

# Rio Tinto Alcan

## Section 1. Identification

<b>GHS product identifier</b>	: ALUMINUM WROUGHT METAL, 8XXX SERIES ALLOYS
<b>Product code</b>	: 186
<b>Other means of identification</b>	: Alloys : 8006, 8008, 8011, 8011A, 8014, 8018, 8021A, 8021B, 8030, 8079, 8177, 8111, 8112, 8176, 8XXX series, 8XXXX
<b>Product type</b>	: Massive metal.
<b>Material uses</b>	: Industrial applications: Primary metal; casting/molten and alloying; processing and manufacturing into articles and semi-fabricated articles, building and construction products, packaging products.

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

Not applicable.

<b>Supplier's details</b>	: Rio Tinto Alcan 1188 Sherbrooke West Montreal, Quebec H3A 3G2 Canada  Telephone: +1 514 848 8000
---------------------------	---

<b>Emergency telephone number</b>	: Americas: +1 215 207 0061 (Rio Tinto Alcan) Asia Pacific: +65 3158 1074 (Rio Tinto Alcan) China: +86 (0)10 5100 3039 (Rio Tinto Alcan) General: +44 (0) 1235 239 670 (Rio Tinto Alcan) For advice on chemical emergencies, spillages, fires or first aid.
-----------------------------------	---

<b>e-mail address of person responsible for this SDS</b>	: rta.msds@riotinto.com
--	-------------------------

## Section 2. Hazards identification

<b>Classification of the substance or mixture</b>	: Not classified.
---	-------------------

### GHS label elements

<b>Signal word</b>	: No signal word.
<b>Hazard statements</b>	: No known significant effects or critical hazards.

<b>Other hazards which do not result in classification</b>	: None.
--	---------

## Section 3. Composition/information on ingredients

**Substance/mixture** : Mixture

### CAS number/other identifiers

**CAS number** : Not applicable.

**EC number** : Mixture.

Ingredient name	%	CAS number
aluminium	>94	7429-90-5
Iron	0.1 - 2	7439-89-6
silicon	0 - 1	7440-21-3
manganese	0 - 0.9	7439-96-5
magnesium	0 - 0.5	7439-95-4
copper	0 - 0.4	7440-50-8

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

### Additional information

Occupational exposure limits, if available, are listed in Section 8.

## Section 4. First aid measures

### Description of necessary first aid measures

- Eye contact** : Get medical attention if any damage to the eye is caused by the metal.
- Inhalation** : For dust exposure: If irritation or other pulmonary symptoms persist, seek medical attention.
- Skin contact** : Cuts should be treated promptly and covered. Heated material can cause thermal burns. In case of burns, immediately cool affected skin with cold water and continue for as long as possible or apply wet cloths to the area until medical attention can be obtained.
- Ingestion** : Not applicable.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

- Eye contact** : Not applicable.
- Inhalation** : Not applicable.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : Not applicable.

#### Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : No specific data.
- Skin contact** : No specific data.
- Ingestion** : No specific data.

### Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No special protection is required. See Section 8 for information on appropriate personal protective equipment.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

**Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire. Not a fire hazard unless in a particle form (small chips, fine turnings, dust). Suspensions of aluminum dust in air may pose a severe explosion hazard, especially in a confined atmosphere. Avoid sparks and prevent electrostatic discharges from accumulating. A potential for explosion exists for a mixture of fine coarse particles if at least 15% to 20% of the material is finer than 44 microns (325 mesh). Buffing and polishing generate finer material than grinding, sawing and cutting. In case of aluminum fires, use a class D dry powder extinguisher.

**Unsuitable extinguishing media** : Water, foam, halogenated extinguishing agents.

**Specific hazards arising from the chemical** : No specific fire or explosion hazard.

**Hazardous thermal decomposition products** : None.

**Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Aluminium may lose structural strength when subject to fire and will melt to a hazardous liquid at temperatures in the range of 480 – 660 degrees celsius (dependent on the alloy composition).

**Special protective equipment for fire-fighters** : No special protection is required.

**Remark** : Molten aluminium may explode on contact with water or moisture, and may react violently with rust, certain metal oxides and nitrates.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel** : Put on appropriate personal protective equipment.

