

## Chemical Safety Data Sheet MSDS / SDS

**SODIUM ALUMINUM OXIDE**Revision Date:2023-12-07 Revision Number:1

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****Product identifier**

Product name : SODIUM ALUMINUM OXIDE  
CBnumber : CB1112735  
CAS : 1302-42-7  
EINECS Number : 215-100-1  
Synonyms : NaAlO<sub>2</sub>,sodium aluminum oxide

**Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

**Company Identification**

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

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**SECTION 2: Hazards identification****Classification of the substance or mixture**

Corrosive to metals, Category 1  
Skin corrosion, Sub-category 1A  
Serious eye damage, Category 1

**Label elements****Pictogram(s)**

□

Signal word : Danger

**Hazard statement(s)**

H314 Causes severe skin burns and eye damage  
H318 Causes serious eye damage

**Precautionary statement(s)**

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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P405 Store locked up.

#### **Prevention**

P234 Keep only in original packaging.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P264 Wash ... thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

#### **Response**

P390 Absorb spillage to prevent material damage.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P305+P354+P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P317 Get medical help.

#### **Storage**

P406 Store in a corrosion resistant/...container with a resistant inner liner.

P405 Store locked up.

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

|              |                                                  |
|--------------|--------------------------------------------------|
| Product name | : SODIUM ALUMINUM OXIDE                          |
| Synonyms     | : NaAlO <sub>2</sub> , sodium aluminum oxide     |
| CAS          | : 1302-42-7                                      |
| EC number    | : 215-100-1                                      |
| MF           | : Al <sub>2</sub> Na <sub>2</sub> O <sub>4</sub> |
| MW           | : 163.94                                         |

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## SECTION 4: First aid measures

### **Description of first aid measures**

**If inhaled**

Fresh air, rest. Refer for medical attention.

**Following skin contact**

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer for medical attention .

**Following eye contact**

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

**Following ingestion**

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

**Most important symptoms and effects, both acute and delayed**

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: TOXIC; inhalation, ingestion or skin contact with material may cause severe injury or death. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

Material is caustic. Irritates skin, eyes, and gastrointestinal tract, causing redness of skin and eyes, burning sensation of mucous membranes. (USCG, 1999)

**Indication of any immediate medical attention and special treatment needed**

Treatment: to relieve the gi distress /caused by swallowing aluminum salts/... the degree of dehydration & electrolyte loss caused by vomiting & diarrhea must be determined, & corrected by iv infusions of appropriate solutions. aluminum salts

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## SECTION 5: Firefighting measures

**Extinguishing media**

Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: SMALL FIRE: Dry chemical, CO2 or water spray. LARGE FIRE: Dry chemical, CO2, alcohol-resistant foam or water spray. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. (ERG, 2016)

**Specific Hazards Arising from the Chemical**

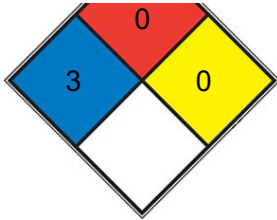
Excerpt from ERG Guide 154 [Substances - Toxic and/or Corrosive (Non-Combustible)]: Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Some are oxidizers and may ignite combustibles (wood, paper, oil, clothing, etc.). Contact with metals may evolve flammable hydrogen gas. Containers may explode when heated. For electric vehicles or equipment, ERG Guide 147 (lithium ion batteries) or ERG Guide 138 (sodium batteries) should also be consulted. (ERG, 2016)

Behavior in Fire: Containers may burst when exposed to heat. (USCG, 1999)

**Advice for firefighters**

In case of fire in the surroundings, use appropriate extinguishing media.

**NFPA 704**



■ HEALTH 3 Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

■ FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium,[N2](#))

□ SPEC.  
□ HAZ.

## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. Wash away remainder with plenty of water.

### Environmental precautions

Personal protection: particulate filter respirator adapted to the airborne concentration of the substance. Sweep spilled substance into covered containers. Wash away remainder with plenty of water.

### Methods and materials for containment and cleaning up

Aq waste solutions containing sodium aluminate are acidified with sulfuric acid & treated with a weakly basic cmpd (ph 7-11) to improve ppt & filterability of aluminum cmpd.

## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs and acids. Dry.

## SECTION 8: Exposure controls/personal protection

### Control parameters

### Occupational Exposure limit values

no data available

### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear safety goggles, face shield or eye protection in combination with breathing protection.

#### Skin protection

Protective gloves. Protective clothing.

