



SAFETY DATA SHEET

1. Identification

Product identifier	CALCINED ALUMINA
Other means of identification	
SDS number	151
Issue date	06-19-2014
Other means of identification	
Revision date	06-19-2014
Version #	05
Synonym(s)	Ground, unground, superground, jet milled and dispersable * All A-, APC-, IS-, P- and RG-grades * CL-3000, CL-3500, CTC-50, E-40, Enriched 5359, Fusion Grade 5116, Grade A Special, Metallurgical Grade 5115, Mixed Phase Coarse, Mixed Phase Fines * OF-2000, NA-WRA, PCT, Refractory Grade, Smelter Grade Alumina, Special Catalytic, SC-grades, SGA * SRP-A-2, SRP-A-5, SRP-A-20, SRP-A-22, SRP-A-30, SRP-A-32, SRP-A-66, SRP-A-67, SRP-A-68, SRP-A-71, SRP-A-74, SRP-A-90E, and Wear Grades
Recommended use	Industrial use, further processing into a number of articles/products. Primary aluminum production
Recommended restrictions	None known.
Manufacturer/Importer/Supplier/Distributor information	
Manufacturer	

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Emergency Information:	USA: Chemtrec: +1-703-527-3887 +1-800-424-9300 (24 Hour Emergency Telephone, multiple languages spoken); ALCOA; +1-412-553-4001 (24 Hour Emergency Telephone, only English spoken)
Website:	For a current Safety Data Sheet, refer to Alcoa website: www.alcoa.com or internally at my.alcoa.com EHS Community

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Not classified.
Environmental hazards	Not classified.
OSHA defined hazards	Not classified.
Label elements	
Hazard symbol	None.
Signal word	None.
Hazard statement	The substance does not meet the criteria for classification.
Precautionary statement	
Prevention	Not applicable.
Response	Not applicable.
Storage	Not applicable.
Disposal	Not applicable.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.
Specific hazards	Can cause mild irritation of the upper respiratory tract.

3. Composition/information on ingredients

Composition comments	Complete composition is provided below and may include some components classified as non-hazardous.
Substances	

Chemical name	Common name and synonyms	CAS number	%
Aluminum oxide (non-fibrous)	Alumina	1344-28-1	>98.6

4. First-aid measures

Eye contact	Rinse eyes with plenty of water or saline for at least 15 minutes. Consult a physician.
Skin contact	Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops and persists.
Inhalation	Remove to fresh air. Check for clear airway, breathing, and presence of pulse. If breathing is difficult, provide oxygen. Loosen any tight clothing on neck or chest. Provide cardiopulmonary resuscitation for persons without pulse or respirations. Consult a physician.
Ingestion	If swallowed, dilute by drinking water. Recommend quantities up to 30 mL (~1 oz.) in children and 250 mL (~9 oz.) in adults. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do NOT induce vomiting. Consult a physician.
Most important symptoms/effects, acute and delayed	See Section 11 of the SDS for additional information on health hazards.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen.
General information	If exposed or concerned: get medical attention/advice.

5. Fire-fighting measures

Suitable extinguishing media	Use fire fighting methods and materials that are appropriate for surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	No unusual fire or explosion hazards noted.
Hazardous combustion products	No hazardous decomposition products are known.
Special protective equipment and precautions for firefighters	Firefighters should wear NIOSH approved, positive pressure, self-contained breathing apparatus and full protective clothing when appropriate.
Fire-fighting equipment/instructions	Use fire fighting methods and materials that are appropriate for surrounding fire.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	Non-combustible.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Avoid generating dust. Avoid contact with skin and eyes.
Evacuation procedures	None necessary.
Methods and materials for containment and cleaning up	Return to containers using shovels, buckets or brooms. Clean up in accordance with all applicable regulations.
Environmental precautions	No special environmental precautions required. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Handling	Avoid generating dust. Avoid contact with skin and eyes. Avoid breathing dust. Wear appropriate personal protective equipment. Wet alumina should not be added to an aluminum reduction cell.
Storage	Keep material dry.

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA Components

Components	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value	Form
CALCINED ALUMINA	PEL	5 mg/m ³	Respirable fraction.
		15 mg/m ³	Total dust.

