SAFETY DATA SHEET

1. Identification

Product identifier **SODIUM OXALATE**

Other means of identification

SDS number 322

Version # 05

Revision date October 26, 2015.

Other means of identification

Synonyms Sodium oxalate slurry * Sodium oxalate cake

Recommended use By-product from Bayer process for refining bauxite

Recommended restrictions For industrial use only.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Alcoa World Alumina LLC
201 Isabella Street
Pittsburgh, PA 15212-5858 US
Health and Safety E-mail: accmsds@alcoa.com
Health and Safety Tel: 1-412-553-4649
Health and Safety Fax: 1-412-553-4822

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 product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

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	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 4
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	
Authority defined hazards	Not classified.	

Label elements

Signal word Danger

Hazard statement Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. May be corrosive to metals.

Precautionary statement

Prevention Do not breathe dust or mists. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Keep only in original container.

Response	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a POISON CENTER or doctor/physician if you feel unwell. Take off contaminated clothing and wash it before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Absorb spillage to prevent material damage.
Storage	Store in corrosive resistant container with a resistant inner liner.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	Dust and mist: Can cause severe irritation of the upper respiratory tract. Chronic overexposures: Can cause respiratory tract damage and kidney damage. Non-combustible. Not an explosion hazard. Can react with certain metals (e.g., aluminum, magnesium, tin and zinc) to generate flammable hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces.

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	%
Water		7732-18-5	20 - 60
Sodium oxalate		62-76-0	10 - 50
Sodium hydroxide		1310-73-2	10 - 40
Aluminum hydroxide		21645-51-2	5 - 10
Sodium carbonate		497-19-8	4 - 5

4. First-aid measures

Eye contact	Immediately flush eyes with plenty of running water for at least 20 minutes including under the eyelids and all surfaces. Speed in rinsing eyes after contact is extremely important if permanent injury is to be avoided. If material comes into contact with the eye, flush eyes with water while holding eyelids apart to ensure complete irrigation. Get emergency medical care. Call 911 if available in your area.
Skin contact	Immediately remove contaminated clothing under a shower. Isolate contaminated clothing. Flush skin with running water for at least 20 minutes. Get medical attention if irritation develops and persists.
Inhalation	Remove to fresh air. Check for clear airway, breathing, and presence of pulse. Provide cardiopulmonary resuscitation for persons without pulse or respirations. If breathing is difficult, provide oxygen. Loosen any tight clothing on neck or chest. Consult a physician immediately.
Ingestion	If swallowed, dilute by drinking water. Recommend quantities up to 30 mL (~1 oz.) in children and 250 mL (~9 oz.) in adults. Do NOT neutralize with dilute vinegar, fruit juice or other acidic agents. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do NOT induce vomiting. Get emergency medical care. Call 911 if available in your area.
Most important symptoms/effects, acute and delayed	Direct contact: Can cause severe irritation, corrosive burns and permanent damage of the eyes and skin. Dust and mist: Can cause severe irritation of the upper respiratory tract. Harmful if swallowed. See Section 11 of the SDS for additional information on health hazards.
Medical conditions aggravated by exposure	Asthma, chronic lung disease, and skin rashes.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

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 Can react with certain metals (e.g., aluminum, tin, zinc and magnesium) to generate flammable hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces.

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 water spray to cool exposed containers. Move undamaged containers away from heat or flame, if possible. Water used for fire extinguishing, which has been in contact with the product, may be corrosive. Prevent runoff from entering drains, sewers, or streams.

General fire hazards Non-combustible. Not an explosion hazard.

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 Avoid generating dust or mist. Avoid contact with skin and eyes. Abundant running water should be available for emergency use. Use personal protection recommended in Section 8 of the SDS.

Personal precautions, protective equipment and emergency procedures

For emergency responders Avoid generating dust or mist. Avoid contact with skin and eyes. Use personal protection recommended in Section 8 of the SDS.

Evacuation procedures Keep unnecessary personnel away.

Methods and materials for containment and cleaning up Dike ahead of spill. Pick up mechanically. Equipment must be corrosion resistant. Flush contaminated areas with large amounts of water and direct rinsings to chemical sewer or collect for treatment. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings before discharge. Notify spill coordinator.

Environmental precautions Do not allow to enter drains, sewers or watercourses.

7. Handling and storage

Handling Avoid generating dust or mist. Avoid contact with skin and eyes. Keep container closed when not in use. Eye wash fountains should be located in the work areas and should be immediately accessible for emergency use. Chemical safety showers should be readily available in handling and storage areas. Use personal protection recommended in Section 8 of the SDS.