**For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

**Environmental precautions** : No specific hazard.

### Methods and materials for containment and cleaning up

**Small spill** : Recycle, if possible. Take care with items that are sharp or heavy.

**Large spill** : Recycle, if possible. Take care with items that are sharp or heavy. Do not attempt to arrest the flow of molten aluminium with shovels, hand tools or footwear. Contain spill with dry sand. Let solidify and cool down to ambient air temperature. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## Section 7. Handling and storage

**Precautions for safe handling** : Put on appropriate personal protective equipment (see Section 8). Take care with items that are sharp or heavy. Because of the risk of explosion, aluminum ingots and metal scrap should be thoroughly dried before remelting. Use standard techniques to check metal temperature before handling. Hot aluminum does not present any warning color change. Exercise great caution, since the metal may be hot. For more information on the handling and storing of aluminum, consult the following documents published by the Aluminum Association, 1525 Wilson Blvd, Suite 600, Arlington, VA 22209 (www.aluminium.org):  
- Guidelines for handling molten aluminum.

## Section 7. Handling and storage

- Recommendations for storage and handling of aluminum powders and pastes.
  - Guidelines for handling aluminum fines generated during various aluminum fabricating operations.
- See also ""National Fire Protection Association Codes"": NFPA 484: Standard for Combustible Materials.

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. As a guide, this is done by heating the ingots to 400 degrees Celsius 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.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Do not cut, transport or even approach any coil giving off a crackling sound or emitting steam vapor. Once a coil of foil has been partially or completely wetted: KEEP THE COIL COOL UNTIL THE INTERIOR IS COMPLETELY DRY. If such cooling is impractical, leave the coil in place and keep people at least 30 meters away from it for at least 72 hours. (See Rio Tinto Alcan publication entitled "Potential Safety Hazards of immersing a coil of Aluminum Foil in water"). Product ready for remelting must be kept dry.

## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
aluminium	<b>ACGIH TLV (United States, 2/2010).</b> TWA: 1 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction; see Appendix C
manganese	<b>ACGIH TLV (United States, 2/2010).</b> TWA: 0.2 mg/m <sup>3</sup> , (as Mn) 8 hour(s).
copper	<b>ACGIH TLV (United States, 2/2010).</b> TWA: 1 mg/m <sup>3</sup> , (as Cu) 8 hour(s). TWA: 0.2 mg/m <sup>3</sup> 8 hour(s). Form: Fume

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

- Appropriate engineering controls** : If the product is in its solid form: No special ventilation requirements. Special ventilation should be used to convey finely divided metallic dust generated by grinding, sawing or polishing operations, in order to eliminate explosion hazards. Maintain dust concentration in ventilation ducts below the lower explosive limit of 40 g/m<sup>3</sup> (0.04 oz/ft<sup>3</sup>).

- Environmental exposure controls** : Not applicable.

#### Individual protection measures

## Section 8. Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: face shield
- Skin protection**
- Hand protection** : Use strong, cut-resistant gloves suitable for handling metals. Wear suitable gloves.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: For handling molten metal: Clothing must be resistant to drops of molten metal and radiant heat.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: For handling molten metal: Safety boots or shoes with spats.
- Respiratory protection** : Recommended: If workers are exposed to concentrations above the exposure limit, they must use appropriate, certified respirators.
- Personal protective equipment (Pictograms)** :



## Section 9. Physical and chemical properties

### Appearance

- Physical state** : Solid. [Metal.]
- Color** : Silvery grey
- Odor** : Odorless.
- Odor threshold** : Not applicable.
- pH** : Not applicable.
- Melting point** : 482 to 660°C (899.6 to 1220°F)
- Boiling point** : Not applicable.
- Flash point** : Not applicable.
- Burning time** : Not applicable.
- Burning rate** : Not applicable.
- Evaporation rate** : Not applicable.
- Flammability (solid, gas)** : Not applicable.
- Lower and upper explosive (flammable) limits** : Not applicable.
- Vapor pressure** : Not applicable.
- Vapor density** : Not applicable.
- Bulk density** : Not applicable.
- Granulometry** : Not applicable.
- Relative density** : 2.5 to 2.9
- Solubility** : Insoluble in the following materials: cold water, hot water, methanol, diethyl ether, n-octanol and acetone.
- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not applicable.
- Decomposition temperature** : Not applicable.
- SADT** : Not applicable.
- Viscosity** : Not applicable.

