1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Aluminum
Product Number : 653608
Brand : Aldrich
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +18003255832
Fax : +18003255052
Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Water Reactive

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger
Hazard statement(s)
H250 Catches fire spontaneously if exposed to air.
H261 In contact with water releases flammable gases.
H400 Very toxic to aquatic life.

Precautionary statement(s)
P222 Do not allow contact with air.
P231 + P232 Handle under inert gas. Protect from moisture.
P273 Avoid release to the environment.
P422 Store contents under inert gas.

HMIS Classification
Health hazard: 0
Flammability: 3
Physical hazards: 1

NFPA Rating
Health hazard: 0
Fire: 0
Reactivity Hazard: 1
Special hazard: W

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.
Formula : Al
Molecular Weight : 26.98 g/mol

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>EC-No.</th>
<th>Index-No.</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>7429-90-5</td>
<td>231-072-3</td>
<td>013-001-00-6</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Consult a physician.

**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. Consult a physician.

5. FIRE-FIGHTING MEASURES

**Suitable extinguishing media**
Carbon dioxide (CO2) Dry powder

**Extinguishing media which shall not be used for safety reasons**
Water

**Special protective equipment for fire-fighters**
Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods and materials for containment and cleaning up**
Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Do not flush with water. Keep in suitable, closed containers for disposal. Contain spillage, pick up with an electrically protected vacuum cleaner or by wet-brushing and transfer to a container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

**Precautions for safe handling**
Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage.

Store under inert gas. Keep in a dry place.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Update</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminium</td>
<td>7429-90-5</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>2008-01-01</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks
Lower Respiratory Tract irritation Pneumoconiosis Neurotoxicity Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.

<table>
<thead>
<tr>
<th>TWA</th>
<th>15 mg/m³</th>
<th>1997-08-04</th>
<th>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</th>
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Personal protective equipment

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. 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. Protective gloves against thermal risks

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

Skin and body protection
Flame retardant antistatic protective clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form          powder

Safety data
pH            no data available
Melting point 660.37 °C (1,220.67 °F)
Boiling point 2,460 °C (4,460 °F)
Flash point   not applicable
Ignition temperature 760 °C (1,400 °F) -  
Lower explosion limit no data available  
Upper explosion limit no data available  
Density 2.7 g/mL at 25 °C (77 °F)  
Water solubility no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
Reacts violently with water.

Conditions to avoid
Exposure to moisture.

Materials to avoid
acids, Acid chlorides, Halogens, Oxidizing agents, Bases, Oxygen

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Aluminum oxide

11. TOXICOLOGICAL INFORMATION

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
IARC: 1 - Group 1: Carcinogenic to humans (Aluminium)
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

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

**Signs and Symptoms of Exposure**
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Additional Information**
RTECS: BD0330000

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### 12. ECOLOGICAL INFORMATION

**Toxicity**
- Toxicity to fish mortality LOEC - Ctenopharyngodon idella - 0.1 mg/l - 96 h
- LC50 - Oncorhynchus mykiss (rainbow trout) - 0.12 mg/l - 96 h

**Persistence and degradability**
no data available

**Bioaccumulative potential**
- Bioaccumulation Salvelinus fontinalis - 56 d
- Bioconcentration factor (BCF): 36

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**
- An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
- Very toxic to aquatic life.
no data available

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### 13. DISPOSAL CONSIDERATIONS

**Product**
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

**Contaminated packaging**
Dispose of as unused product.

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### 14. TRANSPORT INFORMATION

**DOT (US)**
- UN-Number: 1396  Class: 4.3  Packing group: II
- Proper shipping name: Aluminum powder, uncoated
- Marine pollutant: No
- Poison Inhalation Hazard: No

**IMDG**
- UN-Number: 1396  Class: 4.3  Packing group: II
- Proper shipping name: ALUMINIUM POWDER, UNCOATED
- Marine pollutant: No

**IATA**
- UN-Number: 1396  Class: 4.3  Packing group: II
- Proper shipping name: Aluminium powder, uncoated

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### 15. REGULATORY INFORMATION
OSHA Hazards
Water Reactive

DSL Status
All components of this product are on the Canadian DSL list.

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

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SARA 311/312 Hazards
Reactivity Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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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
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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 Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.