1. PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>Product name</th>
<th>Ammonium nitrate</th>
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<tbody>
<tr>
<td>Product Number</td>
<td>221244</td>
</tr>
<tr>
<td>Brand</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td>Supplier</td>
<td>Sigma-Aldrich</td>
</tr>
<tr>
<td></td>
<td>3050 Spruce Street</td>
</tr>
<tr>
<td></td>
<td>SAINT LOUIS MO 63103 USA</td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 800-325-5832</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800-325-5052</td>
</tr>
<tr>
<td>Emergency Phone #</td>
<td>(314) 776-6555</td>
</tr>
<tr>
<td>Preparation Information</td>
<td>Sigma-Aldrich Corporation</td>
</tr>
<tr>
<td></td>
<td>Product Safety - Americas Region</td>
</tr>
<tr>
<td></td>
<td>1-800-521-8956</td>
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</table>

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Oxidizer, Target Organ Effect, Irritant

Target Organs
Blood, Central nervous system

GHS Classification
Oxidizing solids (Category 3)
Acute toxicity, Oral (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 3), Respiratory system

GHS Label elements, including precautionary statements

Pictogram

Signal word         Warning

Hazard statement(s)
H272    May intensify fire; oxidiser.
H303    May be harmful if swallowed.
H315    Causes skin irritation.
H319    Causes serious eye irritation.
H335    May cause respiratory irritation.

Precautionary statement(s)
P220    Keep/Store away from clothing/ combustible materials.
P261    Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Health hazard: 2
Chronic Health Hazard: *
Flammability: 0
Physical hazards: 1

NFPA Rating
  Health hazard: 2
  Fire: 0
  Reactivity Hazard: 1
  Special hazard: OX

Potential Health Effects
  Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
  Skin: May be harmful if absorbed through skin. Causes skin irritation.
  Eyes: Causes eye irritation.
  Ingestion: May be harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

  Formula: H₄N₂O₃
  Molecular Weight: 80.04 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Concentration</th>
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</thead>
<tbody>
<tr>
<td>Ammonium nitrate</td>
<td></td>
</tr>
<tr>
<td>CAS-No.</td>
<td>6484-52-2</td>
</tr>
<tr>
<td>EC-No.</td>
<td>229-347-8</td>
</tr>
<tr>
<td>90 - 100 %</td>
<td></td>
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</table>

4. FIRST AID MEASURES

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

  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)

  Further information
  Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

  Personal precautions
  Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
Environmental precautions
Do not let product enter drains.

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). 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. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.

Hygroscopic. Store under inert gas.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, 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**: no data available

**Safety data**
- **pH**: 4.5 - 6.0 at 80.40 g/l at 25 °C (77 °F)
- **Melting point/range**: 169 °C (336 °F) - lit.
- **Boiling point**: 210 °C (410 °F) - lit.
- **Flash point**: no data available
- **Ignition temperature**: no data available
- **Auto-ignition temperature**: no data available
- **Lower explosion limit**: no data available
- **Upper explosion limit**: no data available
- **Vapour pressure**: no data available
- **Density**: 1.72 g/cm³ at 20 °C (68 °F)
- **Water solubility**: 2,130 g/l at 25 °C (77 °F)
- **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**
no data available

**Materials to avoid**
Reducing agents, Powdered metals, Strong acids

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

**Acute toxicity**
- **Oral LD50**
  - LD50 Oral - rat - 2,217 mg/kg

**Inhalation LC50**
- 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 sensitisation
no data available

Germ cell mutagenicity
no data available

Carcinogenicity

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)
Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

| Ingestion | May be harmful if swallowed. Causes skin irritation. |
| Skin      | May be harmful if absorbed through skin. Causes skin irritation. |
| Eyes      | Causes eye irritation. |

Signs and Symptoms of Exposure
Gastrointestinal disturbance, Blood disorders, 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: BR9050000

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
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.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1942  Class: 5.1  Packing group: III
Proper shipping name: Ammonium nitrate
Reportable Quantity (RQ):
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1942  Class: 5.1  Packing group: III  EMS-No: F-H, S-Q
Proper shipping name: AMMONIUM NITRATE
Marine pollutant: No

IATA
UN number: 1942  Class: 5.1  Packing group: III
Proper shipping name: Ammonium nitrate

15. REGULATORY INFORMATION

OSHA Hazards
Oxidizer, Target Organ Effect, 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
The following components are subject to reporting levels established by SARA Title III, Section 313:

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<thead>
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<tbody>
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SARA 311/312 Hazards
Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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Pennsylvania Right To Know Components

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</table>
Ammonium nitrate 6484-52-2 1993-04-24

**New Jersey Right To Know Components**
Ammonium nitrate 6484-52-2 1993-04-24

**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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