

Tomago Aluminium Extrusion Billet

Tomago Aluminium Co. P/L

Chemwatch Hazard Alert Code: 1

Chemwatch: 7502-29

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Safety Data Sheet according to WHS and ADG requirements

S.GHS.AUS.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

Product name	Tomago Aluminium Extrusion Billet
Synonyms	Billet Aluminium Extrusion; Primary Aluminium Billet; Aluminium Extrusion Ingot
Other means of identification	Not Available

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

Relevant identified uses	Feedstock for manufacturing extruded aluminium parts and products.
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Details of the supplier of the safety data sheet

Registered company name	Tomago Aluminium Co. P/L
Address	33 Tomago Road Tomago NSW 2322 Australia
Telephone	(02) 49 669 669
Fax	(02) 49 669 711
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Not Available
Emergency telephone numbers	(02) 49 669 669
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

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

CHEMWATCH HAZARD RATINGS

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

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

Poisons Schedule	Not Applicable
Classification ^[1]	Acute Aquatic Hazard Category 3, Chronic Aquatic Hazard Category 3
Legend:	1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

Label elements

Hazard pictogram(s)	Not Applicable
SIGNAL WORD	NOT APPLICABLE

Hazard statement(s)

H412	Harmful to aquatic life with long lasting effects.
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Precautionary statement(s) Prevention

P273	Avoid release to the environment.
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Precautionary statement(s) Response

Not Applicable

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Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

P501	Dispose of contents/container in accordance with local regulations.
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SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**Substances**

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
7429-90-5	>90	<u>aluminium</u>
7439-95-4	<5	<u>magnesium</u>
7440-21-3	<5	<u>silicon</u>
7440-50-8	<2	<u>copper</u>
7439-96-5	<2	<u>manganese</u>
7439-89-6	<2	<u>iron</u>
7440-47-3	<1	<u>chromium</u>
7440-02-0	<1	<u>nickel</u>
7440-32-6	<1	<u>titanium</u>
7440-42-8	<1	<u>boron</u>
7440-66-6	<1	<u>zinc</u>
7440-24-6	<1	<u>strontium</u>

SECTION 4 FIRST AID MEASURES**Description of first aid measures**

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Immediately hold eyelids apart and flush the eye continuously with running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▶ Transport to hospital or doctor without delay. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin or hair contact occurs:</p> <ul style="list-style-type: none"> ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▶ If dust is inhaled, remove from contaminated area. ▶ Encourage patient to blow nose to ensure clear passage of breathing. ▶ If irritation or discomfort persists seek medical attention.
Ingestion	<ul style="list-style-type: none"> ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

- ▶ Dry sand.
- ▶ Dry chemical powder.
- ▶ **DO NOT** use halogenated fire extinguishing agents.
- ▶ **DO NOT** use water or halogens on dust fires.

Special hazards arising from the substrate or mixture

Fire Incompatibility	None known
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Advice for firefighters

- | | |
|----------------------|---|
| Fire Fighting | <ul style="list-style-type: none"> ▶ 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. |
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Fire/Explosion Hazard	Non combustible Bulk aluminium is not combustible but at high temperatures, molten aluminium can be ignited and burn. Molten aluminium may react violently if it comes into contact with water. Aluminium is rapidly oxidised by water at 180C.
HAZCHEM	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

Minor Spills	Refer to major spills.
Major Spills	<ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Secure load if safe to do so. ▶ Bundle/collect recoverable product. ▶ Collect remaining material in containers with covers for disposal.

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Avoid generating and breathing dust ▶ Avoid contact with skin and eyes. ▶ Wear nominated personal protective equipment when handling. ▶ Use in a well-ventilated area. ▶ Use good occupational work practices. <p>[Caution! Remelting of billet or scrap presents a special hazard, owing to the possibility of cracks and voids containing water becoming trapped below the surface of molten aluminium metal. To avoid remove all surface contamination of oils and water and preheat the charge thoroughly. Molten aluminium may explode on contact with water. It may also react violently with rust, some oxides (Cu, Fe and Pb), nitrates including nitrate fertilizers.</p>
Other information	<ul style="list-style-type: none"> ▶ Store away from incompatible materials. ▶ Keep dry

Conditions for safe storage, including any incompatibilities

Suitable container	▶ Generally not applicable.
Storage incompatibility	Segregate from halogens, organic compounds, strong acids and strong alkalis. Note: Finely divided aluminium reacts violently with certain metal oxides (e.g. oxides of copper, iron (rust) and lead), and nitrates (eg., ammonium nitrate and fertilizers containing ammonium nitrate).

