

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Aluminum oxide

Product Number : A6139

Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Target Organ Effect

##### Target Organs

Lungs, BoneLungs, Bone

Not a dangerous substance or mixture according to the Globally Harmonised System (GHS).

#### HMIS Classification

Health hazard: 0

Chronic Health Hazard: \*

Flammability: 0

Physical hazards: 0

#### NFPA Rating

Health hazard: 0

Fire: 0

Reactivity Hazard: 0

#### Potential Health Effects

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

**Ingestion** May be harmful if swallowed.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Alumina

Formula : Al<sub>2</sub>O<sub>3</sub>

Molecular Weight : 101.96 g/mol

Component	Concentration
-----------	---------------

<b>Aluminium oxide</b>		
CAS-No.	1344-28-1	-
EC-No.	215-691-6	

#### 4. FIRST AID MEASURES

**General advice**

Move out of dangerous area.

**If inhaled**

If breathed in, move person into fresh air. If not breathing, give artificial respiration.

**In case of skin contact**

Wash off with soap and plenty of water.

**In case of eye contact**

Flush eyes with water as a precaution.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water.

#### 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - Aluminum oxide

**Further information**

Do not use halocarbon extinguishers. The product itself does not burn.

#### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**

Avoid dust formation. Avoid breathing vapors, mist or gas.

**Environmental precautions**

No special environmental precautions required.

**Methods and materials for containment and cleaning up**

Sweep up and shovel. Keep in suitable, closed containers for disposal.

#### 7. HANDLING AND STORAGE

**Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

strongly hygroscopic

#### 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Aluminium oxide	1344-28-1	TWA	15 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

		TWA	10 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	5 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
Remarks	alpha-Alumina is the main component of technical grade alumina. Corundum is natural Al <sub>2</sub> O <sub>3</sub> . Emery is an impure crystalline variety of Al <sub>2</sub> O <sub>3</sub> . See Appendix D - Substances with No Established RELs			

## Personal protective equipment

### Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

### Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

#### Immersion protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 480 min

Material tested: Dermatril® (Aldrich Z677272, Size M)

#### Splash protection

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: > 30 min

Material tested: Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Eye protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

### Skin and body protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

### Hygiene measures

General industrial hygiene practice.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form solid

Colour no data available

### Safety data

pH 9.4 - 10.1 at 20 °C (68 °F)

Melting point/freezing point Melting point/range: 2,040 °C (3,704 °F) - lit.

Boiling point 2,980 °C (5,396 °F)

Flash point	no data available
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	1 hPa (1 mmHg) at 2,158 °C (3,916 °F)
Density	4.000 g/cm <sup>3</sup>
Water solubility	insoluble
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

---

## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

Exposure to moisture.

### Materials to avoid

Strong acids, Strong bases, Chlorine trifluoride, Ethylene oxide, Halogenated hydrocarbon, Oxygen difluoride, Sodium nitrate, Vinyl compounds

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Aluminum oxide

Other decomposition products - no data available

---

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

no data available

#### Inhalation LC50

no data available

#### Dermal LD50

no data available

#### Other information on acute toxicity

no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### **Carcinogenicity**

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### **Reproductive toxicity**

no data available

### **Teratogenicity**

no data available

### **Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

### **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

### **Aspiration hazard**

no data available

### **Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. May cause respiratory tract irritation.
<b>Ingestion</b>	May be harmful if swallowed.
<b>Skin</b>	May be harmful if absorbed through skin. May cause skin irritation.
<b>Eyes</b>	May cause eye irritation.

### **Signs and Symptoms of Exposure**

Cough, chest pain, Difficulty in breathing, Gastrointestinal disturbance

### **Synergistic effects**

no data available

### **Additional Information**

RTECS: BD1200000

---

## **12. ECOLOGICAL INFORMATION**

### **Toxicity**

no data available

### **Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

no data available

---

**13. DISPOSAL CONSIDERATIONS****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

**Contaminated packaging**

Dispose of as unused product.

---

**14. TRANSPORT INFORMATION****DOT (US)**

Not dangerous goods

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods

---

**15. REGULATORY INFORMATION****OSHA Hazards**

Target Organ Effect

**SARA 302 Components**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	2007-03-01

**SARA 311/312 Hazards**

Chronic Health Hazard

**Massachusetts Right To Know Components**

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	2007-03-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	2007-03-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Aluminium oxide	1344-28-1	2007-03-01

**California Prop. 65 Components**

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

---

**16. OTHER INFORMATION****Further information**

Copyright 2012 Sigma-Aldrich Co. LLC. License granted to make unlimited paper copies for internal use only.

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

---