QUEENSLAND ALUMINA LIMITED

SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **CALCINED ALUMINA (QAL)**

Synonym(s) ALUMINA • ALUMINIUM OXIDE • CALCINED ALUMINA • PRODUCT • SMELTER GRADE ALUMINA

1.2 Uses and uses advised against

Use(s) ALUMINIUM PRODUCTION

1.3 Details of the supplier of the product

Supplier name **QUEENSLAND ALUMINA LIMITED**

Address Parsons Point, Gladstone, QLD, 4680, AUSTRALIA

Telephone (07) 4976 2211

Fax (07) 4976 2506

Website http://www.qal.com.au

1.4 Emergency telephone number(s)

Emergency (07) 4976 2222

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

2.2 Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	Identification	Classification		Content
		GHS	Risk	
CALCIUM OXIDE	CAS: 1305-78-8 EC: 215-138-9	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335	Xi;R37/38, Xi;R41	<1%
QUARTZ (SILICA CRYSTALLINE)	CAS: 14808-60-7 EC: 238-878-4	Not Available	Not Available	<1%
ALUMINIUM OXIDE	CAS: 1344-28-1 EC: 215-691-6	Not Available	Not Available	>99.5%
IRON (III) OXIDE	CAS: 1309-37-1 EC: 215-168-2	Not Available	Not Available	<1%
SODIUM OXIDE	CAS: 1313-59-3 EC: 215-208-9	Not Available	Not Available	<1%

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye	If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.
Inhalation	If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.
Skin	If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.
Ingestion	For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once). If swallowed, do not induce vomiting.
First aid facilities	Eye wash facilities should be available.

4.2 Most important symptoms and effects, both acute and delayed

Not expected to produce any significant acute or delayed symptoms.

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. In bulk, dry powder can build up a static electric charge, when subject to the friction of conveying, mixing or other movement.

5.3 Advice for firefighters

Evacuate area and contact emergency services. CAUTION: In bulk, dry powder may build up static electric charge when subject to the friction of conveying, mixing or sliding. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in Section 8. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then cover/absorb spill with non-combustible absorbent material (vermiculite, sand, or similar), collect and place in suitable containers for disposal.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well ventilated area, removed from incompatible substances and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Aluminium oxide (a)	SWA (AUS)	--	10	--	--
Calcium oxide	SWA (AUS)	--	2	--	--
Iron oxide fume (Fe2O3) (as Fe)	SWA (AUS)	--	5	--	--
Quartz (respirable dust)	SWA (AUS)	--	0.1	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical explosion proof extraction ventilation is recommended. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	When using large quantities or where heavy contamination is likely, wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P1 (Particulate) respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	WHITE CRYSTALLINE POWDER
Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	> 2000°C
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	NOT AVAILABLE
Specific gravity	3.6
Solubility (water)	INSOLUBLE
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE

9.2 Other information

% Volatiles	NOT AVAILABLE
Density	980 kg/m³ (Bulk)

10. STABILITY AND REACTIVITY

10.1 Reactivity
Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability
Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions
Polymerization is not expected to occur.

10.4 Conditions to avoid
Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials
Incompatible with chlorine trifluoride (reacts violently, forming flame) and ethylene oxide (polymerises violently). Dissolves slowly in alkaline solutions. The manufacturer reports that exothermic reactions above 200°C with halocarbon vapours may evolve hydrogen chloride and phosgene gas.

10.6 Hazardous decomposition products
May evolve aluminium oxides when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Oral Toxicity: An oral LD50 in rats of >5000 mg/kg was reported for aluminium oxide. Inhalation Toxicity: No standard acute toxicity data were available for elemental aluminium oxide. The LOAEL for rats following a 4 hour inhalation exposure to aluminium flakes for 5 consecutive days was 200 mg/m3. Dermal Toxicity: No standard acute toxicity data were available for elemental aluminium oxide. No dermal effects are expected from acute exposure to aluminium metal since it is insoluble and skin penetration would be minimal.
Skin	This product may cause mechanical skin irritation.
Eye	This product may cause mechanical eye irritation.
Sensitization	This product is not known to be a skin or respiratory sensitiser.
Mutagenicity	Mutagenicity studies (i.e., Ames test with Salmonella strains and Bacillus subtilis test) with aluminium oxide have been negative.
Carcinogenicity	No data are available for aluminium oxide. There is no clear evidence of cancer due to inhalation or oral exposure to aluminium.
Reproductive	No data available for aluminium oxide. There is modest evidence of reproductive effects associated with soluble aluminium compounds related to systemic available aluminium ions. While this effect is relevant for elemental aluminium, the potential release and absorption of aluminium ions from elemental aluminium is substantially lower than for the soluble compounds via all routes. There are no human studies on pregnancy outcome after aluminium ingestion.
STOT – single exposure	Only at excessive concentrations of aluminium are toxic manifestations seen and, hence, aluminium is considered to possess a “low” potential for producing adverse effects.
STOT – repeated exposure	No data available for aluminium oxide. Lung fibrosis has historically been associated with aluminium powder exposure; however, this powder was coated with mineral oil, which is no longer done. Exposure to uncoated aluminium powder has not been associated with lung fibrosis.
Aspiration	This product is a solid and aspiration hazards are not expected to occur.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
The No Observed Effect Concentrations (NOEC) for aluminium oxide in testing of fish, invertebrate, and algae are all above 100mg/L.

12.2 Persistence and degradability
Product is persistent and would have a low degradability.

12.3 Bioaccumulative potential
This product is not expected to bioaccumulate.

12.4 Mobility in soil
A low mobility would be expected in a landfill situation.

12.5 Other adverse effects

Aluminium is the most common metal in the earths crust and the third most common element. Normally present as oxide or complex silicate minerals. All aluminium in soil or the adequatic environment comes from natural sources. Local sources has an insignificant contribution and impact on environment.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Reuse where possible, or return to the manufacturer or supplier. Alternatively, dispose of at an approved landfill site. Contact the manufacturer for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code None Allocated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes None allocated.

Risk phrases None allocated.

Safety phrases None allocated.

Inventory listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information The manufacturer reports that this product is a white crystalline powder produced by calcining aluminium hydroxide. This type of alumina is transitional ie. heating will dehydrate small amounts of re-adsorbed water of crystallisation, with further heating to 1200°C producing chemically stable alpha alumina. This product is also used in the manufacturer of abrasives, refractories and ceramics.

EXPOSURE STANDARDS - TIME WEIGHTED AVERAGES: Exposure standards are established on the premise of an 8 hour work period of normal intensity, under normal climatic conditions and where a 16 hour break between shifts exists to enable the body to eliminate absorbed contaminants. In the following circumstances, exposure standards must be reduced: strenuous work conditions; hot, humid climates; high altitude conditions; extended shifts (which increase the exposure period and shorten the period of recuperation).

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m^3	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Revision history

Revision	Description
2.0	Reference GHS in Section 2.
1.0	Initial SDS creation

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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