#### Respiratory protection

Use local exhaust or breathing protection.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

|                                                          |                                                                                                            |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| Physical state                                           | Crystalline                                                                                                |
| Colour                                                   | White                                                                                                      |
| Odour                                                    | no data available                                                                                          |
| Melting point/freezing point                             | 1 650 °C.                                                                                                  |
| Boiling point or initial boiling point and boiling range | 239° F at 760 mm Hg (USCG, 1999)                                                                           |
| Flammability                                             | Not combustible.                                                                                           |
| Lower and upper explosion limit/flammability limit       | no data available                                                                                          |
| Flash point                                              | no data available                                                                                          |
| Auto-ignition temperature                                | no data available                                                                                          |
| Decomposition temperature                                | no data available                                                                                          |
| pH                                                       | pH : >=14 (50g/L)                                                                                          |
| Kinematic viscosity                                      | dynamic viscosity (in mPa s) = 121. Temperature:20°C.;dynamic viscosity (in mPa s) = 37. Temperature:40°C. |
| Solubility                                               | SOL IN WATER; INSOL IN ALCOHOL                                                                             |
| Partition coefficient n-octanol/water                    | no data available                                                                                          |
| Vapour pressure                                          | no data available                                                                                          |
| Density and/or relative density                          | 2.602 g/cm <sup>3</sup> . Temperature:20 °C.;2.6. Temperature:20 °C.                                       |
| Relative vapour density                                  | no data available                                                                                          |

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## SECTION 10: Stability and reactivity

### Reactivity

The solution in water is a strong base. It reacts violently with acid and is corrosive to aluminium, tin and zinc. Reacts with ammonium salts. This generates fire hazard.

### Chemical stability

no data available

### Possibility of hazardous reactions

SODIUM ALUMINATE, [SOLID] dissolves in water to produce a corrosive alkaline solution. Reacts exothermically with acids. Corrosive to metals. Not compatible with copper, tin, zinc, aluminum, acids, phosphorus, or chlorocarbons.

### Conditions to avoid

no data available

### Incompatible materials

no data available

### Hazardous decomposition products

no data available

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## SECTION 11: Toxicological information

### Acute toxicity

- Oral: no data available
- Inhalation: LC50 - rat (male) - > 1 000 mg/m<sup>3</sup> air.
- Dermal: no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/irritation

no data available

### Respiratory or skin sensitization

no data available

### Germ cell mutagenicity

no data available

### Carcinogenicity

A4: Not classifiable as a human carcinogen. Aluminum metal and insoluble compounds

### **Reproductive toxicity**

no data available

### **STOT-single exposure**

The substance is corrosive to the eyes, skin and respiratory tract. Corrosive on ingestion. Medical observation is indicated.

### **STOT-repeated exposure**

no data available

### **Aspiration hazard**

Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly when dispersed.

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## SECTION 12: Ecological information

### **Toxicity**

Toxicity to fish: EC50 - *Salmo trutta* - > 100 mg/L - 96 h.

Toxicity to daphnia and other aquatic invertebrates: LC50 - *Daphnia magna* - 720.8 - 787.8 µg/L - 48 h.

Toxicity to algae: EC50 - *Pseudokirchneriella subcapitata* (previous names: *Raphidocelis subcapitata*, *Selenastrum capricornutum*) - 1 282 µg/L - 72 h.

Toxicity to microorganisms: EC50 - activated sludge of a predominantly domestic sewage - > 100 mg/L - 3 h. Remarks:Respiration rate.

### **Persistence and degradability**

no data available

### **Bioaccumulative potential**

no data available

### **Mobility in soil**

no data available

### **Other adverse effects**

no data available

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## SECTION 13: Disposal considerations

### **Disposal methods**

#### **Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

#### **Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to

make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

### UN Number

ADR/RID: UN1819 (For reference only, please check.)

IMDG: UN1819 (For reference only, please check.)

IATA: UN1819 (For reference only, please check.)

### UN Proper Shipping Name

ADR/RID: SODIUM ALUMINATE SOLUTION (For reference only, please check.)

IMDG: SODIUM ALUMINATE SOLUTION (For reference only, please check.)

IATA: SODIUM ALUMINATE SOLUTION (For reference only, please check.)

### Transport hazard class(es)

ADR/RID: 8 (For reference only, please check.)

IMDG: 8 (For reference only, please check.)

IATA: 8 (For reference only, please check.)

### Packing group, if applicable

ADR/RID: II (For reference only, please check.)

IMDG: II (For reference only, please check.)

IATA: II (For reference only, please check.)

### Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

### Special precautions for user

no data available

### Transport in bulk according to IMO instruments

no data available

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## SECTION 15: Regulatory information

### Safety, health and environmental regulations specific for the product in question

#### European Inventory of Existing Commercial Chemical Substances (EINECS)

Listed.

#### EC Inventory

Listed.



### **United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

### **China Catalog of Hazardous chemicals 2015**

Listed.

### **New Zealand Inventory of Chemicals (NZIoC)**

Listed.

### **PICCS**

Listed.

### **Vietnam National Chemical Inventory**

Listed.

### **IECSC**

Listed.

### **Korea Existing Chemicals List (KECL)**

Listed.

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## SECTION 16: Other information

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pagelD=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pagelD=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

### **Other Information**

Other UN numbers: 1819 (sodium aluminate, 80% solution): hazard class: 8, pack group: III. Other CAS number: 11138-49-1.

**Disclaimer:**

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.