MATERIAL SAFETY DATA SHEET
Z1 (AS2239) Zinc Anode
Issue Date: 19SEP23

Cathodic Anodes Australasia

SECTION 1 PRODUCT IDENTIFIER

Product Name: **Z1 Zinc Anode**
Synonyms: Zincs, Zinc Anode, Zinc Sacrificial Anode
Appearance: Blue-white metal in solid form
Odour: No odour
Use: Cathodic/Corrosion Protection
Poison Schedule: S6

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SECTION 2 HAZARDS IDENTIFICATION

Classification: NON HAZARDOUS CHEMICAL. NON DANGEROUS GOODS. According to WHS Regulations and the ADG Code.
GHS Classification: Acute Aquatic Hazard Category 1, Chronic Aquatic Hazard Category 1
GHS Label Elements:

GHS Signal Word: WARNING
H410 Very toxic to aquatic life with long lasting effects

SECTION 3 COMPOSITION AND INFORMATION ON INGREDIENTS

Alloy composition: (Australian Standard AS2239 Galvanic Sacrificial Anodes for Cathodic Protection)

Ingredient	C.A.S. Number	Proportion (%)
Zinc (Zn)	7440-66-6	Balance
Aluminium (Al)	7429-90-5	0.10 – 0.50
Silicon (Si)	7440-21-3	0 - 0.005
Copper (Cu)	7440-50-8	0 - 0.005
Iron (Fe)	7439-89-6	0 - 0.005
Cadmium (Cd)	7440-43-9	0.025 -0.07
Lead (Pb)	7439-92-1	0 - 0.006

SECTION 4 FIRST AID MEASURES

Swallowed Ingestion of solid material is unlikely but may result in nausea and vomiting. If vomiting occurs, lean patient forward or place in recovery position to maintain an open airway. Observe patient carefully. If patient appears or feels ill seek medical advice. Give water to rinse out mouth.

Eye If solid lodges in eye, seek urgent medical attention for removal. If dust is in eye, wash with fresh running water. Continue irrigation of the eye until material has been completely removed. Gently lift upper and lower eyelids to assist irrigation away from the eyeball. If pain persists seek medical attention. Care should be exercised in the removal of contact lenses.

Inhalation	Inhalation of fume is possible from molten metal. Remove patient from contaminated area. Monitor patient condition closely. If breathing is difficult seek medical attention. Consider administering oxygen.
Skin	Dust: Wash dust from skin with soap and running water. Seek medical attention if irritation or discomfort occurs. Molten Metal: Flush contacted area immediately to cool. Do not attempt to remove encrusted material or clothing. Seek immediate medical advice.

SECTION 5 FIRE FIGHTING MEASURES

Fire/Explosion Hazard	Generally not combustible, however very fine metal dusts may burn under ideal combustion conditions. Metal may react with acids and alkali hydroxides to produce flammable or explosive hydrogen gas. Damp zinc metal dust my heat spontaneously and ignite on exposure to air. Produces metal oxide fumes, predominantly zinc oxide, when heated.
Fire Fighting	Alert fire brigade, stating location and nature of hazard. Fire fighters shall be fully trained and wear full protective clothing.
Extinguishing Media	Do not extinguish fire with water, CO2 or foam extinguisher. Smother fire with dry sand or other inert material. Use dry powder-type extinguisher.
Fire Incompatibility	The use of CO2 extinguisher may produce explosive methane gas. Use of water or foam may generate explosive hydrogen.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Minor Spills	If product is still hot after casting cordon off area and allow to cool. If molten product spills, prevent spreading with sand. Cordon off area and allow to cool. Solid material should be picked up by shovel or by hand using leather gloves if necessary. Ensure all chips or small particles are picked up and prevented from entering drains, sewers and waterways.
Major Spills	As per Minor Spills section above.

SECTION 7 HANDLING AND STORAGE

Handling	Product may be hot. Product is heavy. Use mechanical lifting devices and tongs where appropriate. Wear leather gloves. Zinc ingots suspected of containing moisture must be thoroughly dried prior to being added to a molten bath. Moisture on the ingot will expand explosively when placed in a molten bath.
Storage	Avoid contact with strong acids or corrosive materials. Store in dry covered area. Corden off stored anodes while cooling.
Transport	No restrictions on transport except where specified by relevant local authorities. Product is not classified as a Dangerous Good for transport purposes.
P.P.E.	Refer to Section 8.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls	If molten metal enclose production processes to suppress fume; Use filtered dust/fume extraction; Use vacuuming or wet dust-suppression methods such as wet sweeping or hosing to remove fugitive fall-out dust. Vacuum must be fitted with H.E.P.A. filter.
Ventilation	If molten metal use local exhaust ventilation to maintain airborne concentrations as low as possible and at least below the Workplace Exposure Standard.
Respiratory Protection	If molten metal, use P2 particulate respirator against thermally generated fumes. Where the Workplace Exposure Standard is exceeded by >10x, respiratory protection should be selected taking into account the necessary protection factor in accordance with Table 6.1 of AS/NZS 1715:1994 *Selection, use and maintenance of respiratory protective devices*.