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	aluminium	Aluminium, pyro powders (as Al)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium (metal dust)	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	aluminium	Aluminium (welding fumes) (as Al)	5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	silicon	Silicon	10 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	copper	Copper (fume)	0.2 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	copper	Copper, dusts & mists (as Cu)	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	manganese	Manganese, fume (as Mn)	1 mg/m3	3 mg/m3	Not Available	Not Available
Australia Exposure Standards	chromium	Chromium (metal)	0.5 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	nickel	Nickel, powder	1 mg/m3	Not Available	Not Available	Not Available
Australia Exposure Standards	nickel	Nickel, metal	1 mg/m3	Not Available	Not Available	Not Available

EMERGENCY LIMITS


Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
magnesium	Magnesium	18 mg/m3	200 mg/m3	1,200 mg/m3
silicon	Silicon	45 mg/m3	100 mg/m3	630 mg/m3
copper	Copper	3 mg/m3	33 mg/m3	200 mg/m3
manganese	Manganese	3 mg/m3	5 mg/m3	1,800 mg/m3
iron	Iron	3.2 mg/m3	35 mg/m3	150 mg/m3
chromium	Chromium	1.5 mg/m3	17 mg/m3	99 mg/m3

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nickel	Nickel	4.5 mg/m ³	50 mg/m ³	99 mg/m ³
titanium	Titanium	30 mg/m ³	330 mg/m ³	2,000 mg/m ³
boron	Boron	1.9 mg/m ³	21 mg/m ³	130 mg/m ³
zinc	Zinc	6 mg/m ³	21 mg/m ³	120 mg/m ³
strontium	Strontium	30 mg/m ³	330 mg/m ³	2,000 mg/m ³

Ingredient	Original IDLH	Revised IDLH
aluminium	Not Available	Not Available
magnesium	Not Available	Not Available
silicon	Not Available	Not Available
copper	100 mg/m ³	Not Available
manganese	Not Available	Not Available
iron	Not Available	Not Available
chromium	250 mg/m ³	Not Available
nickel	Not Available	Not Available
titanium	Not Available	Not Available
boron	Not Available	Not Available
zinc	Not Available	Not Available
strontium	Not Available	Not Available

Exposure controls

Appropriate engineering controls	General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ Safety glasses with side shields ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses 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.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear physical protective gloves, e.g. leather. ▶ Wear safety footwear.
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ Barrier cream ▶ Eyewash unit.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Solid grey-silvery metal billets in various diameters, lengths and weights with no odour; insoluble in water.		
Physical state	Manufactured	Relative density (Water = 1)	2.5-2.9
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	Not Applicable	Decomposition temperature	Not Available
Melting point / freezing point (°C)	482-660	Viscosity (cSt)	Not Applicable
Initial boiling point and boiling range (°C)	2467	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Applicable	Taste	Not Available
Evaporation rate	Not Applicable	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Applicable	Surface Tension (dyn/cm or mN/m)	Not Applicable
Lower Explosive Limit (%)	Not Applicable	Volatile Component (%vol)	Not Applicable
Vapour pressure (kPa)	Not Applicable	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution (1%)	Not Applicable
Vapour density (Air = 1)	Not Applicable	VOC g/L	Not Available

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SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	Product is considered stable and hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	<p>Metallic dusts generated by the industrial process give rise to a number of potential health problems. The larger particles, above 5 micron, are nose and throat irritants.</p> <p>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.</p> <p>[Fumes may be generated during processing of alloys.]Aluminium oxide fume is generally poorly absorbed through the lungs.[Chronic inhalation of massive levels of fine powder may cause pulmonary]fibrosis and emphysema.[Persons with impaired pulmonary function, airway diseases and conditions]such as asthma, emphysema, chronic bronchitis may incur further disability[if excessive concentrations of dust or fume are inhaled. 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[excessive exposures.</p>
Ingestion	<p>Considered an unlikely route of entry in commercial/industrial environments</p> <p>Not normally a hazard due to the physical form of product. The material is a physical irritant to the gastro-intestinal tract</p>
Skin Contact	<p>The solid/dust is abrasive to the skin</p>
Eye	<p>The dust may produce eye discomfort and abrasive eye inflammation.</p>
Chronic	<p>The principal routes of exposure are by skin contact with the material</p> <p>Toxicity is low by all exposure routes.</p>

