1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Aluminum nitrate nonahydrate
Product Number: 237973
Brand: Sigma-Aldrich
Supplier: Sigma-Aldrich
3650 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 609-325-5832
Fax: +1 609-325-5055
Emergency Phone # (For both supplier and manufacturer): (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8696

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Carcinogen, Initiator
GHS Classification
Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
GHS Label elements, including precautionary statements
Pictogram
Applying the GHS pictograms
Signal word: Warning
Hazard statement(s)
H303 May be harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
Precautionary statement(s)
P261 + P501 + P339 MUST WEAR EYE PROTECTION WHEN HANDLING THIS PRODUCT. IN CASE OF CONTACT WITH EYES, RINSE WITH large AMOUNTS OF CLEAN WATER FOR AT LEAST 15 MINUTES OR UNTIL MEDICAL TREATMENT IS RECEIVED. IF SWALLOWED, DO NOT INDUCE VOMITING. Rinse mouth with water. Consult a physician.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: Al(NO3)3 \cdot 9H2O
Molecular Weight: 375.13 g/mol
Component: Aluminum nitrate nonahydrate
CAS-No.: 7784-27-2
EC-No.: 238-751-6
Concentration: 90 - 100 %

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
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.
Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
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 - nitrogen oxides (NOx), Aluminum oxide

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
Environmental precautions
Do not let product enter drains.
Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
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.

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>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum nitrate nonahydrate</td>
<td>7784-27-2</td>
<td>TWA</td>
<td>7 mg/m³</td>
<td>USA, OSHA - TABLE 7.1 Limits for Air Contaminants - 1910.1000</td>
</tr>
</tbody>
</table>

Personal protective equipment

Respiratory protection
For nuisance exposures use type P85 (US) or type P- (EU EN 143) particle respirator. For higher level protection use type OVAG/P85 (US) or type ABEK-P2 (EU EN '43) respirator cartridges. 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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677273, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677273, Size M)

data source; KCL GmbH, D-36124 Eichenzell, phone +49 (0)6655 67300, 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 and safety officer 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
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Impervious 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: solid
Colour: colourless

Safety data
pH: 2.5 - 3.5 at 25 °C (77 °F)
Melting point/naring point: 73 °C (163 °F) - lit.
Point of freezing/melting point: no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Avoid moisture.

Materials to avoid
Strong reducing agents, Powdered metals, Strong acids

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions - nitrogen oxides (NOx), Aluminum oxide

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
LD50 Oral: rat - 3,871 mg/kg
Remarks: Behavioral: Somnolence (general depressed activity), Gastrointestinal: Changes in structure or function of salivary glands.

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

no data available
Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity
IARC: 2A - Group 2A: Probably carcinogenic to humans (Aluminium nitrate nonhydrate)

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
Reproductive toxicity - rat - Oral
Effects on Newborn: Physical.

Teratogenicity
Developmental Toxicity - rat - Oral
Effects on Embryo or Fetus: Fetal toxicity (except death, e.g., stunted fetus). Effects on Embryo or Fetus: Fetal death.
Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

Developmental Toxicity - rat - Oral
Specific Developmental Abnormalities: Musculoskeletal system.

Developmental Toxicity - rat - Oral
Specific Developmental Abnormalities: Cardiovascular (circulatory) system.

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. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

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

Synergistic effects
no data available

Additional Information
RTECS: BD1655000

12. ECOLOGICAL INFORMATION
Toxicity
no data available

Persistence and degradability
no data available

Bioaccumulative potential
no data available

Mobility in soil
no data available

13. DISPOSAL CONSIDERATIONS
Product
Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. 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
Carcinogen, Irritant

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
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
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<th>Revision Date</th>
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<td>7784-27-2</td>
<td>1969-06-11</td>
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New Jersey Right To Know Components

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<td>Aluminium nitrate nonhydrate</td>
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<td>1989-08-11</td>
</tr>
</tbody>
</table>

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 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 and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.