ACGIH Components	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	1 mg/m3	Respirable fraction, as Al
US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units			
Material	Type	Value	Form
CALCINED ALUMINA	TWA	1 mg/m3	Respirable fraction.
Alcoa Material	Type	Value	Form
CALCINED ALUMINA	TWA	3 mg/m3 10 mg/m3	Respirable fraction. Total dust.
Components	Type	Value	Form
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	TWA	3 mg/m3 10 mg/m3	Respirable fraction. Total dust.

General	Use personal protective equipment as required.
Appropriate engineering controls	Use with adequate ventilation to meet the limits listed in Section 8.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Safety glasses with full side shields or goggles recommended. Use tight fitting goggles if excessive levels of dust are generated.
Skin protection	
Hand protection	Wear appropriate gloves to avoid any skin injury.
Other	Not available.
Respiratory protection	Use NIOSH-approved respiratory protection as specified by an Industrial Hygienist or other qualified professional if concentrations exceed the limits listed in Section 8. Suggested respiratory protection: N95.
Thermal hazards	Not available.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Form	Solid, powder.
Color	White.
Odor	Odorless
Odor threshold	Not applicable
pH	9 - 10 (10% slurry)
Melting point/freezing point	3722 °F (2050 °C)
Initial boiling point and boiling range	Not applicable
Flash point	Not applicable
Evaporation rate	Not applicable
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - upper (%)	Not applicable
Flammability limit - lower (%)	Not applicable
Explosive properties	Not applicable.
Dust explosion properties	
St class	Not applicable.
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not determined
Solubility(ies)	Insoluble

Partition coefficient (n-octanol/water)	Not applicable. Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	Not applicable
Viscosity	Not applicable

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable under normal conditions of use, storage, and transportation.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	None known.
Incompatible materials	May generate heat on contact with water.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Eye contact	Can cause mild irritation.
Skin contact	Can cause mild irritation.
Inhalation	Can cause mild irritation of the upper respiratory tract.
Ingestion	Can cause mild irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation. May cause skin irritation in susceptible persons. Dust may irritate respiratory system or lungs. Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.

Health effects associated with ingredients

Alumina (aluminum oxide): Low health risk by inhalation. Generally considered to be biologically inert.

Health effects associated with compounds formed during processing

No new/additional compounds are expected to be formed during processing.

Information on toxicological effects

Acute toxicity Not classified. Based on available data, the classification criteria are not met.

Components	Species	Test Results
Aluminum oxide (non-fibrous) (CAS 1344-28-1)		
Acute		
<i>Inhalation</i>		
LC50	Rat	> 2.3 mg/l 7.6 mg/l
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
Skin corrosion/irritation	Non-corrosive.	
Serious eye damage/eye irritation	Direct contact may irritate.	
Respiratory or skin sensitization	Not applicable.	
Respiratory sensitization	Not a respiratory sensitizer.	
Skin sensitization	May cause minor irritation on skin contact. Not a skin sensitizer.	
Germ cell mutagenicity	Contains no ingredient listed as a mutagen.	
Carcinogenicity	Does not present any cancer hazards.	
ACGIH Carcinogens		
Aluminum oxide (non-fibrous) (CAS 1344-28-1)	A4 Not classifiable as a human carcinogen.	
Reproductive toxicity	Does not present any reproductive hazards.	
Specific target organ toxicity - single exposure	Classification not possible. Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	Classification not possible. Based on available data, the classification criteria are not met.	
Aspiration hazard	Not an aspiration hazard.	

Chronic effects	Frequent inhalation of dust over a long period of time increases the risk of developing lung diseases.
Further information	None known.

12. Ecological information

Ecotoxicity	This material is not expected to be harmful to aquatic life.
Persistence and degradability	The product solely consists of inorganic compounds which are not biodegradable.
Bioaccumulative potential	The product is not bioaccumulating.
Mobility in soil	Not considered mobile.
Mobility in general	Not considered mobile.
Other adverse effects	None known.

13. Disposal considerations

Disposal instructions	Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Waste codes	RCRA Status: Not federally regulated in the U.S. if disposed of "as is." RCRA waste codes other than described here may apply depending on use of the product. Status must be determined at the point of waste generation. Refer to 40 CFR 261 or state equivalent in the U.S.
Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Dispose of in accordance with local regulations.