Tomago Aluminium Extrusion Billet	TOXICITY	IRRITATION
	Not Available	Not Available
aluminium	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
magnesium	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
silicon	TOXICITY	IRRITATION
	Oral (rat) LD50: 3160 mg/kg ^[2]	Not Available
copper	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg ^[1]	Not Available
	Inhalation (rat) LC50: 0.733 mg/l4 h ^[1]	
manganese	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	<p>Eye (rabbit): 500 mg/24h - mild</p> <p>Skin (rabbit): 500 mg/24h - mild</p>
iron	TOXICITY	IRRITATION
	Oral (rat) LD50: 98600 mg/kg ^[2]	Not Available
chromium	TOXICITY	IRRITATION
	Not Available	Not Available
nickel	TOXICITY	IRRITATION
	Oral (rat) LD50: 5000 mg/kg ^[2]	Not Available

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titanium	TOXICITY	IRRITATION
	Oral (rat) LD50: >2000 mg/kg ^[1]	Not Available
boron	TOXICITY	IRRITATION
	Oral (rat) LD50: 650 mg/kg ^[2]	Not Available
zinc	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 1130 mg/kg ^[2]	Not Available
strontium	TOXICITY	IRRITATION
	Not Available	Not Available

Legend: 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

SILICON	Injection of silicon into the peritoneal cavity produced only minor local trauma and foreign body reaction. In animal testing, silicon dioxide given by mouth did not cause clinical signs or cell changes. Silicon dioxide was largely eliminated in the faeces.
COPPER	for copper and its compounds (typically copper chloride): Acute toxicity: There are no reliable acute oral toxicity results available. In an acute dermal toxicity study (OECD TG 402), one group of 5 male rats and 5 groups of 5 female rats received doses of 1000, 1500 and 2000 mg/kg bw via dermal application for 24 hours. The LD50 values of copper monochloride were 2,000 mg/kg bw or greater for male (no deaths observed) and 1,224 mg/kg bw for female. Four females died at both 1500 and 2000 mg/kg bw, and one at 1,000 mg/kg bw. WARNING: Inhalation of high concentrations of copper fume may cause "metal fume fever", an acute industrial disease of short duration. Symptoms are tiredness, influenza like respiratory tract irritation with fever.
CHROMIUM	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. 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. Tenth Annual Report on Carcinogens: Substance known to be Carcinogenic [National Toxicology Program: U.S. Dep. of Health and Human Services 2002] Gastrointestinal tumours, lymphoma, musculoskeletal tumours and tumours at site of application recorded.
NICKEL	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. WARNING: 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 & Human Services 2002] Oral (rat) TDLo: 500 mg/kg/5D-I Inhalation (rat) TCLo: 0.1 mg/m ³ /24H/17W-C
BORON	Elemental boron produces lower foetal body weight in rats. As dose levels increase the effects seen include rib effects, increased foetal cardiovascular malformations in the rabbit and severe testicular pathology in the rat, including testicular atrophy and sterility. Reduced foetal weight also occurs in mice.
ALUMINIUM & SILICON & CHROMIUM & TITANIUM & STRONTIUM	No significant acute toxicological data identified in literature search.
SILICON & BORON	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.
SILICON & MANGANESE	The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
MANGANESE & ZINC	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

Acute Toxicity	☒	Carcinogenicity	☒
Skin Irritation/Corrosion	☒	Reproductivity	☒
Serious Eye Damage/Irritation	☒	STOT - Single Exposure	☒
Respiratory or Skin sensitisation	☒	STOT - Repeated Exposure	☒
Mutagenicity	☒	Aspiration Hazard	☒

Legend: ✗ – Data available but does not fill the criteria for classification
✔ – Data available to make classification
☒ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

Continued...