## Section 9. Physical and chemical properties

## Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur. Fine dust presents an explosion hazard if dispersed in air at high concentrations.
- Conditions to avoid** : In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat. Molten aluminium may react violently if it comes into contact with water.
- Incompatible materials** : In the form of particles, may explode when mixed with halogenated acids, halogenated solvents, bromates, iodates or ammonium nitrate. Aluminum particles on contact with copper, lead, or iron oxides can react vigorously with release of heat if there is a source of ignition or intense heat. Molten aluminium may react violently if it comes into contact with water.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Aluminium	LC50 Inhalation Dusts and mists	Rat	>2350 mg/l	4 hours
	LD50 Dermal	Rat	No effect level.	-
	LD50 Oral	Rat	>5000 mg/kg	-

**Conclusion/Summary** : No known significant effects or critical hazards.

#### Irritation/Corrosion

##### Conclusion/Summary

**Eyes** : Not applicable for solid metal form. Aluminium dust may cause eye discomfort and irritation.

#### Sensitization

##### Conclusion/Summary

**Skin** : Non-sensitizer.

**Respiratory** : Non-sensitizer.

#### Mutagenicity

**Conclusion/Summary** : No mutagenic effect.

#### Carcinogenicity

**Conclusion/Summary** : No carcinogenic effect.

#### Reproductive toxicity

**Conclusion/Summary** : Not considered to be toxic to the reproductive system.

#### Teratogenicity

**Conclusion/Summary** : No teratogenic effect.

#### Specific target organ toxicity (single exposure)

Not applicable.

## Section 11. Toxicological information

### Specific target organ toxicity (repeated exposure)

Not applicable.

### Aspiration hazard

Not applicable.

**Information on the likely routes of exposure** : Routes of entry anticipated: Inhalation.

### Potential acute health effects

**Eye contact** : Not applicable.  
**Inhalation** : Not applicable.  
**Skin contact** : No known significant effects or critical hazards.  
**Ingestion** : Not applicable.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : No specific data.  
**Inhalation** : No specific data.  
**Skin contact** : No specific data.  
**Ingestion** : No specific data.

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : No specific data.  
**Potential delayed effects** : No specific data.

#### Long term exposure

**Potential immediate effects** : No specific data.  
**Potential delayed effects** : No specific data.

### Potential chronic health effects

Not available.

**Conclusion/Summary General** : No known significant effects or critical hazards.  
**Carcinogenicity** : No known significant effects or critical hazards.  
**Mutagenicity** : No known significant effects or critical hazards.  
**Teratogenicity** : No known significant effects or critical hazards.  
**Developmental effects** : No known significant effects or critical hazards.  
**Fertility effects** : No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
aluminium	EC50 >100 mg/l EC50 >100 mg/l EC50 >100 mg/l	Algae - Selenastrum capricomutum Daphnia - Daphnia magna Fish - Salmo trutta	72 hours 48 hours 96 hours

**Conclusion/Summary** : No acute or chronic classification is appropriate for Al metal massive based on non toxic results below the Ecotoxicity Reference Value (ERV) of tests with aluminium metal, oxide and hydroxide at loadings of 100 mg/L at pH 8-8.5 (maximum solubility of Al expected).  
All aluminium in soil or the aquatic environment comes from natural sources. Local sources has an insignificant contribution and impact on environment.

### Persistence and degradability

**Conclusion/Summary** : Not applicable

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Aluminium	-	-	Not readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Aluminium	-	-	-

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not mobile under normal environmental conditions. May be leached from the ground at low pH (<5.5) or high pH (>8.5)

**Other adverse effects** : No known significant effects or critical hazards.

## Section 13. Disposal considerations

**Disposal methods** : Recycle, if possible. The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

## Section 14. Transport information

	UN	IMDG	IATA
<b>UN number</b>	Not regulated.	Not regulated.	Not regulated.
<b>UN proper shipping name</b>	-	-	-
<b>Transport hazard class(es)</b>	-	-	-
<b>Packing group</b>	-	-	-
<b>Environmental hazards</b>	No.	No.	No.

**Version** : 1

**Date of issue/Date of revision** : 5/22/2012.



## Section 14. Transport information

Special precautions for user	Not applicable.	Not applicable.	Not applicable.
Additional information	-	-	-

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable

## Section 15. Regulatory information

Safety, health and environmental regulations specific for the product : No known specific national and/or regional regulations applicable to this product (including its ingredients).

## Section 16. Other information

### History

Date of printing : 7/31/2012.  
 Date of issue/Date of revision : 5/22/2012.  
 Date of previous issue : No previous validation.  
 Version : 1  
 Key to abbreviations : ADN/ADNR = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail  
 UN = United Nations

References : Not available.

☑ Indicates information that has changed from previously issued version.

### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.