Storage Store in tightly closed containers in a cool, dry area. Store in corrosive resistant container with a resistant inner liner. Do not store in metal containers (aluminum, magnesium, tin or zinc). Use caution to prevent damage to or leakage from containers. Materials for absorbing/containing spills should be readily available. Abundant running water should be available for emergency use. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings before discharge.

8. Exposure controls/personal protection

Exposure guidelines The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

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 Limit Value: mg/m3

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
Sodium oxalate (CAS 62-76-0)	TWA	1.5 mg/m3	

General The need for personal protective equipment should be based upon a hazard assessment and recommendations from health / safety professionals.

Appropriate engineering controls If dust or mists are generated during processing: Use with adequate ventilation to meet the limits listed in Section 8.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses and face shield to avoid direct contact with eyes and face.

Skin protection

Hand protection Wear impervious gloves to avoid direct skin contact. Suitable materials: Neoprene, Butyl rubber or Nitrile
The most suitable glove must be chosen in consultation with the gloves supplier, who can inform about the breakthrough time of the glove material.

Other Wear appropriate gloves and clothing (e.g. boots, full body slicker suit) to avoid direct skin contact. Suitable materials: Neoprene, Butyl rubber or Nitrile. Launder contaminated clothing before reuse.

Respiratory protection If dust or mists are generated during processing: 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 None known.

General hygiene considerations Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke. Wash contaminated clothing before reuse.

Control parameters Follow standard monitoring procedures.

Environmental exposure controls Do not allow to enter drains, sewers or watercourses.

9. Physical and chemical properties

Form Slurry to solid.

Color Clear to Off-white.

Odor Odorless

Odor threshold Not applicable

pH 14

Density Not determined

Melting point/freezing point 482 - 518 °F (250 - 270 °C) Decomposes

Initial boiling point and boiling range Not applicable

Flash point Not applicable

Evaporation rate Not determined

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 determined
Vapor density	Not determined
Relative density	Not determined
Solubility(ies)	37 g/l @ 20°C
Specific gravity	Not determined
Partition coefficient (n-octanol/water)	Not applicable. Not determined
Auto-ignition temperature	Not applicable
Decomposition temperature	Not determined
Viscosity	Not determined

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	Can react with certain metals (e.g., aluminum, magnesium, tin and zinc) to generate flammable hydrogen gas.
Incompatible materials	Strong acids and oxidizing agents.
Hazardous decomposition products	Carbon monoxide and carbon dioxide.

11. Toxicological information

Health effects associated with ingredients

Sodium oxalate: Can cause irritation of eyes and skin. Acute overexposures: Can cause central nervous system effects (nausea, dizziness and loss of coordination). Chronic overexposures: Can cause kidney damage and kidney stones. Ingestion (concentrated solutions): Can cause severe irritation, central nervous system effects, cardiovascular collapse and death.

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.

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

Sodium carbonate: Can cause irritation of eyes, skin and upper respiratory tract. Acute overexposures (high concentrations): Can cause severe irritation and corrosive burns of eyes and skin. Ingestion (large quantities): Can cause vomiting, diarrhea, abdominal pain and cardiovascular collapse.

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 severe irritation, corrosive burns and permanent injury, including blindness.
Skin contact	Direct contact: Can cause severe irritation, corrosive burns and permanent injury.
Inhalation	Dust and mist: Can cause severe irritation of the upper respiratory tract. Chronic overexposures: Can cause respiratory tract damage and kidney damage.
Ingestion	Can cause severe irritation and corrosive burns. Harmful or fatal if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Direct contact: Can cause severe irritation and corrosive burns of the eyes and skin. Dust and mist: Can cause severe irritation of the upper respiratory tract. Chronic overexposures: Can cause respiratory tract damage and kidney damage. Ingestion: Can cause severe irritation and corrosive burns.

Information on toxicological effects

Components	Species	Test Results
Sodium carbonate (CAS 497-19-8)		
Acute		
Inhalation		
LC50	Guinea pig	0.8 mg/l, 2 Hours
	Mouse	1.2 mg/l, 2 Hours
	Rat	2.3 mg/l, 2 Hours
Oral		
LD50	Rat	4090 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rabbit	1350 mg/kg
Other		
LD50	Mouse	40 mg/kg
Sodium oxalate (CAS 62-76-0)		
Acute		
Oral		
LD50	Mouse	5094 mg/kg
	Rat	11160 mg/kg

Acute toxicity Harmful if swallowed. Harmful in contact with skin.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Pre-existing conditions aggravated by exposure Asthma, chronic lung disease, and skin rashes.