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Tomago Aluminium Extrusion Billet	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available
aluminium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.078-0.108mg/L	2
	EC50	48	Crustacea	0.7364mg/L	2
	EC50	96	Algae or other aquatic plants	0.0054mg/L	2
	BCF	360	Algae or other aquatic plants	9mg/L	4
NOEC	72	Algae or other aquatic plants	>=0.004mg/L	2	
magnesium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	541mg/L	2
	EC50	72	Algae or other aquatic plants	>20mg/L	2
NOEC	72	Algae or other aquatic plants	>25.5mg/L	2	
silicon	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	72	Algae or other aquatic plants	ca.250mg/L	2	
copper	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.0028mg/L	2
	EC50	48	Crustacea	0.001mg/L	5
	EC50	72	Algae or other aquatic plants	0.013335mg/L	4
	BCF	960	Fish	200mg/L	4
	EC25	6	Algae or other aquatic plants	0.00150495mg/L	4
NOEC	96	Crustacea	0.0008mg/L	4	
manganese	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	>3.6mg/L	2
	EC50	48	Crustacea	>1.6mg/L	2
	EC50	72	Algae or other aquatic plants	2.8mg/L	2
	BCFD	37	Algae or other aquatic plants	2.2mg/L	4
NOEC	48	Crustacea	1.6mg/L	2	
iron	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.05mg/L	2
	EC50	96	Algae or other aquatic plants	3.7mg/L	4
	BCF	24	Crustacea	0.000002mg/L	4
NOEC	504	Fish	0.52mg/L	2	
chromium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	13.9mg/L	4
	EC50	48	Crustacea	0.0225mg/L	5
	EC50	72	Algae or other aquatic plants	0.104mg/L	4
	BCF	1440	Algae or other aquatic plants	0.0495mg/L	4
NOEC	672	Fish	0.00019mg/L	4	
nickel	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.0000475mg/L	4
	EC50	48	Crustacea	0.013mg/L	5
	EC50	72	Algae or other aquatic plants	0.0407mg/L	2
	BCF	1440	Algae or other aquatic plants	0.47mg/L	4
NOEC	72	Algae or other aquatic plants	0.0035mg/L	2	
titanium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
NOEC	48	Crustacea	1mg/L	2	
boron	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	74mg/L	2
	EC50	48	Crustacea	230mg/L	5
	EC50	72	Algae or other aquatic plants	54mg/L	2
BCF	336	Algae or other aquatic plants	8.5mg/L	4	

Continued...

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	NOEC	576	Fish	0.001mg/L	5
zinc	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	0.00272mg/L	4
	EC50	48	Crustacea	0.04mg/L	5
	EC50	72	Algae or other aquatic plants	0.106mg/L	4
	BCF	360	Algae or other aquatic plants	9mg/L	4
	NOEC	336	Algae or other aquatic plants	0.00075mg/L	4
strontium	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	Not Available	Not Available	Not Available	Not Available	Not Available

Legend: Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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

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"> ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Management Authority for disposal. ▶ Bury residue in an authorised landfill. Recovered aluminium may be recycled and/or remelted as scrap (Care!).

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

SECTION 15 REGULATORY INFORMATION

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

ALUMINIUM(7429-90-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	

MAGNESIUM(7439-95-4) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Inventory of Chemical Substances (AICS)
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SILICON(7440-21-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS

Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
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COPPER(7440-50-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS

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Australia Exposure Standards	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
Australia Inventory of Chemical Substances (AICS)	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5
Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix A	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6
MANGANESE(7439-96-5) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	
IRON(7439-89-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Inventory of Chemical Substances (AICS)	
CHROMIUM(7440-47-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Exposure Standards	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
Australia Inventory of Chemical Substances (AICS)	
NICKEL(7440-02-0) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Exposure Standards	Australia Inventory of Chemical Substances (AICS)
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
TITANIUM(7440-32-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Inventory of Chemical Substances (AICS)	International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft
BORON(7440-42-8) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Inventory of Chemical Substances (AICS)	Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4
ZINC(7440-66-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Hazardous Chemical Information System (HCIS) - Hazardous Chemicals	Australia Inventory of Chemical Substances (AICS)
STRONTIUM(7440-24-6) IS FOUND ON THE FOLLOWING REGULATORY LISTS	
Australia Inventory of Chemical Substances (AICS)	

National Inventory Status

National Inventory	Status
Australia - AICS	Y
Canada - DSL	Y
Canada - NDSL	N (strontium; zinc; titanium; magnesium; manganese; silicon; copper; boron; aluminium; nickel; iron; chromium)
China - IECSC	Y
Europe - EINEC / ELINCS / NLP	Y
Japan - ENCS	N (strontium; zinc; titanium; magnesium; manganese; silicon; copper; boron; aluminium; nickel; iron; chromium)
Korea - KECI	Y
New Zealand - NZIoC	Y
Philippines - PICCS	Y
USA - TSCA	Y
Legend:	Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing (see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	27/06/2017
Initial Date	20/09/2002

Other information

Ingredients with multiple cas numbers

Name	CAS No
aluminium	7429-90-5, 91728-14-2
silicon	7440-21-3, 152284-21-4, 157383-37-4, 160371-18-6, 17375-03-0, 71536-23-7, 72516-01-9, 72516-02-0, 72516-03-1, 90337-93-2
copper	7440-50-8, 133353-46-5, 133353-47-6, 195161-80-9, 65555-90-0, 72514-83-1

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
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

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