

Rio Tinto Alcan

Section 1. Identification

GHS product identifier	: Calcined Alumina
Product code	: 220
Other means of identification	: Smelter grade alumina, SGA, alumina, aluminium oxide
Product type	: Powder.
Material uses	: Industrial applications: feedstock for the manufacture of aluminium metal and various aluminium oxide based materials e.g. tabular alumina, fused alumina, bubble alumina, sintered alumina, Spinel, Mullite, calcium aluminate cement, beta-alumina, zirconia alumina. Manufacture of ceramics, tiles, porcelain, hotel-ware, refractories, abrasives, polishing and cleaning compounds, wear parts, brake linings, electrical insulating materials, spark plugs, fillers, toothpaste, cosmetics. Media for sand blasting and heat treatment.

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

Not applicable.

Supplier's details : Rio Tinto Alcan
Bauxite & Alumina Business Unit

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For advice on chemical emergencies, spillages, fires or First Aid.

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

Section 2. Hazards identification

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Other hazards which do not result in classification : Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

CAS number/other identifiers

CAS number : 1344-28-1

EC number : 215-691-6

Ingredient name	%	CAS number
aluminium oxide	>98	1344-28-1

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

Grades available (list subject to variation and change):

SGA, C1, AMP, AMB, APN, ATS, COPEs, M4R, XMD01, P series, A4 series, AC series, AR series, GA series, P series, PEX 2XXX series, ARZ series, AFRZ series.

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

Section 4. First-aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- Inhalation** : Move exposed person to fresh air. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Ingestion** : Wash out mouth with water. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
- Inhalation** : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
irritation
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : No specific data.

Section 4. First-aid measures

Ingestion : No specific data.

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

Notes to physician : No specific treatment. 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.

Unsuitable extinguishing media : None known.

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.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Avoid breathing dust. 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 : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Methods and materials for containment and cleaning up

Small spill : Recycle, if possible. Waste must be disposed of according to applicable regulations.

Large spill : Recycle, if possible. Avoid creating dusty conditions and prevent wind dispersal. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. Waste must be disposed of according to applicable regulations.

Section 7. Handling and storage

Precautions for safe handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid breathing dust. Avoid creating dusty conditions and prevent wind dispersal.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store so as to avoid dust generation and dispersal.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
aluminium oxide	ACGIH TLV (United States, 2011). TWA: 1 mg/m ³ , (Respirable fraction) Rio Tinto TWA: 5mg/m ³ , 8 hours Form: Respirable TWA: 10 mg/m ³ , 8 hours Form: Inhalable

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 : Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Avoid creating dusty conditions and prevent wind dispersal.

Individual protection measures

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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. If operating conditions cause high dust concentrations to be produced, use dust goggles.

Skin protection

Hand protection : Wear suitable gloves.

Body protection : No special protective clothing is required.

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.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid. [Powder.]

Colour : White.

Odour : Odourless.

Odour threshold : Not applicable.

pH : Not applicable.

Section 9. Physical and chemical properties

Melting point	: 2072°C (3761.6°F)
Boiling point	: 2977°C (5390.6°F)
Flash point	: Not applicable.
Burning time	: Not applicable.
Burning rate	: Not applicable.
Evaporation rate	: Not applicable.
Flammability (solid, gas)	: Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.
Lower and upper explosive (flammable) limits	: Not available.
Vapour pressure	: Not applicable.
Vapour density	: Not available.
Bulk density	: 0.7 - 1.1 [g/cm ³]
Granulometry	: 0.5 - 100 Microns
Relative density	: 3.97
Solubility	: Insoluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Not applicable.
Auto-ignition temperature	: Not applicable.
Decomposition temperature	: Not applicable.
SADT	: Not applicable.
Viscosity	: Not applicable.

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.
Conditions to avoid	: None known.
Incompatible materials	: None known.
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

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

Irritation/Corrosion

Conclusion/Summary

Skin : No significant irritation expected other than possible mechanical irritation.

Eyes : No significant irritation expected other than possible mechanical irritation.

Respiratory : No significant irritation expected other than possible mechanical irritation.

Sensitisation

Conclusion/Summary

Section 11. Toxicological information

Skin : Non-irritant to skin.
Respiratory : Non-irritating to the respiratory system.

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.

Specific target organ toxicity (repeated exposure)

Not applicable.

Aspiration hazard

Not applicable.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
Inhalation : Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Skin contact : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
irritation
redness
Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
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 : Not available.
Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary : No known significant effects or critical hazards.
General : Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation.
Carcinogenicity : No known significant effects or critical hazards.
Mutagenicity : No known significant effects or critical hazards.

Section 11. Toxicological information

- 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 oxide	EC50 >100 mg/l EC50 >100 mg/l EC50 >100 mg/l	Algae - Selenastrum capricornutum 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 readily biodegradable.

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

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
aluminium oxide	-	-	-

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : 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 minimised wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Section 14. Transport information

	UN	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	No.	No.	No.
Special precautions for user	Not applicable.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.
Additional information	-	-	-

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 : 3/28/2014.

Date of issue/Date of revision : 3/28/2014.

Date of previous issue : 2/27/2014.

Version : 2.01

Key to abbreviations : ADN = 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.

Version : 2.01

Date of issue/Date of revision : 3/28/2014.

Section 16. Other information

[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.