Eye Protection	If molten use face shield in accordance with AS/NZS 1715:1994 *Selection, use and maintenance of respiratory protective devices*.
Skin Protection	Leather gloves and barrier cream. Refer "General Hygiene" below.
Other P.P.E	Loose, comfortable clothing, gloves and industrial footwear.
General Hygiene	Wash hands and other exposed skin with water and soap; Wash dust from work clothes, do not shake dust from clothes or clean with compressed air. Wash hands after handling and BEFORE eating, drinking or smoking.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Bluish – white metal
Particle Size	Not available
Odour	No odour
pH	Not available
Specific Gravity	7.1
Vapour Pressure	1mm @ 487 degrees Celsius
Vapour Density	Not available
Melting Point	Not available
Solubility	Insoluble in water
Flammability	Generally non-flammable, however finely divided metal may burn under ideal conditions.

SECTION 10 STABILITY AND REACTIVITY

Stability	Product is stable at normal temperature and pressure.
Reactivity	Product is generally non-reactive with the exception of incompatibilities listed below.
Incompatibilities	Incompatible with strong oxidising agents, acids and alkalis (refer to section 5 also). Reaction with acids and strong alkali's may produce potentially explosive hydrogen gas.
Hazardous Decomposition Products	Heating produces zinc oxide and small quantities of other metal oxides such as Lead and Cadmium. Abrasion, handling or transport of material may generate inhalable or respirable dust.

SECTION 11 TOXICOLOGICAL INFORMATION

General	Zinc in the metal form is relatively non-toxic, however can react with other materials to form components that can be toxic. The product contains primary zinc with the presence of minor quantities of other metals such as Lead and Cadmium.
Routes of Exposure	Primary route of exposure is by inhalation of generated dust and fume. Materials may be absorbed following ingestion. Skin absorption is negligible under normal circumstances. Particles in the respirable-fraction size range may become trapped in the gas-exchange regions of the lung and cause serious health consequences.
Acute Health Effects	**Inhaled:** Zinc dust is discomforting to the respiratory tract when inhaled and initially acts as a respiratory irritant. Zinc oxide fumes and vapour produced from high temperature processes can produce "metal fume fever". Symptoms include headache, nausea, chills, muscle aches, fever, coughing, chest tightness and a metallic taste in the mouth. The onset of symptoms may be delayed by up to 24 hours after exposure, however normally symptoms present between 3 and 10 hours post exposure and can last for approximately 48 hours. Personnel may be particularly susceptible to metal fume fever after a break such as a weekend off, holidays or after a long roster break.
Skin:	Material may be mildly discomforting to the skin. Zinc may irritate the skin and produce redness and swelling.

Swallowed: Not normally a hazard due to the physical form of the product. Material is discomforting to the digestive tract and may cause nausea, vomiting, headaches, abdominal discomfort and diarrhoea. Convulsion, collapse and unconsciousness and death may occur in severe cases.

Eye: Dust and particles may be highly discomforting to the eye and may result in abrasion to the eye and eye damage.

Chronic Health Effects There are no chronic health effects associated with zinc and metal fume fever however other complications such as bronchitis and pnumonitis have been known to develop as a result of acute exposures.
Chronic skin exposures may lead to skin sensitisation.

Exposure Standards Workplace Exposure Standards

Zinx oxide, dust	TWA	10mg/m^3	NO STEL
Zinc oxide, fume	TWA	5mg/m^3	STEL 10 mg/m^3
Cadmium and compounds (as Cd)	TWA	0.01mg/m^3	NO STEL
Lead	TWA	0.15mg/m^3	NO STEL

SECTION 12 DISPOSAL CONSIDERATIONS

Consult local council and government regulations relating to the safe disposal of product. Ensure that appropriate control measures are employed when handling and disposing product. Recycle where possible.

SECTION 13 TRANSPORT INFORMATION

U.N. Number: Not applicable
Proper Shipping Name: Not applicable
D.G. Class: Not applicable
Packing Group: Not applicable
HAZCHEM Code: Not applicable
Special Precautions: Not applicable

SECTION 14 OTHER INFORMATION

This MSDS is largely based on the Sun Metal Corp Special High Grade (SHG) Zinc SDS (issued 30SEP14)