



SAFETY DATA SHEET

1. Identification

Product identifier ALUMINUM HYDROXIDE

Other means of identification

SDS number 694

Version # 05

Revision date May 26, 2015.

Other means of identification

Synonyms Caustic recovery by-product

Recommended use Recycle, Reuse

Recommended restrictions For industrial use only.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Alcoa Inc.
201 Isabella Street
Pittsburgh, PA 15212-5858 USA
Health and Safety Tel: 1-412-553-4649
Health and Safety Fax: 1-412-553-4822
Health and Safety Email: accmsds@alcoa.com

Emergency Information 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 websites: www.alcoa.com or internally at my.alcoa.com EHS Community

2. Hazard(s) identification

Classification

This material is not considered hazardous by the OSHA Hazard Communication Standard, OSHA 29 CFR 1910.1200.

Potential health effects

The following statements summarize the health effects generally expected in cases of overexposures. User specific situations should be assessed by a qualified individual. Additional health information can be found in Section 11.

Physical hazards Not classified.

Health hazards Not classified.

Environmental hazards Not classified.

Authority defined hazards Not classified.

Label elements

Hazard symbol None.

Signal word None.

Hazard statement The mixture does not meet the criteria for classification.

Precautionary statement

Prevention Observe good industrial hygiene practices.

Response Wash hands after handling.

Storage Store away from incompatible materials.

Disposal Not available.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Direct contact: Can cause irritation of the eyes and skin. Dust: Can cause 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.

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Aluminum hydroxide		21645-51-2	80 - 90
Water		7732-18-5	10 - 20
Sodium hydroxide		1310-73-2	<= 0.49

4. First-aid measures

Eye contact

Immediately flush eyes with plenty of water for at least 20 minutes. Consult a physician immediately.

Skin contact

Wash with soap and water for at least 15 minutes. Get medical attention if irritation develops or 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

Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media

Use water spray to cool exposed containers. Move undamaged containers away from heat or flame, if possible. Use fire fighting methods and materials that are appropriate for surrounding fire.

Unsuitable extinguishing media

None known.

Specific hazards arising from the chemical

Heating the material above 392°F (200°C) will result in a sudden release of water vapor (steam).

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 standard fire fighting procedures and consider the hazards of other involved materials. In the event of fire, cool tanks with water spray.

General fire hazards

Non-combustible.

Explosion data

Sensitivity to mechanical impact

Not sensitive.

Sensitivity to static discharge

Not sensitive.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protection recommended in Section 8 of the SDS.

Personal precautions, protective equipment and emergency procedures

For emergency responders Not available.

Evacuation procedures

None necessary.

Methods and materials for containment and cleaning up

Avoid generating dust. Recover spills for reuse. Pick up mechanically.

Environmental precautions

No special environmental precautions required.

7. Handling and storage

Handling	Avoid contact with skin and eyes. Avoid generating dust.
Storage	Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

U.S. - OSHA Components

Type	Value
Sodium hydroxide (CAS 1310-73-2)	TWA 2 mg/m3

ACGIH Components

Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling 2 mg/m3

US ACGIH Threshold Limit Values: Ceiling Components

Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling 2 mg/m3

US ACGIH Threshold Limit Values: Time Weighted Average (TWA): mg/m3, non-standard units Components

Type	Value	Form
Aluminum hydroxide (CAS 21645-51-2)	TWA 1 mg/m3	Respirable fraction.

Alcoa Components

Type	Value	Form
Aluminum hydroxide (CAS 21645-51-2)	TWA 3 mg/m3	Respirable fraction
	10 mg/m3	Inhalable fraction

Appropriate engineering controls	Use with adequate ventilation to meet the limits listed in Section 8.
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Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields.

Skin protection

Hand protection Wear impervious gloves to avoid direct skin contact.

Other Wear appropriate gloves and clothing to avoid direct skin contact.

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 applicable.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice.

Control parameters Follow standard monitoring procedures.

Environmental exposure controls No special environmental precautions required.

9. Physical and chemical properties

Form Solid; free-flowing, crystalline powder or wet cake.

Color White.

Odor Caustic odor.

Odor threshold Not determined

pH 10 (water slurry)

Melting point/freezing point 392 °F (200 °C) Decomposes

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 an explosion hazard.
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not determined.
Solubility(ies)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable
Auto-ignition temperature	Not applicable
Decomposition temperature	392 °F (200 °C)
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	Heating the material above 392°F (200°C) will result in a sudden release of water vapor (steam). Precautions must be taken to dissipate the vapor and any pressure that may be generated. A sudden increase in pressure could cause damage or explosion in enclosed equipment.
Incompatible materials	Strong acids and strong bases.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Health effects associated with ingredients

Aluminum hydroxide: Low health risk by inhalation. Generally considered to be biologically inert.

Sodium hydroxide: Can cause severe irritation and burns of the eyes, skin and upper respiratory tract. Eye contact: Can cause corrosive burns and permanent injury (including blindness). Skin contact: Can cause corrosive burns and permanent injury. Chronic overexposures: Can cause respiratory tract damage. Ingestion: Can cause severe irritation and burns of the gastrointestinal tract.

