Northstar Metals Pty Ltd
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MATERIAL SAFETY DATA SHEET

DISCLAIMER

"The information and suggestions contained in this Data sheet are provided in good faith and are believed to be correct at the date hereof. Nevertheless, the accuracy and completeness of these data are not guaranteed and no warranty of any kind is made with respect to these data. In particular, these data are not intended to relieve any user of the product described from taking all precautions required in connection with the use of the product and complying with all relevant requirements. The use of the product in particular situations is likely to involve matters beyond the scope of this data sheet and users should in all cases use appropriately skilled persons to advice upon and carry out each particular application or use of the product. The disclaimer applies to Northstar Metals Pty Ltd, its subsidiaries and affiliated and all its sales agents, all of whom disclaim any and all liability for loss or damage resulting from any use, proper or improper, of the product."

STATEMENT OF HAZARDOUS NATURE

Not classified as hazardous according to International Standard criteria.

COMPANY DETAILS

Company Address

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IDENTIFICIATION

Production Information

Product Name:	Aluminium Metal	**Other Names:**	Aluminium
Product Codes:	Various alphanumeric codes	**UN Number:**	None Allocated
Dangerous goods Class:	None Allocated	**Subrisk:**	None Allocated
Hazchem Code:	None Allocated	**Poisons Schedule:**	None Allocated
Use:	Used as pure metal or as an alloy in a range of applications including transport, packaging and buildings		

* Product codes follow recognised International Aluminium Standards and/or Australian Aluminium Council Standards

Physical Description / Properties

Appearance and Odour:	Silver coloured metal with no odour
Boiling Point:	2450 deg cel
Solubility in water:	Negligible
Specific Gravity:	2.70
Vapour Density:	Not Applicable
Flashpoint:	Not Relevant
Vapour Pressure:	Negligible at 25 deg cel 1mmHg@ 1248 deg cel
Flammability Limits:	Non Flammable
Melting Point Range:	480-660 deg cel (depends on composition)
Volatile Component:	0%

Ingredients Components: Aluminium (CAS No. 7429-90-5) in concentrations of 80-99.999% by weight and alloying/trace elements, including:
Mg (7439-95-4); Cr (7440-47-3); Zn (7440-66-6); Sn (7440-31-5); Si (7440-21-3); Fe (7439-86-6); Cu (7440-50-8); Mn (7439-96-5); Ni (7440-02-0); Ti (7440-32-6); Sr (7440-24-6); B (7440-42-8)

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HEALTH HAZARD INFORMATION

Acute Health Effects

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

Eyes: Due to product form, irritation is not expected unless cut or heated and dust or fumes are generated. Aluminium dust may cause eye discomfort and irritation, pain, redness and conjunctivitis.

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.

Inhaled: Aluminium metal is essentially non-toxic. Inhaling aluminium dust or fumes may be discomforting to the upper respiratory tract.

Swallowed: The solid is regarded as non-toxic and due to product form ingestion is unlikely.

Chronic Health Effects

There are no known chronic health effects associated with aluminium metal. Fumes of certain alloying elements in aluminium may result in upper respiratory irritation. If aluminium is welded, prolonged or repeated inhalation of metal fumes may cause dizziness, respiratory irritation and nausea. Exposure to fumes from smelting and abrasive manufacture can initiate pulmonary fibrosis.

First Aid

Eye: (Dust exposure) flush well under running water. If irritation develops, seek medical attention.

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Skin: 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 the skin. Note that excessive exposure to cold water following a burn can lead to hypothermia. (Dust exposure) flush well under running water. If irritation develops, seek medical attention.

Inhalation: (Dust exposure) If irritation or pulmonary symptoms develop leave the exposure area immediately. If symptoms persists, seek medical attention.

Swallowed: Swallowing is considered an unlikely mode of entry in commercial/industrial environments. However, if large quantities of fine aluminium are ingested, seek immediate medical attention.

PRECAUTIONS FOR USE

Exposure Standards: Aluminium metal and oxide:
- Total Dust: 10mg/m3
- Respirable Dust: 5mg/m3

Welding Fumes: 5mg/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

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

Flammability: Aluminium metal is not 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, deposit of grease and oil and other surface contamination resulting from transport or storage
- **Adequately preheat and dry ingot before charging it into a furnace. As a guide, this is done by heating the ingots to 400c throughout. Heating for 2 hours per 25mm of section thickness is typically required to bring aluminium to a uniform temperature**
- 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 precaution for use, refer to Aluminium Association's (USA) "Guidelines for Handling Molten Aluminium". (see reference section for details).

SAFE HANDLING INFORMATION

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

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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 subjected to fire and will melt to a hazardous liquid at temperature in the range of 480-660C. 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 ingots and scrap for remelting at times contain shrinkage cracks and sub-surface 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 preheated all metal thoroughly as specified under “Precaution for Use”. 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 explosion, it should be assumed that ingots 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 Aluminium Association’s (USA) “Guidelines for Handling Molten Aluminium”.

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REFERENCES

Aluminium Association's (USA) – "Guidelines for Handling Molten Aluminium" (available from the Australian Aluminium Council, Level 1 Dickson Square, Dickson, Canberra ACT 2602; Phone + 61 2 6267 1800, Fax +61 2 6267 1888, Web: www.aluminium.org.au)

Australian Workplace Exposure Standards for Atmospheric Contamination – Guidance Notes NOHSC 3008 (1995)

National Model Regulations for the Control of Workplace Hazardous Substances – NOHSC 1005 (1994)

Approved Criteria for Classifying Hazardous Substances – NOHSC 1008 (1994)

Australian Aluminium Council – "Aluminium Standards and Data – Ingots and Castings" June 1997 Edition

"CAS Registry Handbook of Common Names" as published by Chemical Abstract Services – A Division of the American Chemical Society