MATERIAL SAFETY DATA SHEET
A1, A2 & A6 (AS2239) Aluminium Anodes
Issue Date: 02OCT23

Cathodic Anodes Australasia

SECTION 1 PRODUCT IDENTIFIER

Product Name: **A1, A2 and A6 Aluminium Anodes**
Synonyms: Aluminium Anodes, Aluminium Sacrificial Anodes
Appearance: Silver coloured metal
Odour: No odour
Use: Cathodic/Corrosion Protection
Poison Schedule: None allocated

Company Name: Cathodic Anodes Australasia
Address: Head Office, 8 Endeavour Drive
Kunda Park, QLD, Australia, 4556
Telephone: 07 5476 9788
Emergency Telephone: 0458 626 001
Email: sales@cathodicanodes.com.au
Web: www.cathodicanodes.com.au

SECTION 2 HAZARDS IDENTIFICATION

Classification: NON HAZARDOUS CHEMICAL. NON DANGEROUS GOODS. According to WHS Regulations and the ADG Code.
GHS Classification: No signal word. No known significant effects or critical hazards.

SECTION 3 COMPOSITION AND INGREDIENTS INFORMATION

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

Chemical Composition Limits Standard: AS2239 -2003 Aluminium — Alloy: **A1**

Element	min.	max.
Zinc	2.1	2.7
Indium	0.017	0.025
Cadmium	0.008	0.012
Silicon	-	0.20
Iron	-	0.12
Copper	-	0.006
Other Impurities		
- each	-	0.02
- total	-	0.05
Aluminium	remainder	

Chemical Composition Limits Standard: AS2239 -2003 Aluminium — Alloy: **A2**

Element	min.	max.
Zinc	3.0	5.0
Indium	0.02	0.05
Cadmium	-	0.005
Silicon	-	0.20
Iron	-	0.12
Magnesium	0 6	2.2
Titanium	0.02	0.05
Copper	-	0.006
Other Impurities		
- each	-	0.02
- total	-	0.05
Aluminium	remainder	

Chemical Composition Limits Standard: AS2239 -2003 Aluminium — Alloy: **A6**

Element	min.	max.
Zinc	2.0	6.0
Indium	0.01	0.02
Cadmium	-	0.005
Silicon	0.08	0.12
Iron	-	0.12
Magnesium	-	0.02
Titanium	-	0.02
Copper	-	0.006
Tin	-	0.02
Other Impurities		
- each	-	0.02
- total	-	0.05
Aluminium	remainder	

SECTION 4 FIRST AID MEASURES

General Low toxicity. Aluminium metal in most forms is non-toxic. It is not readily absorbed through the skin or gastro-intestinal tract and only poorly through the lungs.

Swallowed Ingestion of solid material is unlikely due to product form. The solid is regarded as non toxic. However, if large quantities of fine aluminium are ingested, seek immediate medical attention.

Eye Due to product form, irritation is not expected. Aluminium dust in eye may cause discomfort and irritation. Flush well under running water. If irritation develops, seek medical attention.

Inhalation Aluminium metal is essentially non-toxic. Inhalation of Aluminium dust or fumes may be discomforting to upper respiratory tract. If irritation or pulmonary symptoms develop leave the exposure area immediately. If symptoms persist, seek medical attention.

Skin Due to product form, irritation is not expected unless cut or heated and dust or fumes are generated. If heated, contact with hot surface is likely to result in blisters and burns. Aluminium dust may be abrasive to the skin and cause discomfort.

In the case of burns caused by contact with hot or molten aluminium, flush thoroughly with cold water to cool the area and seek medical attention. Do not attempt to remove metal adhering to skin. Note that excessive exposure to cold water following a burn can lead to hypothermia.

SECTION 5 FIREFIGHTING MEASURES

Melting Point Range 480-660degC
Flashpoint Not relevant
Flammability Limits Non Flammable in form of anode.

Fire Fighters: Isolate scene if there is a fire. Use a class D dry powder extinguisher. Do not use water, foam or halogenated extinguishing agents.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Spill Clean Up: Recycle if possible. Take care with items that are sharp or heavy.

SECTION 7 HANDLING AND STORAGE

Storage and Transport Aluminium is considered stable under normal handling conditions. Keep aluminium metal clean and dry during transport. Store aluminium metal in clean, dry, heated areas to avoid ingress of moisture or contaminants in cracks and cavities.
Prevent contact with acids and alkalis, halogens, oxidizing agents and chlorinated hydrocarbons.

Spills In the event of molten metal spill avoid contact with skin and eyes. **Do not attempt to arrest the flow of molten aluminium with shovels, hand tools or footwear.** Contain spill with dry sand.

Disposal Aluminium material can be recycled and remelted as scrap.

Fire/Explosion hazard Aluminium may lose structural strength when subject to fire and will melt to a hazardous liquid at temperatures in the range of 480 - 660°C. The exact melting point is dependent on the alloy composition.
Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates. Do not use water based or halogenated extinguishing agents. Use an appropriate class D fire extinguisher (dry chemical powder) or smother with dry sand.

Aluminium ingot and scrap for remelting will at times contain shrinkage cracks and subsurface cavities which may trap moisture. Under certain weather conditions, condensation can form on aluminium metal and/or plastic covers applied to aluminium products. As a safety precaution, remove any surface contaminants and preheat all metal thoroughly.

Failure to remove all surface or contained moisture completely may result in a violent explosion when the metal is immersed in molten metal. If a plastic cover is applied to the ingot bundle, it does not guarantee that the ingot will be in a dry condition. To prevent

explosions, it should be assumed that ingot may contain moisture and appropriate preheating should be applied to drive off internal and external moisture.
For further details on safe handling information, refer to the Aluminum Association's (USA) "Guidelines for Handling Molten Aluminum".

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Standards

Aluminium metal and oxide:	- Total dust:	10 mg/m3
	- Respirable dust	5 mg/m3

Engineering Controls

No special equipment is required when small quantities are being handled. Emissions from remelt furnaces should be ducted appropriately. For standard operations (e.g. milling cutting, grinding) aluminium dust and/or fumes should be removed by appropriate ducting.

Personal Protection

When handling molten aluminium, it is essential to protect eyes and skin from direct contact. Exposed skin may be at risk of burns due to radiant heat. The following PPE is regarded as the minimum requirement.

Body: Heat resistant clothing
Head: Approved safety helmet with neck protection
Eyes: Safety glasses or full face mask
Hands: Heat resistant gloves
Feet: Safety boots or shoes with spats

Where the exposure limit to dust and/or fumes may be exceeded, use the appropriate respirator.

Flammability

Aluminium metal is non flammable. Reaction with acids and alkalis may generate flammable hydrogen gas. Fine dust presents an explosion hazard if dispersed in air at high levels.

Melting Operations

Molten aluminium may react violently if it comes into contact with water. The following minimum guidelines should be observed prior to and during melting operations.

- Inspect all remelt ingot prior to charging into a furnace and remove surface contamination such as water, ice, snow, deposits of grease and oil and other surface contamination resulting from transport or storage.
- **Adequately preheat and dry ingot before charging it into a furnace.**
- Perform the furnace charging sequence in such a way that full submersion of ingots in molten aluminium is avoided to prevent entrapment of moisture beneath molten metal.

For further information on precautions for use, refer to the Aluminium Association's (USA) "Guidelines for Handling Molten Aluminium".

SECTION 9 OTHER INFORMATION

This MSDS is based on the Rio Tinto Aluminium SDS (21JUL16)