14. Transport information

General Shipping Information

Basic Shipping Information

ID number	-
Proper shipping name	Not regulated
Hazard class	-
Packing group	-

General Shipping Notes

- US HTS (Harmonized Tariff Schedule) code: 1818.20.0000
- The import/export HTS (Harmonized Tariff Schedule) code given above is the United States HTS code provided by Alcoa's Customs Compliance Office in Knoxville, TN. Other country specific HTS codes may apply. If available, more information on the HTS codes will be provided on country specific Material Safety Data Sheets.
- When "Not regulated", enter the proper freight classification, SDS Number and Product Name onto the shipping paperwork.

Disclaimer

This section provides basic classification information and, where relevant, information with respect to specific modal regulations, environmental hazards and special precautions. Otherwise, it is presumed that the information is not available/not relevant

15. Regulatory information

US federal regulations	In reference to Title VI of the Clean Air Act of 1990, this material does not contain nor was it manufactured using ozone-depleting chemicals. This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
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TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Aluminum oxide (non-fibrous)	1344-28-1	>98.6

US state regulations This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Aluminum oxide (non-fibrous) (CAS 1344-28-1)

US. New Jersey Worker and Community Right-to-Know Act

Aluminum oxide (non-fibrous) (CAS 1344-28-1) 500 lbs

US. Pennsylvania RTK - Hazardous Substances

Aluminum oxide (non-fibrous) (CAS 1344-28-1)

US. Rhode Island RTK

Aluminum oxide (non-fibrous) (CAS 1344-28-1)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

SDS Status June 19, 2014: Change(s) in Section: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15 and 16.
 June 1, 2011: Change(s) in Section: 1 (EU versions only).
 December 16, 2010: New format.
 January 7, 2009: New format.
 June 22, 2006: Reviewed on a periodic basis in accordance with Alcoa policy.
 April 14, 2003: Reviewed on a periodic basis in accordance with Alcoa policy. No significant changes were made.

Issue date 06-19-2014

Revision date 06-19-2014

Version # 05

Revision Information Product and Company Identification: Synonyms
 Composition / Information on Ingredients: Ingredients
 Physical & Chemical Properties: Multiple Properties
 Transport Information: Proper Shipping Name/Packing Group
 Regulatory Information: United States
 HazReg Data: North America

Other information

- Guide to Occupational Exposure Values 2013, Compiled by the American Conference of Governmental Industrial Hygienists (ACGIH).
- NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, September 2005,
- United States National Library of Medicine TOXNET Toxicology Data Network,
- Ariel, 3E Company, www.3Ecompany.com

Key/Legend:

ACGIH	American Conference of Governmental Industrial Hygienists
AICS	Australian Inventory of Chemical Substances
CAS	Chemical Abstract Services
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CPR	Cardio-pulmonary Resuscitation
DOT	Department of Transportation
DSL	Domestic Substances List (Canada)
EC	Effective Concentration
ED	Effective Dose
EINECS	European Inventory of Existing Commercial Chemical Substances
ENCS	Japan - Existing and New Chemical Substances
EWC	European Waste Catalogue
EPA	Environmental Protective Agency
IARC	International Agency for Research on Cancer
LC	Lethal Concentration
LD	Lethal Dose
MAK	Maximum Workplace Concentration (Germany) "maximale Arbeitsplatz-Konzentration"
NDSL	Non-Domestic Substances List (Canada)
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PIN	Product Identification Number
PMCC	Pensky Marten Closed Cup
REACH	Registration, Authorization & Restriction of Chemicals
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
SIMDUT	Système d'Information sur les Matières Dangereuses Utilisées au Travail
STEL	Short Term Exposure Limit
TCLP	Toxic Chemicals Leachate Program
TDG	Transportation of Dangerous Goods
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
WHMIS	Workplace Hazardous Materials Information System

m meter, cm centimeter, mm millimeter, in inch,
g gram, kg kilogram, lb pound, µg microgram,
ppm parts per million, ft feet

Disclaimer

The information in the sheet was written based on the best knowledge and experience currently available.