	4
	LC50	96h	Fish	0.106mg/L	4
	EC50	48h	Crustacea	<0.001mg/l	2
nickel fume	Endpoint	Test Duration (hr)	Species	Value	Source
	EC50(ECx)	72h	Algae or other aquatic plants	0.18mg/l	1
	EC50	96h	Algae or other aquatic plants	0.174-0.311mg/l	4
	EC50	72h	Algae or other aquatic plants	0.18mg/l	1
	LC50	96h	Fish	0.06mg/l	4
	EC50	48h	Crustacea	>100mg/l	1
iron oxide fume	Endpoint	Test Duration (hr)	Species	Value	Source
	LC50	96h	Fish	0.05mg/l	2
	EC50	72h	Algae or other aquatic plants	18mg/l	2
	EC50	48h	Crustacea	>100mg/l	2
	NOEC(ECx)	504h	Fish	0.52mg/l	2
molybdenum fume	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	48h	Algae or other aquatic plants	0.5-80mg/l	4
	EC50	72h	Algae or other aquatic plants	26mg/l	2
	LC50	96h	Fish	211mg/l	2
	EC50	48h	Crustacea	130.9mg/l	2
manganese fume	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	504h	Algae or other aquatic plants	0.05-3.7mg/l	4
	EC50	72h	Algae or other aquatic plants	2.8mg/l	2
	LC50	96h	Fish	>3.6mg/l	2
	EC50	48h	Crustacea	>1.6mg/l	2
silica welding fumes	Endpoint	Test Duration (hr)	Species	Value	Source
	NOEC(ECx)	504h	Crustacea	100mg/l	2



	LC50	96h	Fish	>100mg/l	2
	EC50	72h	Algae or other aquatic plants	~250mg/l	2
<b>Legend:</b> <i>Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data</i>					

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
	No Data available for all ingredients	No Data available for all ingredients

Bioaccumulative potential

Ingredient	Bioaccumulation
	No Data available for all ingredients

Mobility in soil

Ingredient	Mobility
	No Data available for all ingredients

SECTION 13 Disposal considerations

Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"><li>▶ Recycle wherever possible or consult manufacturer for recycling options.</li><li>▶ Consult State Land Waste Management Authority for disposal.</li><li>▶ Bury residue in an authorised landfill.</li><li>▶ Recycle containers if possible, or dispose of in an authorised landfill.</li></ul>
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SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADG): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
welding fumes	Not Available
chromium fume	Not Available
nickel fume	Not Available
iron oxide fume	Not Available
molybdenum fume	Not Available
manganese fume	Not Available
silica welding fumes	Not Available

Transport in bulk in accordance with the ICG Code

Product name	Ship Type
welding fumes	Not Available
chromium fume	Not Available
nickel fume	Not Available
iron oxide fume	Not Available
molybdenum fume	Not Available

Product name	Ship Type
manganese fume	Not Available
silica welding fumes	Not Available

## SECTION 15 Regulatory information

### Safety, health and environmental regulations / legislation specific for the substance or mixture

<b>welding fumes is found on the following regulatory lists</b>	
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans
<b>chromium fume is found on the following regulatory lists</b>	
Australian Inventory of Industrial Chemicals (AIIC)	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic	
<b>nickel fume is found on the following regulatory lists</b>	
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
Australian Inventory of Industrial Chemicals (AIIC)	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans
Chemical Footprint Project - Chemicals of High Concern List	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
<b>iron oxide fume is found on the following regulatory lists</b>	
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4	Australian Inventory of Industrial Chemicals (AIIC)
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
<b>molybdenum fume is found on the following regulatory lists</b>	
Australian Inventory of Industrial Chemicals (AIIC)	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
<b>manganese fume is found on the following regulatory lists</b>	
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
Australian Inventory of Industrial Chemicals (AIIC)	
<b>silica welding fumes is found on the following regulatory lists</b>	
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	International WHO List of Proposed Occupational Exposure Limit (OEL) Values for Manufactured Nanomaterials (MNMS)
Australian Inventory of Industrial Chemicals (AIIC)	

### National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (chromium fume; nickel fume; iron oxide fume; molybdenum fume; manganese fume; silica welding fumes)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	No (chromium fume; nickel fume; molybdenum fume; manganese fume)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (silica welding fumes)
Vietnam - NCI	Yes
Russia - FBEPH	Yes

National Inventory	Status
<b>Legend:</b>	<p>Yes = All CAS declared ingredients are on the inventory</p> <p>No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.</p>

## SECTION 16 Other information

Revision Date	23/12/2022
Initial Date	24/05/2001

### SDS Version Summary

Version	Date of Update	Sections Updated
7.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification
8.1	23/12/2022	Classification review due to GHS Revision change.

### Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

### Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average  
PC—STEL: Permissible Concentration-Short Term Exposure Limit  
IARC: International Agency for Research on Cancer  
ACGIH: American Conference of Governmental Industrial Hygienists  
STEL: Short Term Exposure Limit  
TEEL: Temporary Emergency Exposure Limit,  
IDLH: Immediately Dangerous to Life or Health Concentrations  
ES: Exposure Standard  
OSF: Odour Safety Factor  
NOAEL :No Observed Adverse Effect Level  
LOAEL: Lowest Observed Adverse Effect Level  
TLV: Threshold Limit Value  
LOD: Limit Of Detection  
OTV: Odour Threshold Value  
BCF: BioConcentration Factors  
BEI: Biological Exposure Index  
AIIIC: Australian Inventory of Industrial Chemicals  
DSL: Domestic Substances List  
NDSL: Non-Domestic Substances List  
IECSC: Inventory of Existing Chemical Substance in China  
EINECS: European INventory of Existing Commercial chemical Substances  
ELINCS: European List of Notified Chemical Substances  
NLP: No-Longer Polymers  
ENCS: Existing and New Chemical Substances Inventory  
KECI: Korea Existing Chemicals Inventory  
NZIoC: New Zealand Inventory of Chemicals  
PICCS: Philippine Inventory of Chemicals and Chemical Substances  
TSCA: Toxic Substances Control Act  
TCSI: Taiwan Chemical Substance Inventory  
INSQ: Inventario Nacional de Sustancias Químicas  
NCI: National Chemical Inventory  
FBEPH: Russian Register of Potentially Hazardous Chemical and Biological Substances

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