Carcinogenicity Based on available data, the classification criteria are not met.

ACGIH Carcinogens

Aluminum hydroxide (CAS 21645-51-2) Not classifiable as a human carcinogen. A4

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Sodium carbonate (CAS 497-19-8)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	156.6 - 298.9 mg/l, 48 hours
Fish	LC50	Bluegill (Lepomis macrochirus)	300 mg/l, 96 hours
Sodium hydroxide (CAS 1310-73-2)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	34.59 - 47.13 mg/l, 48 hours

Components		Species	Test Results
	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
Sodium oxalate (CAS 62-76-0)			
Aquatic			
Fish	LC50	Zebra danio (Danio rerio)	630 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential The product does not contain any substances expected to be bioaccumulating.

Mobility in soil Not established.

Mobility in general Not established.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Disposal must be made according to local or governmental regulations.

Waste codes RCRA Status if disposed of "as is": D002 for the slurry or not federally regulated for the solid. 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 UN1824

Proper shipping name Sodium hydroxide solution

Hazard class 8

Packing group II

General Shipping Notes

• Classification applies to: Slurry.
• Insert "RQ" reference for packages containing 8330 lbs. or greater.
• Precede proper shipping name with the word “Waste” when required to be shipped using a U.S. EPA hazardous waste manifest . • Add D002 to Section 13 of the Hazardous Waste Manifest.

Alternate Shipping Information

GSI Alternate Basic Shipping Description #1

Basic Shipping Information

ID number UN1823

Proper shipping name Sodium hydroxide, solid, mixture

Hazard class 8

Packing group II

Alternate Shipping Notes #1

• Classification applies to: Solid.
• Insert "RQ" reference for packages containing 6250 lbs. or greater.

IMDG Notes

• While exceptions may apply [e.g.; does not meet IMDG (International Maritime Dangerous Goods) marine pollutant criteria, domestic transport in some countries], if transported internationally by water, unless this material is already listed as a IMDG marine pollutant, a marine pollutant classification determination must be made in accordance with IMDG 2.9.3.3 or 2.9.3.4, as appropriate and prior to transport.

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 Yes

SARA 313 (TRI reporting)

Not regulated.

US state regulations

US. California Proposition 65

Not Listed.

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

October 26, 2015: New format.
October 14, 2014: Change(s) in Section: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15 and 16.
June 29, 2009: New format.
December 20, 2005: Reviewed on a periodic basis in accordance with Alcoa policy. Change(s) in Section: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14 and 15.
September 11, 2002: New format.

Origination date: October 15, 1982

Hazardous Materials Control Committee
Preparer: Jim Perriello, +1-865-977-2051.

SDS System Number: 145371

Revision date October 26, 2015.

Version # 05

Revision Information This document has undergone significant changes and should be reviewed in its entirety.

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

Other information

• Guide to Occupational Exposure Values 2015, 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.
• expub, Expert Publishing, LLC., www.expub.com,
• 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
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 ***

Hazard statement

Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. May be corrosive to metals.

Precautionary statement

Prevention

Do not breathe dust or mists. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Keep only in original container.

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a POISON CENTER or doctor/physician if you feel unwell. Take off contaminated clothing and wash it before reuse.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

Absorb spillage to prevent material damage.

Storage

Store in corrosive resistant container with a resistant inner liner.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Danger

Supplemental information

Dust and mist: Can cause severe irritation of the upper respiratory tract. Chronic overexposures: Can cause respiratory tract damage and kidney damage.

Non-combustible. Not an explosion hazard. Can react with certain metals (e.g., aluminum, magnesium, tin and zinc) to generate flammable hydrogen gas. These gases could present an explosion hazard in confined or poorly ventilated spaces.

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. Prevent runoff from entering drains, sewers, or streams.

IN CASE OF SPILL: Dike ahead of spill. Pick up mechanically. Equipment must be corrosion resistant.

Flush contaminated areas with large amounts of water and direct rinsings to chemical sewer or collect for treatment. Drains must have retention basins for pH adjustment and neutralization of spilled materials and flushings before discharge. Do not allow to enter drains, sewers or watercourses.

See Alcoa SDS Number 0322.