Health effects associated with compounds formed during processing

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

Information on likely routes of exposure

Eye contact	Direct contact: Can cause irritation of the eyes.
Skin contact	Direct contact: Can cause irritation of the skin.
Inhalation	Dust: Can cause irritation of the upper respiratory tract.
Ingestion	Can cause irritation of the gastrointestinal tract.

Symptoms related to the physical, chemical and toxicological characteristics	Irritating to eyes, respiratory system and skin.
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Information on toxicological effects

Components	Species	Test Results
Sodium hydroxide (CAS 1310-73-2)		
<u>Acute</u>		
Dermal		
LD50	Rabbit	1350 mg/kg

Components	Species	Test Results
Other LD50	Mouse	40 mg/kg
Acute toxicity		
Skin corrosion/irritation	Non-corrosive. Based on available data, the classification criteria are not met.	
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.	
Respiratory or skin sensitization		
Respiratory sensitization	Not a respiratory sensitizer. Based on available data, the classification criteria are not met.	
Skin sensitization	Not available.	
Germ cell mutagenicity	Contains no ingredient listed as a mutagen. Based on available data, the classification criteria are not met.	
Carcinogenicity	Not classified. Contains no ingredient listed as a carcinogen	
Reproductive toxicity	Contains no ingredient listed as toxic to reproduction. Based on available data, the classification criteria are not met.	
Routes of exposure	Inhalation. Ingestion. Skin contact. Eye contact.	
Specific target organ toxicity - single exposure	Not classified. Based on available data, the classification criteria are not met.	
Specific target organ toxicity - repeated exposure	Not classified. Based on available data, the classification criteria are not met.	
Aspiration hazard	Not an aspiration hazard.	
Chronic effects	Based on available data, the classification criteria are not met. Not applicable.	
Further information	None known.	

12. Ecological information

Ecotoxicity This material is not expected to be harmful to aquatic life.

Components	Species	Test Results
Sodium hydroxide (CAS 1310-73-2)		
Aquatic		
Crustacea	EC50	Water flea (Ceriodaphnia dubia) 34.59 - 47.13 mg/l, 48 hours
	LC50	Cockle (Cerastoderma edule) 330 - 1000 mg/l, 48 hours
		Common shrimp, sand shrimp (Crangon crangon) 33 - 100 mg/l, 48 hours
Fish	LC50	Bony fish superclass (Osteichthyes) 33 - 100 mg/l, 48 hours
		Western mosquitofish (Gambusia affinis) 125 mg/l, 48 hours 125 mg/l, 96 hours
Persistence and degradability	The product is not expected to be biodegradable.	
Bioaccumulative potential	The product is not bioaccumulating.	
Mobility in soil	Not considered mobile.	
Mobility in general	Not considered mobile.	
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.	

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

- 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.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2) Listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 hazard categories	Immediate Hazard - Yes
	Delayed Hazard - No
	Fire Hazard - No
	Pressure Hazard - No
	Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

US state regulations

US - New Jersey RTK - Substances: Listed substance

Sodium hydroxide (CAS 1310-73-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Sodium hydroxide (CAS 1310-73-2)

US. Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)

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

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Sodium hydroxide (CAS 1310-73-2)

US. Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)

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**

May 26, 2015: Change(s) in Section: 1, 2, 3, 4, 6, 8, 9, 10, 11 and 15.

November 3, 2009: New format. Change(s) in Section: 3

February 16, 2006: Reviewed on a periodic basis in accordance with Alcoa policy. Change(s) in Section: 1, 4 and 11

January 28, 2003: Change(s) in Section: 10.

Origination date: September 11, 1990

Hazardous Materials Control Committee

Preparer: Jim Perriello, +1-865-977-2051.

SDS System Number: 115930

Revision date

May 26, 2015.

Version #

05

Revision Information

Product and Company Identification: Product and Company Identification

Hazards Identification: US Hazardous

Composition / Information on Ingredients: Ingredients

Physical & Chemical Properties: Multiple Properties

Transport Information: Agency Name, Packaging Type, and Transport Mode Selection

Regulatory Information: Canada

HazReg Data: North America

GHS: Classification

Disclaimer

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

Other information

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
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

*** End of SDS ***

Precautionary statement

Prevention

Observe good industrial hygiene practices.

Response

Wash hands after handling.

Storage

Store away from incompatible materials.

Disposal

Dispose of waste and residues in accordance with local authority requirements.

Supplemental information

Direct contact: Can cause irritation of the eyes and skin. Dust: Can cause irritation of the upper respiratory tract.

FIRE FIGHTING MEASURES: Use fire fighting methods and materials that are appropriate for surrounding fire. Use water spray to cool exposed containers. Move undamaged containers away from heat or flame, if possible.

Heating the material above 392°F (200°C) will result in a sudden release of water vapor (steam).

IN CASE OF SPILL: Recover spills for reuse. Pick up mechanically. Avoid dust formation.

See Alcoa SDS Number 0694.